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Skill Development of Modern Apprenticeship with Chinese Characteristics – A Case Study

Abstract

Apprenticeship has rarely received so much attention as it is getting now. Faced with persistently high levels of youth unemployment and great demand for economic development, the governments of many countries have (re)discovered the benefits that apprenticeship can bring and attempt to revive and expand apprenticeship of their own. The Chinese government is now trying to address the skill shortage and the market mismatch of supply and demand in manufacturing and high technology sectors by policy transfer and grope for the right road to a Modern Apprenticeship with Chinese characteristics.

This paper will give an overview of the current development of apprenticeship in China. Section 1 denotes the definition and benefits of apprenticeship; section 2 introduces the development status of Chinese apprenticeship and related governmental actions briefly; section 3 presents a case study on a pilot project between Guangzhou Railway Vocational and Technical College and Internet of Things Association of Guangdong Province; section 4 tries to provide suggestions for the future development of apprenticeship. Evidence is drawn primarily from published secondary sources and reports the pilot schools submitted.

Keywords: *Modern Apprenticeship; China; Vocational Education and Training; Case Study*

1 The Definition of Apprenticeship

Vocational education and general education constitute the overall educational system, and apprenticeship is treated as part of vocational education (Ryan 2000). Apprenticeship itself is not easy to define and compare consistently among different countries, nations and civilizations. CEDEFOP is one of the EU's decentralized agencies mandated to promote the development of European vocational education and training (VET) policies and contribute to their implementation. According to CEDEFOP, "Dual VET" (which can be considered as apprenticeship in the wider sense) is characterized by the following features: (a) learning that alternates between a workplace and an educational or training institution; (b) part of formal education and training; (c) on successful completion: learners acquire a qualification and receive an officially recognized certificate (CEDEFOP 2014). "Dual" means that the vocational training institutions offer theoretical and basic knowledge, while companies provide specialized and applied training. When it comes to defining apprenticeship (in the strict sense) as a distinct subgroup within dual VET, except for the three attributes mentioned above, the definition of apprenticeships includes two additional characteristics: firstly,

apprentices usually have the status of employees and are paid for their work; secondly, the establishment of apprenticeship relationship is ideally based on a contract or formal agreement between employer and learner, but sometimes, based on a contract with education and training institution (CEDEFOP 2016).

Public interests in reviving apprenticeship reflect several considerations. Firstly, youth employment depends to a large extend on human resource development of youth and on education, particularly, vocational education and training. Apprenticeship makes a contribution to promoting youth employment, preventing structural unemployment and ensuring a smooth transition from school to work. Secondly, there are many educational advantages of apprenticeship, in terms of the motivational and cognitive benefits of combining theoretical with practical, and classroom-based with work-based learning. Thirdly, taking into account the view of enterprises, apprenticeship tends to yield higher financial returns, reduces the cost of education and training and saves time for recruitment, compared with either full-time vocational education or simple on-job training.

2 An Overview of Apprenticeship Pilot Projects in China

Simple school education can't solve the persistent problem: the gap between vocational school education and enterprise work practice. After a long period of depression in China, apprenticeship, as the globally recognized best way to narrow the gap, has started to win public attention finally. In general, Chinese apprenticeship is implemented by two institutions, one is Ministry of Education (MoE), and the other is Ministry of Human Resources and Social Security (MoHRSS). These two institutions, although standing on the different grounds, make efforts toward the same goal: aiming to provide industrial workers with multiple skills and a high degree of adaptability. Two apprenticeship policies released by MoE and MoHRSS respectively will be described below.

2.1 Modern Apprenticeship (MA) Pilot Project

In 2014, the Ministry of Education released a document titled "Suggestions on Implementing the Pilot Project of Modern Apprenticeship (MA)", putting forward four requirements: firstly, to facilitate the integration of students' enrollment and apprentices recruitment and encourage schools and enterprises to jointly make recruiting plans; secondly, 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; thirdly, to strengthen the construction of the teaching staff, consisting of teachers from schools and masters from enterprises; lastly, to form an administration and operation mechanism suitable and favorable for modern apprenticeship. This apprenticeship pilot plan is mainly conducted by educational training institutes and supplemented by enterprises (MoE 2014).

Table 1: **Modern Apprenticeship (MA) Pilot Project**

Phases	Number of Covering Areas	Number of trade unions and Industrial organizations	Number of Enterprises	Number of higher vocational colleges	Number of secondary vocational schools	Total number
Frist phase Aug.2015	17	13	8	100	27	165
Second phase Aug.2017	2	4	5	154	38	203
Third phase Aug.2018	1	4	4	156	29	194

The Ministry of Education has carried out MA pilot project three times in 2015, 2017 and 2018. Every participant body has its own responsibility. The local educational authorities are responsible to implement the supportive policies; developing various standards and regulations to normalize the operation of modern apprenticeship is in the charge of industrial organizations; the vocational schools' task is to make a set of complete and elaborate plans for skills development; enterprises are required to participate in the process of implementation and explore the operation approach and incentive mechanism. The chosen enterprises need to have the capacities to support apprentices, such as ample and advanced facilities, qualified teaching staff and well-established vocational training system.

2.2 Enterprise-led New-type Apprenticeship (ENA) Pilot Project

Realizing the importance of skilled work force for the industry transformation and upgrading and employment stability, the Ministry of Human Resources and Social Security and the Ministry of Finance pooled their forces and issued Notice of Implementing Enterprise-led New-type Apprenticeship (ENA) Pilot Project in 2015. After a year, these two ministries continued to carry out the second pilot project, and further broaden the coverage area of ENA to 10 more provinces. Three to five large and medium-size enterprises were chosen from each of 22 pilot provinces, and these chosen enterprises must satisfy the following conditions: taking priority of the development of skilled talents; having well-established enterprise staff training system; building the incentive mechanism of wages which are increasingly tied to work performance and skills; and ensuring that the number of skilled labours account for 60% of the total staff. Every enterprise was required to select about 100 people to participate in the apprenticeship training, and these participants are required to be the newly recruited employees or newly transferred employees, who signed labour contracts with the enterprises more than six months ago(MoHRSS & MoF 2015).

ENA aims to explore the new model of staff training by giving full play to the principal role of private sectors, so the main responsibility falls primarily on enterprises. In contrast to the above-mentioned MA, ENA is mainly conducted by enterprises and supplemented by training

institutes. Training institutes include vocational schools, vocational training institutes and enterprise training centers. The enterprises should sign training agreements with apprentices and identify the goals, training contents, training term and evaluation method. In addition of the training agreement, the cooperation agreement signed by enterprises and training institutes is also one of the must-haves. The apprentices are trained both by workplace trainers from enterprises and school teachers from training institutes under a flexible credit system. The training period usually lasts 1 to 2 years, and 3 years in some special situations. Professional knowledge, operating skills, production specifications and regulations as well as vocational literacy and key competences constitute the main training contents. After passing the evaluation, the apprentices of ENA gain the corresponding vocational certificates. The apprentices must at least earn the minimum wage standard of apprentice basic wage. Enterprises must pay a contribution of Employee Education Expenses to training institutes, and then get financial subsidies from the government ("pay-now-subsidize-later approach"). The trainers can get an allowance which is supported by enterprises.

Table 2: **Enterprise-led New-type Apprenticeship (ENA) Pilot Project**

Phases	**Pilot Provinces**	
First Phase July 2015	12 Provinces	Beijing Municipality, Tianjin Municipality, Inner Mongolia Autonomous Region, Liaoning Province, Shanghai Municipality, Jiangsu Province, Shandong Province, Henan Province, Guangdong Province, Chongqing Municipality, Sichuan Province, Gansu Province
Second Phase July 2016	10 Provinces	Hebei Province, Shanxi Province, Jilin Province, Heilongjiang Province, Zhejiang Province, Fujian Province, Jiangxi Province, Hubei Province, Guangxi Zhuang Autonomous Region, Yunnan Province

In October 2018, Suggestions on fully implementing Enterprise-led New-type Apprenticeship was released. MoHRSS and Ministry of Finance proposed a grand goal and expected to train more than 500,000 apprentices by the end of 2020. There are some changes in the specific regulations compared with the previous policies: as for the training objects, the required labour contract term for the apprentices is changed from more than 6 months to more than 1 year; as for the wage, enterprises are required to pay the apprentice wage of not less than minimum wage where the enterprise is located; as for financial support, the pay-now-subsidize-later approach of subsidy payment is cancelled and the financial agency will advance the training enterprises no more than 50% of the subsidy at the beginning and transfer the rest of the subsidy after the completion of the training task. This kind of apprenticeship dominated by private sectors can encourage apprentices to sign a medium and long-term labour contract with the training enterprises, raise wages and benefits and realize the stable and high-quality employment (MoHRSS & MoF 2018).

2.3 Comparison between MA and ENA

Table 3: **Comparison between MA and ENA**

Pilot Project	Modern Apprenticeship (MA)	Enterprise-led New-type Apprenticeship (ENA) (before Oct. 2018)	Enterprise-led New-type Apprenticeship (ENA) (after Oct. 2018)
Administrative Department in Charge	Ministry of Education	Ministry of Human Resources and Social Security and Ministry of Finance	Ministry of Human Resources and Social Security and Ministry of Finance
Training Subject	Training institutes-centered and enterprises-assisted	Enterprises-centered and training institutes-assisted	Enterprises-centered and training institutes-assisted
Training Object	students from secondary and higher vocational schools	newly recruited employees and newly transferred employees who have signed the labor contract with the enterprises for more than 6 months	newly recruited employees and newly transferred employees who have signed the labor contract with the enterprises for more than 1 years
Training Term	1~3 years	1~3 years	1~3 years
Training Fund	local governments and enterprises	pay-now-subsidize-later approach of subsidy payment	subsidize half in advance and transfer the rest upon completion
apprentices wage	some allowance supported by local governments and enterprises	no less than the minimum wage standard of apprentice basic wage	no less than minimum wage where the enterprise is to be located

General Office of the State Council issued "Several Suggestions on Deepening Industry-Education Integration" in 2017, and advocated to continually implement Modern Apprenticeship in charge of MoE and local educational authorities and Enterprise-led New-type Apprenticeship under the control of MoHRSS and MoF for the more technical and practical majors. The goals include: strong linkage between school enrolling and enterprise recruitment, double-wing (schools and enterprises) cultivation model, the dual identity of students and apprentices and a clear legal relationship among the schools, enterprises and apprentices/students (General Office of the State Council 2017). Despite all above mentioned, it still should be noted that apprenticeship still is in the initial stage of development in China, so many running apprenticeships are still immature and haven't met the above criteria.

3 Case Description

Since 2014, the Internet of Things Association of Guangdong Province has been working with Guangzhou Railway Polytechnic on a modern apprenticeship program for the major of computer application technology. In 2015, the program was selected to be among the first 165

pilots in the modern apprenticeship project of the Ministry of Education. The project is of unique significance as China works to introduce modern apprenticeship, with pilots fostering synergy among “school, enterprise and industry association”.

3.1 Project Background

As the 21st century is an era of globalization, connectivity and intelligence, information and communication technology has become the most promising economic sector considering its productivity. In 2009, the Ministry of Industry and Information Technology established the National Digital Home Demonstration Base in Guangdong. Located in Guangzhou University City, the base has attracted hundreds of fast-growing small, medium and micro enterprises, forming an emerging industry cluster of Internet, mobile connectivity and Internet of Things. In 2012, the base established the Internet of Things Association of Guangdong Province, the first provincial-level association of its kind in China. It is a non-profit civil organization with an independent legal entity. The association is to serve enterprises and relevant governmental departments, especially providing IoT companies with support in consultancy, marketing, branding, technical services, investment, financing and exhibition services. Currently, the association has more than 600 member units.

3.2 Tri-mode Cooperation

China's information technology and Internet industries are developing rapidly, resulting in a growing demand for skilled talents. However, small-size enterprises tend to have an unstable and non-permanent demand for new employees. The lack of stability makes it difficult to implement vocational training in the conventional mode, hence the labour market cannot provide the right talents when needed. In view of the situation, the Guangdong Internet of Things Association and Guangzhou Railway Polytechnic decided to jointly establish the “Industry Association Apprenticeship Center” to explore a modern apprenticeship training model which is in line with China’s national conditions and provides human resources for enterprises, especially SMEs.

Most of vocational education institutions in China adopt the “school-enterprise” cooperation in a dual mode, i.e., one-on-one cooperation between a large-scale enterprise and a vocational school. As most Internet companies are small businesses with rapid development, this project aims to establish a “school-industry association-enterprise” tri-mode cooperation for joint talent development. It makes a distinction between two types of enterprises: “leading-type”, that is, an enterprise with strong capacity to undertake apprentice training, and “supporting-type”, that is, a newly-established enterprise which is not so much involved in apprentice training but offers employment opportunities for the program.

The division of responsibilities among the three stakeholders is as follows: The industry association is responsible for establishing the apprenticeship center and acts as the initiator and coordinator of the program. It shall be part of the apprentice recruitment, training and management process. As co-organizer of the program, Guangzhou Railway Polytechnic shall

be responsible for student enrolment and school roll management according to requirements of the Ministry of Education. Enterprises such as Guangzhou Helizhengtong, Guangzhou Video Star shall undertake apprenticeship training in the form of crowdfunding. It is a two-way selection and elimination process for both enterprises and apprentices. Specific features are as follows:

3.2.1 Participation of Enterprises through Crowdfunding with Differentiated Investment

"Crowdfunding" here refers to the fact that several enterprises jointly undertake the training responsibility. In general, a leading-type enterprise, two or three supporting-type enterprises and the school jointly establish a "crowdfunding apprenticeship class". Different investment inputs determine priorities and benefits enterprises can get in the program. The "leading-type enterprise" with more investment not only has stronger decision-making power, but also the priority right to choose among the graduates. This setup highly motivates engagement of enterprises in the process. As one apprenticeship class is supported by multiple enterprises with common talent needs, any change in the "supporting-type" enterprise will not fundamentally affect the stability and sustainability of the program.

3.2.2 Assignment and Conditional Exchange of Leading-type and Supporting-type Enterprises

Leading-type and supporting-type enterprises have different responsibilities and rights. The main responsible party, a leading-type enterprise, signs a tripartite contract with the school and apprentice to provide manpower, materials and financial support for the program, arranges for on-the-job training with training masters, and develops training programs and curriculum with the school. The leading enterprises are entitled to evaluate the apprentices' learning outcomes and decide to let them stay or leave. There is only one leading-type enterprise for one apprenticeship class.

Supporting-type enterprises sign a contract with the industry association, not with the school and the apprentices. They do not invest personnel or financial means, but are informed regarding program process and progress of apprentice training. They may select apprentices (graduates) after leading-type enterprises. Both leading-type enterprises and supporting-type enterprises can apply to change the type according their own needs. In actual practice, it is common that some supporting-type enterprises apply to change their status to a leading-type enterprise in the second year, as a result of following up on the apprenticeship class and gaining experiences. There were only two leading-type enterprises at the beginning of this program, and almost all of the supporting-type enterprises expressed the wish to become a leading-type enterprise after one year.

3.2.3 Elimination and Re-selection of Apprentice

The apprentice will sign an apprenticeship contract with the leading-type enterprise to become a formal apprentice (quasi-employee). However, this is only a basic guarantee. The

project has also put in place an elimination mechanism. Leading-type enterprises may send apprentices who fail to meet the standards back to the apprenticeship center for appraisal and develop a personalized (re)training program for them. The center will then send the apprentices to the supporting-type enterprises after training. Supporting-type enterprises are in general quite small in scale, but for apprentices (low-performing), such job opportunities would be much appreciated to develop a sense of belonging. In this way, leading-type and supporting-type enterprises each take what they need and achieve win-win with different apprentices.

3.3 Project Implementation Process

The industry association coordinates and manages the apprenticeship program and presides over curriculum development, including theoretical courses and on-the-job practice. It is also responsible for determining curriculum standards for an implementation in various enterprises, ensuring that the learning outcomes of apprentices are recognized in the entire industry.

The program adopts a task-oriented teaching approach and divides learning tasks into three categories according to their difficulty, i.e. “basic learning tasks”, “generic industry learning tasks” and “enterprise-specific learning tasks”. This method ensures versatile and targeted tasks. A participant of the program is both a “student” and an “apprentice” who alternates between work and study.

The program consists of various sessions. The entire learning process is divided into 6 semesters. In the first semester, the ratio of school-enterprise courses is 4:1, with the main responsibility by school teachers. Most learning activities take place at school, supplemented by corporate internships. The second semester combines project teaching and school theory learning with a ratio of 2:3, and the apprenticeship center's mentor is the main tutor. The third semester takes place at the apprenticeship center, where practice dominates 4 days/week and a theory course for 1 day/week. In the fourth semester, the leading-type enterprises will arrange on-the-job internships and serve as part-time instructors to the apprentice, while the school tutors provide theoretical guidance. The apprentices experience a multi-job learning process. The fifth and sixth semester is for corporate internship.

The teachers involved in this apprenticeship program come from three institutions and assume different responsibilities. Vocational school teachers are responsible for public basic courses and specialized basic courses (including basic practical courses). Tutors from the industry apprenticeship center are responsible for core courses of the industry. These courses appear in the form of comprehensive learning tasks, for which the enterprise masters are responsible on the skill training side.

3.4 Experiences and Summary

In this project, a new type of core organization, i.e. the Industry Apprenticeship Center, plays an important role in the implementation of the modern apprenticeship system. The Center, run by local industry association, has multiple tasks. It is responsible for the formulation of local vocational standards, and conducts typical work task analysis with enterprises and schools, including generic industry tasks and enterprise-specific tasks. On this basis, it helps vocational schools to formulate talent training programs in line with vocational standards and coordinates talents (including apprentices and workers) between different enterprises. The center integrates industry demands into the talent development process of vocational education institutions, and helps to improve the relevance of vocational education.

For high-tech industries such as the Internet of Things and smart manufacturing, the technology and production methods of enterprises are changing rapidly. Conventional school education and corporate training models cannot meet the highly flexible and personalized talent demand. The involvement of local industry associations has effectively solved the common needs of SMEs, and formed the industry-wide talent training standards to meet the versatility requirements of the industry.

The cooperation model established by leading-type enterprises and supporting-type enterprises has mobilized the engagement of enterprises of different types and development stages in vocational education, making small and medium-sized private enterprises the main source of demand and promoter of modern apprenticeship education.

Relevant follow-up surveys show that the apprentices trained in this program are significantly more competent than the control group in terms of professional appearance and capability. Apprentices have also expressed their appreciation for this vocational education model at various occasions.

4 Concerns and Suggestions

Despite the fact that the pilot project between Guangzhou Railway Vocational and Technical College and Internet of Things Association of Guangdong Province has gained some initial success, it by far cannot represent the winning of complete victory. Between the ideal and the reality, between the motion and the act, falls the shadow. The post-war Federal Republic of Germany is always regarded as the best example. Many countries including China try to mimic Germany and transplant the dual system in terms of developing apprenticeship. But it is not as easy as we thought: history, culture and institutional interconnections are identified as major obstacles to any emulation of German apprenticeship successes. What Chinese governmental agencies have done deserves praise. However, how to implement these policies in the practice is still locked into a mysterious “black box”. There exist plenty of “apprenticeships-to-be” in China which haven’t met all standards of a real apprenticeship and some stumbling blocks must be overcome on the road ahead. Doubts about the feasibility in China of reviving apprenticeship arise on various counts, including: (1) government has not

provided a clear and consistent legal framework enabling apprenticeship stakeholders to act effectively with mutual rights and responsibilities; (2) the power of trade groups and industrial organizations is limited and has not been given full play; (3) the enterprises' enthusiasm for participation is not high and the vocational schools and colleges lack the guidance of advanced educational concepts and resources to meet the needs of labour market; (4) the legitimate rights and interests of apprentices are increasingly infringed. In the following, we will try to provide some suggestions for the future development of modern apprenticeship.

4.1 Institutional Supports

A large-scale apprenticeship system may require institutional supports. The most successful apprenticeship system of the modern era, the German, involves employer's associations, trade unions, educators and government representatives in a joint, multi-layered regulation along neo-corporatist or social partnership lines (Ryan 2000). Too much deregulation or too much regulation, neither of them can give the apprenticeship enough living space to grow and revive.

China remains highly state-regulated and the voices of educational institutions and private firms are easily ignored. Given the lack of effective communication between policy-builders and actual demanders of skills, China imitates Germany eagerly, but superficially, and key regulatory and institutional attributes, notably a statutory framework and mechanism for apprenticeship with binding force, a central regulatory body, sufficient fund, joint regulation of work-based training, and moderately transparent principles for the separation of public and private financial responsibilities, are missing. Norms and regulations related to apprenticeship are mainly released in the form of policy papers, which stay at the macro level, so there are many ambiguous and unspecific pieces of information, leaving behind a vacuum zone for the practical operation (Guan 2016). The policy regulations are a kind of soft restraint; mandatory restraints, e.g. who should supervise and who will pay the consequences, are unknown. Also, although the Ministry of Education, Ministry of Human Resource and Security and Ministry of Finance show high enthusiasm in apprenticeship participation, their forces are not always joined together, and other departments also haven't contributed what they can do. "Everyone sweeps his area" leads to the difficulty to realize synergy effects to create a "win-win" situation.

Overall planning should be strengthened to bolster the dual VET, integrating the school-enterprise cooperation into the evaluation index system. First, government must encourage the active participation of private sectors and trade unions through providing policy support and special subsidies, and give various awards and praise to the schools or enterprises with outstanding performance. In addition, insisting on extensive advocacy and creating a favourable public opinion environment and social atmosphere are also must-do tasks for the government. Second, although the governments have issued many policies with bright ideal to boost apprenticeship, the gap between aspirations and grinding reality hurts all the more.

Therefore, in the future, how to implement the policies into practice should be on top of the agenda, and the stakeholders should make the policies more specific, operational and feasible.

4.2 The Role of Trade Unions and Industrial Organizations

Trade unions should play an irreplaceable role in the development of apprenticeship. However, they make little difference to practice and their advantages are greatly undervalued without statutory right. The administration power has been submitted to the local educational authorities, not trade unions, causing the reduction of communication between trade unions, enterprises and schools (Zhao 2013). The construction of VET is a system development process and its success lies on multi-sectoral cooperation. It is doomed to fail to just rely on one or two sectors alone, so it is time to open the door for more diversified stakeholders and give them space and the opportunity to participate.

4.3 Establishment of a Third-party Agency

To maintain the normal operation of apprenticeship, one school has to cooperate with at least 20 enterprises and one enterprise also needs to establish cooperation relationships with no less than a few schools. In face of the huge demand to build cooperation platforms, “one versus one” cooperation is absolutely uneconomic because of its high cost and low efficiency. So in order to promote the cooperation between schools and enterprises, a third-party organization in charge of supervision and coordination should be set up (Yu 2009). This kind of third-party agency can break down the role boundaries of functional departments and allow all stakeholders to add value in multiple areas (Zhao 2016).

4.4 Deep Participation

Although apprenticeship can bring lots of economic benefits, including both screening potential employees and developing employer-specific skills, firms still have a low degree of interest in participating in apprenticeship (Yu 2009). China hasn’t established a school-enterprise cooperation mechanism and has no binding force towards both schools and enterprises at the state level. Lack of preferential policies can’t arouse the initiative of enterprises to participate.

Many school-enterprise cooperations stay at superficial level. On the one hand, enterprises (particularly SMEs) very rarely participate in the process of instruction and administration, only regarding these cooperations as emergency measures to solve the labour shortage. Some apprentices are arranged to work on an assembly line and become the "cheap labour", failing to master the core competences for the future. In a word, the students’ interests are ignored and infringed and the enterprises hardly take the sustainable development of students’ profession career into account. Schools, on the other hand, don’t make enough efforts to meet the requirements of enterprises, and there still exists a deep gap between theoretical knowledge and practical operation. Many enterprises complain bitterly that the bookish students from educational institutions can’t fulfil their expectations.

Consideration must be given to both the educational nature and vocational nature. Schools are in urgent need to improve their own basic capacity to teach theoretical knowledge and basic skills training and provide services for enterprises, such as improving teacher quality and developing a market-oriented curriculum system. Enterprises should help apprentices to apply the learned knowledge and skills into practice and grasp the ability to discover and solve real problems during the work process.

General speaking, China is trying its best to move ahead carefully, as the saying goes, "crossing the river by feeling for the stones". The success of apprenticeship depends on multisectoral cooperation and coordination, and the sum of our actions is always greater than if we act alone. Not one stakeholder can meet the challenges of an interconnected world acting alone.

References

CEDEFOP (2014). Developing Apprenticeships. Online: http://www.cedefop.europa.eu/files/9088_en.pdf (retrieved 17.03.2019).

CEDEFOP (2016). Governance and Financing of Apprenticeships. Online: http://120.52.51.16/www.cedefop.europa.eu/files/5553_en.pdf (retrieved 17.03.2019).

General Office of the State Council (2017). Several Suggestions on deepening Industry-Education Integration. Online: http://www.gov.cn/zhengce/content/2017-12/19/content_5248564.htm (retrieved 17.03.2019).

Guan, J. (2016). Comparison and Borrowing of Modern Apprenticeship in VET. Changsha: Hunan Normal University Press, 2016.6. (In Chinese).

MoE. (2014). Suggestions on Implementing the Pilot Project of Modern Apprenticeship (No. 53). Online: http://www.moe.gov.cn/srcsite/A07/s7055/201408/t20140827_174583.html (retrieved 17.03.2019). (In Chinese).

MoHRSS & MoF (2015). Notice of Implementing Enterprise-led New-type Apprenticeship Pilot Project (No. 127). Online: http://www.mohrss.gov.cn/zynljss/ZYNLJSSzhengcewenjian/201508/t20150803_216721.html (retrieved 17.03.2019). (In Chinese).

MoHRSS & MoF (2018). Suggestions on fully implementing Enterprise-led New-type Apprenticeship. Online: http://www.mohrss.gov.cn/gkml/zcfg/gfxwj/201810/t20181024_303482.html (retrieved 17.03.2019). (In Chinese).

Ryan, P. (2000). The Institutional Requirements of Apprenticeship: Evidence From Smaller EU Countries. In: International Journal od Training and Development, 4, 1, 42-65.

Wang, J. & Chen Y. (2017). Implementation Guidelines for Modern Apprenticeship Pilot Majors. Beijing: Higher Education Press. (In Chinese).

Yu, Z. (2009). Study on Mechanism of School-Enterprise Cooperation in Vocation Education. In: Chinese Vocational and Technical Education, 4, 5, 5-11. (In Chinese).

Zhao, Z & Chen J. (2013). Apprenticeship of Vocational Education in China: History, Current Status and Future Outlook. In: Chinese Vocational and Technical Education, 18, 9-13. (In Chinese).

Zhao, Z. (2016). How Far the Modern Apprenticeship from the Policy Goal? In: China Education Daily 27.09.2016, 4. (In Chinese).

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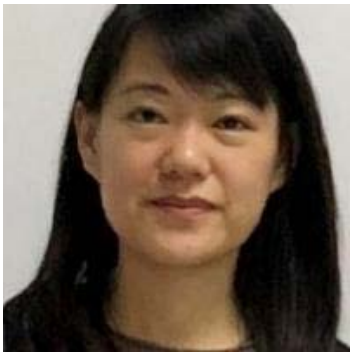

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