UNDERSTANDING VOCATIONAL EDUCATION MARKET IN CHINA

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Understanding Vocational Education Market in China

Abstract

This paper provides detailed information on the characteristics of Chinese vocational education and an analysis of its current market condition. In addition, this paper points out the limitation of the one-dimension concept of export readiness, and intends to shifts the discourse to a broader concept of compatibility. The study outlines a simple framework for analysing compatibility at system and institution level between Finland and China.

Key words: vocational education market, compatibility, Finland, China
I. Introduction

1. Opportunities

In an increasingly globalized world, China is becoming more and more connected with educational institutions, organizations, and governments in other countries. Internationalization becomes one of the priorities for constructing an innovation state in China. Many regions and countries begin to initiate higher educational cooperation with Chinese partners for economic, commercial, or political reasons (Cai & Hölttä, 2014).1

There is a long history of foreign involvement in China’s vocational education sector. Since 1949, China has adopted the Soviet Union’s model of vocational education and training at secondary and tertiary level. As a consequence, most Chinese colleges and universities became extremely specialized in narrowly defined major areas and college graduates were equipped with highly specialized vocational knowledge and skills. After the launch of the economic reform in 1978, Chinese government, the Ministry of Labour in particular, began to adopt a German vocational training model, which was renowned for its very practical vocational orientation.

After the National Conference on Vocational Education in 2005, the Ministry of Education (MOE) took over the control of vocational education from the hands of Ministry of Labor and Social Security. MOE initiated many developmental projects on vocational training partnered with foreign donors. Given China’s past practice with foreign “pilot projects”, MOE consider the synthesis of the best practice of each model including Australian TAFE system for delivery of vocational education and training subjects, German dual vocational model, UK polytechnics model, American and Canadian community college model, and Indian technical college model, among others.

During the 2014 National Conference on Vocational Education, State Council issued its Decision on Accelerating the Development of Modern Vocational Education which called for further strengthening international cooperation in vocational sector (State Council, 2014).2 The Decision encourages Chinese vocational institutions introducing high-quality foreign

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educational resources, promoting faculty and student exchange activities, accelerating Sino-
foreign vocational education provision, and giving incentives for developing major and
curriculum standards according to international benchmark. To implement this new strategy,
six Ministries jointly issued the Modern Vocational Education System Construction Plan
(2014-2020) in June 2014\(^3\).

By constructing a modern vocational education system at various degree levels
(certificate/diploma, associate degree, bachelor’s degree, and master’s degree) and opening
up collaboration possibilities for faculty/student exchange, joint degree programs, co-
development of vocational qualification framework and curriculum standards, these new
policy initiatives obviously open doors for new international players, who have recently
changed their international education policies from “Aid to Trade model” and have a strong
university of applied science sector such as Finland, the Netherlands and etc.

2. Prior Knowledge Base

To make a breakthrough into Chinese vocational education market, the critical question is
how to export foreign education service to China? Taking Finland as an example, previous
literature has explore this question from two distinctive perspectives. These studies find
Finnish and Chinese governments’ internationalization policies are supplement to each other,
but Finland is not export ready at this moment.

The first line of research focuses on internationalization efforts in Finland (Cai, Hölttä &
Lindholm, 2013)\(^4\), including the main strategy, legislation and policies regarding
internationalization of education (such as introduction of tuition fees for international
students), and the objectives for exporting education (generating revenue; attracting talented
students; and improving mutual awareness). The Finland Education Export Strategy, for
instance, highlighted that the precondition for education export should be based on a strong
domestic education system and the high quality of education, the higher education institutions

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\(^3\) The Plan emphasized the importance of building an open vocational education system by borrowing quality vocational education resources from other countries and by encouraging top Chinese vocational institutions to deliver their services to other countries.

should have a key position in education export, and the education exports should target chosen geographical areas and focus on selected fields (Cai & Hölttä, 2013). However, the empirical evidence shows that although Finland has changed its internationalization orientation from “aid to trade” model, the nation is not export ready (Cai, Hölttä, & Kivistö, 2012). For instance, with respect to export competence, Finnish institutions’ experiences of export education is minimal and the known knowledge of education market is not much. As for management commitment, administration’s attitude is diverse from strong support to little doubt and their current commitment for educational export is considered to be low. In terms of export coordination, coordination at institutional, national, and international level is insufficient.

The other line of research traces internationalization efforts in China (Cai, Hölttä & Lindholm, 2013). The scholars explore Chinese legislation and policy milestones regarding internationalization in education sector, the reasons for institution participation (government encouragement; enhancing institution image, status and competitive position; and internationalization campus), and the challenges and future perspectives of China’s internationalization. The most significant contribution is the discussion about the fit in policy objectives and practical approaches for internationalization in both countries, which concludes that Finland’s and China’s policy objectives on internationalization basically supplement each other (Cai & Hölttä, 2014).

Despite the academic contributions made so far, there is a substantial knowledge gap in existing literature regarding delivering Finnish vocational education in Chinese market. This argument can be supported by three observations. First, there is a lack of discussion about how to improve export readiness by understanding the current Chinese market condition and the existing Sino-Foreign cooperation. Although there are plenty of discussion about

internationalization policies and strategies in China, no prior study provides analysis of main characteristics of Chinese vocational market, including its size and structure, main Chinese and international players, and prior Sino-foreign cooperation. Knowledge of Chinese market is the precondition for any future cooperation between Finnish and Chinese partners.

Second, not much attention has been paid to vocational education sector in China. Existing internationalization literature focuses on world-class universities, and only a minority of studies discuss cooperation models for vocational education (Cai, Hölttä & Lindholm, 2013). This neglect is quite unfortunately given the space for collaboration with elite research universities is approaching a saturation point, while the majority of Chinese vocational colleges are encouraged to improve their quality through internationalization.

Third but not least important, there is a lack of discussion about compatibility between Finland’s and China’s systems and institutions. The dominant discourse of export readiness is an one-dimensional concept, emphasizing Finland’s capacity to deliver educational services in China. Nevertheless, a successful cooperation needs two partners. A more appropriate analytical framework may, instead, rest on the concept of compatibility, which focuses on the extent of match or fit between higher education sectors in terms of value or social foundation for education, mode of education provision, regulatory framework, and funding mechanism, as well as strategies to deal with temporary incompatibility.

To facilitate the understanding of Finland’s export readiness, and possibly shifting the discourse from export readiness to compatibility, this paper first discusses the main characteristics of Chinese vocational sector. The following section analyzes the current Chinese vocational market situation, including the demand for international education, key Chinese and international players, models for transnational delivery of vocational education, and lessons learned for existing cooperation. The paper concludes with a framework for analyzing system and institution compatibility.

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II. **Chinese Vocational Education Sector**

1. **Social and Economic Context**

China has experienced an unprecedented economic growth in the past thirty years. China’s economic growth has been particularly significant since entering the World Trade Organization in 2001, an indicator of a greater commitment for free trade and a willingness to embrace globalization in many social and economic aspects. China’s annual growth rate\(^{10}\) of Growth Domestic Product increased from 7.5% in 2001 to 10.2% in 2005, 11.4% in 2007, 10.4% in 2010, 7.6% in 2012 and 7.5% in 2013. 

Sustained high levels of foreign investment, more globalized supply and demand chains, and a continuous pursuit for industry upgrading have fundamentally changed the labor force structure of the Chinese economy. The labor force has gradually shifted from the agricultural sector to the industry and the services sector. The proportion of employment in the services sector had increased from 12.2% in 1978 to 34.1% in 2010. How does the changing sector structure influence the demand and supply for educated labor in China? From the supply side, Chinese labor force is becoming more educated and competitive as a result of educational expansion and market pressure from domestic and international competitors. In 2009, the proportion of the Chinese population that was illiterate was under 5%, 26.3% with elementary education, 48.7% with lower secondary education, 12.8% with upper secondary education, while workers with some college education or higher accounted for 7.3% of the population. In general, developed regions and major cities such as Beijing tend to have a more educated labor force.

Actual labor market statistics outline where the market needs are. In 2010, Ministry of Labor and Social Security reported that about 18% of job posts were open to semi-skilled workers and 9.2% to intermediate level workers, as well as 3.6% for high-qualified workers and 1.5% for specialized technical and management talents, plus 0.6% for professional personnel\(^{11}\). The following figure illustrates that the demands for skilled workers grow the fastest at the advanced level from 2001 to 2010.

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Figure 1: Ratio Between Job Vacancy and Applications by Technical Level

What kind of skills are in great need and will be required as the Chinese economy moves forward at an accelerated speed? As the demographic dividend in China comes to its end, there will be an increasing need for higher caliber technical and managerial skills, fluent English, and ability to deal with a changing occupation and market environment. Although China has a large supply of labor, the lack of qualified workers is one of the biggest barriers for growth and increased competitiveness.

Several international organizations have researched the current and upcoming skills shortage in China. The United Nations International Center for Technical and Vocational Education and Training (UNEVOC)\(^\text{12}\) estimated that only 5% of 70 million skilled workers in China were senior skilled workers, 35% were intermediate skilled workers and 60% were junior skilled workers\(^\text{13}\). Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) indicated that the Chinese labor market was characterized by shortages on both the demand and the supply side: while many vocational graduates could not find job, only 4% of Chinese current workers were considered highly qualified.

Even though the overall labor market conditions are favorable for high-skilled workers, the prospective job market for recent college graduates can be described as modest at most. The early labor market for vocational college graduates has a relatively stable employment rate, a high geographic concentration of employment destinations, as well as large variations in

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\(^{13}\) The ratios in many developed countries for the same categories were identified as approximately 35%, 50% and 15%, respectively.
earnings by major, industry, and occupation, plus a moderate job match (between a student’s education level and his/her occupation’s requirement) and a high job turnover rate.

2. Characteristics of Chinese Vocational Education Sector

We intend to capture Chinese vocational education sector’s main characteristics by describing its system structure, its external environment, and its development trajectory.

(1) System Structure

*Multi-level and complex origins*

The defining characteristics of Chinese vocational sector is its complex and multi-level structure and the diverse origins of vocational institutions. In China, vocational education and training can take place in four levels: lower secondary schools (a very small and declining sector); upper secondary vocational schools (in various educational institutions); tertiary education (mainly in 3-year vocational colleges); and adult education and on-the-job training (see Figure 2).

![Chinese Education System Diagram](image)

*Figure 2: Chinese Education System*
Chinese vocational colleges can be divided into public and private institutions (See Table 1). Among 1181 vocational institutions in 2009, about 272 or 23% were private colleges, and the other 77% were public. Among public institutions, 635 were owned by central or local governments, 84 were affiliated to state-owned enterprises, 173 were affiliated to industry associations, and 17 belonged to other public agencies.

Table 1 Type of Vocational Colleges (2009)

<table>
<thead>
<tr>
<th>Sector</th>
<th>2009 No of Institutions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Government</td>
<td>635</td>
<td>53.77%</td>
</tr>
<tr>
<td>State-owned Enterprises</td>
<td>84</td>
<td>7.11%</td>
</tr>
<tr>
<td>Industries</td>
<td>173</td>
<td>14.65%</td>
</tr>
<tr>
<td>Others</td>
<td>17</td>
<td>1.44%</td>
</tr>
<tr>
<td>Private Individual or Social Organization</td>
<td>272</td>
<td>23.03%</td>
</tr>
<tr>
<td>Total</td>
<td>1181</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: MOE 2009 Vocational Higher Education Institution Talent Cultivation Data Collection Platform.

(2) External Environment

*Facing high demand*

The rapid economic growth creates a high private demand for vocational education and a large labor market demand for vocational graduates. On the one hand, Chinese households are eager to send their children to college, even vocational institutions. Vocational enrollment as a share of total undergraduate enrollment has increased from 55% in 2003, to 60% in 2007, while community college enrollment in the United States accounted for 44% of total undergraduates in 2008.

On the other hand, the booming labor market absorbs most vocational college graduates. Although the initial employment rate for vocational graduates is lower than that of 4-year college graduates, more than 80% of vocational graduates are able to find a job six months after their graduation. The initial employment rate increases from 80% in 2006 to 85% in 2009, and 83% in 2012 and 2013.

*Operating in complex regulatory environment*

Traditionally, most vocational middle schools and colleges were affiliated with different ministries, state-owned enterprises or communities. The situation changed fundamentally after the restructuring of government agencies during 1990s and 2000s, and the consolidation and shareholding system reform of state-owned enterprises. At present, vocational higher
education in China is under, at least, jurisdiction of five different Ministries and other provincial and local agencies (see Box 1).

Box 1: Regulatory Body for Vocational Higher Education

- **State Council** is the overarching organization which makes strategic educational planning, deciding the scope of educational development and its priorities. In the past years, it has issued several opinions on accelerating the development of vocational education.

- **State Development and Reform Commission** and its Bureau for Development Planning are also responsible for educational funding. They initiate and implement most earmarked funding programs for educational infrastructure construction, including approving capital expenditure for vocational colleges.

- **Ministry of Education (MOE)** is the umbrella organization which supervises the operation of most public vocational colleges, using budgetary and regulatory policies. MOE’s Bureau for Vocational and Adult Education is mainly responsible for initiating, implementing and evaluating various policies related to vocational higher education, which also manipulates and manages vocational and technical education at macro level.

- **Ministry of Finance (MOF)** and its Bureau for Education, Science, and Culture provide budgeting and funding services for vocational institutions, including offering recurrent and earmarked funding for institutions and financing various student aid programs. On program basis, the MOF approves funding for the construction of workplace learning bases and exemplary vocational colleges.

- **Ministry of Human Resources and Social Security** and its Bureau for Vocational Capacity Development and Bureau for Employment Enhancement are major sponsors of the national vocational qualification system and guiding the development of vocational middle schools and colleges. They also make policies for college graduates’ employment and help graduates start their own business or become self-employed.

*Source: Author’s summary.*

In recent years, the Chinese government has gradually built its legal and policy framework for guiding the development of its labor market and vocational institutions. Appendix Table 1 outlines the major milestones during this process. For instance, the passage of Vocational Education Act in 1996 set up the legal foundation for developing vocational education at various levels. The Ministry of Education’s Standards for Establishing Higher Vocational Institutions in 2000 articulated the detailed regulations regarding opening up vocational colleges in China. MOE and MOF issued two important opinions in 2006 and 2010, announcing the basic rules for constructing National Demonstrative and Key vocational colleges. In 2014, State Council issued its Decision on Accelerating the Development of Modern Vocational Education.
Under-funded by government

The major revenue sources for China’s vocational colleges include (see Figure 3): (1) budgetary support from government, which accounted for 34% of the total revenue; (2) tuition and fee payment by students and their households, which consisted of 52% of the total revenue; (3) revenue from college-affiliated enterprises and social service fees, which was equal to 2% of the total revenue; (4) social donations made of another 3% of the total revenue; (5) and finally revenue from other sources contributed to 13% of the total revenue (see following Figure). Clearly, private payment becomes the most important revenue contributor; even through the majority of vocational colleges are public institutions (78%).

Figure 3: Revenue Structures of Vocational Colleges in China (2009)

There is a significant variation in government support for different types of vocation colleges (see Table 2). In 2009 fiscal appropriation accounted for 43-47% of total revenue for state-owned enterprises or government affiliated vocational colleges, 22% for colleges affiliated to industry associations, 4.5% for private institutions. Meanwhile, tuition and fees accounted for more than 40% of revenues for public colleges, and 80% for private institutions. The low government support is part of the legacy of cost-sharing and revenue diversification policies in late 1990s.

Table 2 Revenue Structure of Chinese Vocational Colleges (2009)

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gouvernement</td>
<td>State-owned</td>
</tr>
<tr>
<td>Fiscal appropriation</td>
<td>46.67</td>
<td>43.06</td>
</tr>
</tbody>
</table>

Tuition and fees (%) 

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2005</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from affiliated enterprises and social service charge (%)</td>
<td>0.21</td>
<td>0.22</td>
<td>0.39</td>
<td>0.22</td>
</tr>
<tr>
<td>Social donation (%)</td>
<td>0.23</td>
<td>0.11</td>
<td>0.65</td>
<td>0.40</td>
</tr>
<tr>
<td>Other revenues (%)</td>
<td>12.11</td>
<td>11.43</td>
<td>24.66</td>
<td>14.08</td>
</tr>
</tbody>
</table>


(3) Development Trajectory

Expanding quickly in an unbalanced manner

From the temporal perspective, Chinese vocational sector experiences three development stages: merger and institution expansion from 1998 to 2002; enrollment expansion from 2003-2005; and differentiation from 2006 to date. In the absolute term, the number of Chinese vocational colleges increased from less than 100 in 1995 to 908 in 2003 and 1246 in 2010. In comparison, the United State raised the number of community colleges from less than 100 in 1915 to more than 1200 in 1990s. The expansion of vocational sector is impressive in the relative term, too. In 2000, 42% of higher education institutions were vocational. The proportion raised to 61% in 2005 and 53% in 2010.
The vocational expansion is not balanced across regions. On the one hand, the institution expansion seems to be faster in less developed regions. Figure 4 illustrates that Tibet, Fujian and Yunnan experienced largest institution expansion from 2003 to 2010, which had relatively small numbers of vocational institutions in early 2000s. On the other hand, the enrollment expanded quickly in provinces with large higher education sectors such as Henan, Shandong, Jiangsu, Guangdong, Hubei and Anhui.

As a result, the gross enrollment rate varies substantially across provinces. In 2010, the gross tertiary education enrollment rates in Shanghai, Beijing and Tianjin had exceeded 59%, while the number for Yunnan, Guizhou and Guangxi was lower than 20%. This is a clear indication of unbalanced higher education expansion and regional differentiation.

**Growing differentiation within the sector**

One consequence of unbalanced regional development is a growing differentiation within the vocational education sector. Starting from 2006, Ministry of Education and Ministry of
Finance identified 100 vocational colleges as National Exemplary Vocational Institutions. This competitive project offered participating institutions favorable policies such as increment in out-of-province enrollment quota, autonomy in restructuring majors and curriculum, and earmarked funding for faculty professional development, facility and construction, and student services.

Following the similar logic, Ministry of Education and Ministry of Finance implemented the National Key Vocational Institution project in 2010, which provided substantial funding and favorable policies for another 100 colleges. These projects contribute to a horizontal stratification within vocational sector. The top 200 vocational colleges become very competitive and are able to provide high-quality vocational degrees, while the other 1000 institutions are struggling with declining enrollment and shrinking government funding.

**Experiencing constant transformation**

The unbalanced expansion and the growing differentiation reflect the continuing change in the vocation education sector (see Table 3). From 1993 to 1999, the vocational sector enjoyed high level of public funding support (more than 60% of its funding from government appropriation) and its enrollment share was relatively low (less than 50% of total undergraduate enrollment). From 1999 to 2005, government support for vocational colleges dropped to less than 60% while the vocational enrollment share increased, but still less than 50% of undergraduate enrollment. The expansion was largely financed by tuition and fees. From 2005 to date, the vocational sector became the major provider in tertiary education system and the government support stayed at a low level.

Table 3 China’s Vocational Sector Development Model

<table>
<thead>
<tr>
<th>Government appropriation as % of total expenditure</th>
<th>Vocational enrollment as % of total undergraduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 60%</td>
<td>1993-1999 (Model 1)</td>
</tr>
<tr>
<td>Under 60%</td>
<td>1999-2005 (Model 2)</td>
</tr>
<tr>
<td></td>
<td>2005-to date (Model 3)</td>
</tr>
</tbody>
</table>

Source: Author’s summary.
According to Yang (2010)\textsuperscript{15}, vocational colleges in China are experiencing substantial transformations. Vocational colleges are gradually diverting away from their original function of opening college access by offering academic and occupational education at college level, and acquiring a new function of enhancing core competencies for the labor force. The majority of college leaders, faculty and administrators have unconditionally embraced this instrumental view of vocational colleges. To match this new function, vocational colleges have had to adjust their mission from promoting higher learning in vocational fields to enhancing employability in the labor market (see Figure 5).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure5.png}
\caption{Institution Mission Shift}
\end{figure}

At the macro-level, vocational colleges are transforming from social institutions to industry under the neo-liberal arguments for globalization. Vocational colleges are adopting enhancing employability of their graduates as their new mission. At the micro-level, there are considerable changes under the influence of the new mission, in terms of program goals, program development, curriculum development, dominant pedagogy, faculty development, and internal management. The changes fit the rhetoric of having employability as the core competency, as well as the impact-reaction model for organizational change. The legitimacy basis for vocational colleges shifts from enrollment-absorbing institutions to employment-enhancing organizations.

III. Current Market Condition

1. Demographics and Demand for International Education

The demographic turn in next 30 years indicates a shrinking pool of candidates for vocational higher education. China’s largest school-age cohort (born in the late 1980s or 1990s) had already passed through the schooling system: the largest cohort of 15-17 years old (15.87 million) was in 2004 and the largest cohort of 18-22 years old was in 2008, according to AEI (2006). Right after the peak years, there was a sharp drop in college-going cohort. The tertiary education population declined to 115 million in 2010, 82 million in 2020 and 69 million by 2050.

![Figure 6: Changes in Student Population in China (2000-2050)](image)

Note: This figure assumes a 40% gross tertiary enrollment rate from 2010-2050 and half of college freshmen enroll in vocational colleges.

Although the overall size of the vocational education market is shrinking, its absolute size is still impressive and creates many opportunities for new players. According to China’s Medium- and Long-term National Education Reform and Development Plan, the gross tertiary enrollment rate will reach 40% by 2020. The Modern Vocational Education System Construction Plan (2014-2020) outlines the development goals for vocational sector by 2020 (see Table 4). The plan estimates that total number of vocational college enrollment will reach 14.8 million and vocational secondary schools will host 23.5 million students.

Table 4 Vocational Development Goals by 2020

<table>
<thead>
<tr>
<th>Goals</th>
<th>Unit</th>
<th>2012</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational college enrollment</td>
<td>million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary education population (18-22 years old)</td>
<td>million</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior secondary school population (15-17 years old)</td>
<td>million</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The flourishing education market in China implies a growing demand for international education. In the past two decades, pursuing tertiary or even secondary education in foreign countries has changed from a luxury good to a feasible option for many Chinese middle income households. There are several notable trends in the past decade, according to the findings from the 2011 Annual Survey of International Education in China by Education OnLine (EOL) and China Education Association of International Exchange (CEAIE)\textsuperscript{16}, and the findings from 2011 MYCOS college graduates’ survey\textsuperscript{17}. Box 2 summarizes the findings.

Box 2: Trends of International Education in China

1. Rapid growth of study abroad population
   - According to 2011 EOL and CEAIE survey, from 1978-2010, the total study abroad population reached 1.91 million. The year-over-year growth rate remained high after 2008. The annual growth rate was 24% in 2008, 27.5% in 2009 and 24% in 2010. The total number of study abroad students was estimated at 350,000 in 2011.
   - The majority of those students are financed by their families. The number of self-financed students increased from 110,000 to 260,000.

2. Mixed composition and intension of study abroad population
   - According to 2011 EOL and CEAIE survey, among all the students who planned to study in foreign countries, around 62% were undergraduates, 10% were graduate students, 23% were high school graduates and 5% were other

\textsuperscript{16} Source: The EOL and CEAIE survey results are available from the URL: http://liuxue.eol.cn/html/lxrep/
students.

- According to the 2011 MYCOS survey, around 2.21% of college graduates from selective Project 211 universities choose to pursue their master’s or doctorate degrees overseas, while 0.64% of other undergraduates choose to study abroad at the graduate level.

3. Diversified study destination

- According to the 2011 MYCOS survey, the most popular destination countries are in North America. About 28.2% of college graduates selected the US or Canada as their host country, 24.3% selected the UK, 10.7% selected Hong Kong, 6.3% selected Australia.

- According to the 2011 EOL and CEAIE survey, the number Chinese students going to Canada increased from 8,000 in 2006 to 18,000 in 2010. From 2006 to 2011, the number of students going to study in the US increased from 60,000 to nearly 157,600.

4. Costs of study abroad

- The costs of study abroad are included in two parts: the cost for testing and application and the cost spent in foreign countries. According to the 2011 EOL and CEAIE survey, Chinese students spent an average of 48,000RMB (CAD$7,059) for training, testing, and agency fees before going abroad.

- According to the 2011 EOL and CEAIE survey, student spending during a study abroad period varies by country and program of study:
  - US: For 4 years of undergraduate study in the US, the total payment for tuition and fees and living expenditure is between US$75,000 (CAD$74,895) to US$178,400 (CAD$178,151). The annual expenditure is between US$18,750 (CAD$18,724) to US$44,600 (CAD$44,538).
  - UK: For 3 years of undergraduate study in UK, the total payment for tuition and fees and living expenditure is between 51,000GBP (CAD$78,510) to 75,800 GBP (CAD$116,678). The annual expenditure is between 12,000GBP (CAD$18,473) to 25,300 GBP (CAD$38,947).

Source: 2011 EOL and CEAIE survey and 2011 MYCOS college graduates’ survey.

2. Key Domestic and International Players

Chinese Players

(1) Vocational higher education institutions

Higher vocational colleges (gao zhi) and higher specialized colleges (gao zhuang) are two main types of vocational higher education institutions in China. The majority of higher vocational colleges (gao zhi) appeared since the late 1990s, after dramatic mergers and consolidations among local vocational middle schools, skilled workers school, TV colleges, distance learning centers, adult vocational training schools, and other vocational training organizations. They emphasize on practical vocational training with a curriculum heavily...
focused on vocational studies: less than one third of the curriculum belongs to general education.

Higher vocational colleges provide both three-year and five-year programs and the latter often recruits junior high school graduates instead of high school graduates. Most graduates are expected to take two- to two-and-half years of courses in colleges and spend another six months to one year on work-based learning as interns. At present, graduates from vocational colleges are required to graduate with a sub-baccalaureate degree in their major field and at least one vocational categorization certificate in a particular occupation field.

(2) Government Body

As mentioned earlier, five ministries are governing the operation of vocational colleges in China. State Council makes strategic planning for vocational education development and it has three major policy targets in recent years: greatly promoting the development of vocational education; increasing vocational education quality; and providing financial aid for vocational students. MOE and MOF issue several implementation rules for supporting the State Council’s resolution. For instance, MOE and MOF jointly launched the construction of National Exemplary Vocational Colleges in 2006 and National Key Vocational Colleges in 2010 as their response to State Council’s 2002 and 2005 opinions for promoting vocational education development in China.

(3) Sector Body

Except for the government agencies, the most significant stakeholders in vocational education market are professional organizations and industry organizations. Professional organizations serve as the buffer agencies between government and institutions, and provide the necessary services in research and development, informational assimilation and consultation, evaluation and assessment, and international collaboration. Box 3 lists key sector bodies in China.

Box 3: Sector Body in Vocational Education Market


☐ Association for the Higher Vocational Education of China (AHVEC, http://www.chinagaozhi.org/) is affiliated with the Chinese Association of Higher
Education and Ministry of Education, and is the major professional representative for vocational colleges in China. It has 600 member institutions from 30 provinces. International Cooperation and Exchange Committee of AHVEC (http://gjhz.chinagaozhi.org/models/xsjg3/index.aspx?id=2216) is in charge of its international education exchange programs.

Joint Conference of Presidents of Vocational Higher Education Institutions (http://61.164.87.139/conference1/) is established in 2002 and now has 182 member institutions. It pays attention to policy research and consultation, communication between government and institutions, promotion of policy innovation and reform, academic and professional exchange, and encouraging vocational colleges to participate in the construction of demonstrative institutions.

Source: Author’s summary based on various online sources.

(4) Private Body

Private companies also have vast interest in vocational training market in China. They have competitive advantages over vocational colleges in providing on-the-job training in many fields such as language training and testing preparation for occupational certificates. Thousands of Chinese firms compete in the market, but only a few are able to reach significant market shares and become leaders in the training industry. The top eleven training firms have successfully entered overseas stock markets and raised foreign venture capital to support their services.

International Players

(1) Australia

Australia is one of the most aggressive recruiters of international students. In 2008, international students consist of 19.5% of all tertiary enrollments in this country. The top five source countries of international students in Australia are China (78,338), India (28,806), Republic of Korea (13,280), Malaysia (12,767), and Vietnam (11,457) in Jan 2012.

At the federal government level, Department of Education, Employment and Workplace Relations (DEEWR) is responsible for international education marketing. The Division of DEEWR that deals with international education is Australian Education International (AEI). AEI’s mandate is to develop international education policy advice, represent and promote Australian education abroad, oversee quality assurance and consumer protection in Australian education, and recognize certifications both for Australian and oversees educational institutions, perform industry research and analysis, and facilitates student mobility through
research, study, and professional development awards. Australian Trade Commission (Austrade) is another notable participant in IHE sector.\(^\text{18}\)

(2) Germany

Between 2000-2008, the total IHE enrollment in Germany grew from 175,605 to 233,606. In 2010, 244,775 foreign students proceeded higher education studies in Germany. In 2010, international students are mainly from China (22,828), Russia (10,077), Bulgaria (7,537), Poland (7,463), Australia (7,072), Turkey (6,575), Ukraine (6,204), France (5,530), Cameroun (5,412), and Morocco (5,163).

At federal government level, the main agency involved is the German Federal Ministry of Education and Research (BMBF). BMBF funds a multitude of programs which are officially carried out by intermediary organizations such as the German Academic Exchange Service (DAAD). DAAD’s main responsibilities lie in promoting international academic relations, primarily through the exchange of students, interns and researchers, and raising the international profile of German higher education. Much of Sino-Germany cooperation has been sponsored by a government-subsidized group such as Gesellschaft fuer Technische Zusammenarbeit (GTZ). GTZ is supported by the German Federal Ministry for Economic Co-operation and Development (BMZ), and has partnered with China on VTE projects since 1982. The majority of GTZ-led projects are directed towards vocational education and poverty reduction.

(3) United Kingdom

In U.K, the total international higher education enrollment grew from 224,660 to 428,225\(^\text{19}\). International higher education students (non-EU) in U.K. mainly come from China (67,325), India (39,090), Nigeria (17,585), the US (15,555), and Malaysia (13,900).

At federal government level, the main agency involved is the Department for Business, Innovation and Skills (BIS). The British Council is sponsored by the Foreign and Common Wealth Office. The British Council’s marketing efforts are encapsulated in a program titled Education UK Marketing. The program is responsible for generating research on the education market, managing promotional exhibitions and training events, and providing


international education-related news for UK education providers. The British Council has sponsored a variety of vocational training programs in China, such as projects in Hubei and Liaoning to improve curriculum, institutional capacity and leadership in vocational institutions, and introduce British vocational qualifications to China.

(4) Lessons Learned

☐ A strong and integrated federal-level public agency is needed as an overarching organization to coordinate efforts for international student recruiting and establishment of international cooperation. This is particularly important when international education marketing becomes the driving force for success. This agency can create a unique, positive and unified image for the country in international competition.

☐ Significant funding and intensive marketing are required for successful collaboration with Chinese partners. It is critical to invest substantially to support international education marketing activities.

☐ The key for mutual trust and long-term success in Chinese vocational market is introducing a step-by-step approach with strategic planning. GZT from Germany has been working for more than 30 years with Chinese vocational sector, under very clear planning. It takes a step-by-step approach and its continuous efforts can be divided into four phases: developing new training institutions at the grassroots level; increasing the qualifications of vocational school teachers; integration of disadvantaged groups into the labor market; and support for vocational education and employment promotion by aligning labor market policies with economic development and support for public private partnership.

☐ Choosing programs that satisfy current needs of China and offering a diversified program package. Clearly, the most vital step in initiating alliance with China is to identify the urgent needs of Chinese partners, instead of focusing on promoting the international education products of the source country.

3. Models for Transnational Delivery of Vocational Education

Two important models for transnational delivery of vocational education in China are recruiting Chinese students as international students and delivering programs and services in China. There are multiple ways to categorize overseas programs and services provided by foreign colleges. The two common methods are: (1)determining program type by degree
awarded at the end of the program and (2) by examining whether the program delivery needs to be approved by MOE in China.

When using categorization by degree type, all programs or services can either be “double award program” or “twining/articulation program”. When using categorization by approval requirement, programs can be categorized as “Sino-Foreign Program or College (X+Y)”20 or “Inter-University Exchange Program”21. The Table 5 summarizes the program characteristics by type of program, degree awarded, and program approval requirement.

Table 5 Type of Overseas Programs or Services

<table>
<thead>
<tr>
<th>Program type</th>
<th>Chinese Diploma Issued</th>
<th>Foreign Diploma Issued</th>
<th>Provincial/Local MOE Approval Needed &amp; Expected Time</th>
<th>National MOE Notification /Approval Needed &amp; Expected Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Double award</strong></td>
<td><strong>YES.</strong> A student receives a qualification from Chinese institution.</td>
<td><strong>YES.</strong> A student receives a qualification from foreign college.</td>
<td><strong>It depends.</strong></td>
<td><strong>It depends.</strong></td>
</tr>
<tr>
<td>Twinning/articulation program</td>
<td><strong>NO.</strong> No foreign degree will offer.</td>
<td><strong>YES.</strong> A student receives a qualification only from foreign college.</td>
<td><strong>It depends.</strong></td>
<td><strong>It depends.</strong></td>
</tr>
<tr>
<td>Sino-Foreign Program or College (X+Y)</td>
<td><strong>It depends.</strong></td>
<td><strong>YES.</strong></td>
<td><strong>It depends.</strong></td>
<td><strong>It depends.</strong></td>
</tr>
<tr>
<td></td>
<td>-Double award program will offer a Chinese diploma;</td>
<td>-Double award program will offer a foreign diploma;</td>
<td>-Junior college level programs require the approval of provincial MOEs.</td>
<td>-Bachelor’s degree and higher programs required the approval of national MOE before recruiting for the program may begin.</td>
</tr>
<tr>
<td></td>
<td>-Twining program will not issue Chinese diploma.</td>
<td>-Twining program will also issue foreign diploma.</td>
<td>-Programs that do not offer foreign degrees required provincial MOE approval.</td>
<td>-MOE’s approval for a Sino-foreign college or program will take at least 3 to 6 months.</td>
</tr>
<tr>
<td>Inter-University</td>
<td><strong>YES.</strong></td>
<td><strong>It depends.</strong> - Whether a student</td>
<td><strong>NO.</strong></td>
<td><strong>NO.</strong></td>
</tr>
</tbody>
</table>

20 Students study toward their degree for “X” years in a Chinese school, followed by “Y” years in a Canadian school. Students may be eligible for a Chinese and/or foreign diploma or degree. MOE approval is required prior to being able to recruit students.

21 Two cooperating universities mutually recognize coursework and credit, with students dividing their study between China and the foreign country. In this case, MOE approval is not required. Contract (MOU) is filed with the MOE.
### Exchange Program

- After graduation, student earns a Chinese diploma/degree.
- Earns a foreign diploma or degree is up to the foreign institution to determine.
- Contract (MOU) is filled with provincial MOEs. MOE approval is not required.
- Contract (MOU) is filled with provincial MOEs. National MOE approval is not required.

Source: Author’s summary based on GrokChina (2011).

#### 4. Successful Experiences from Sino-Canadian Cooperation

Canada is developing its strategic advantage in working with Chinese vocational sector. In the past two decades, it has sponsored many successful programs such as Canadian College Partnership Program (1994-2012), which intends to increase the capacity of developing country partners, in collaboration with Canadian colleges, institutes, CEGEPs, university colleges and polytechnics, to address the development needs of the communities they serve; Vocational Education Leadership Training Program (2009-2013), which supports Chinese college delegation’s visit to Canada and Association of Canadian Community College’s participation in the China International Forum on Education; and a lot of Sino-Canadian institution cooperation. These collaborations provide good examples for program fit and demonstrate various cooperation models.

**Program fit**

Although there is no golden standard for partnership building, some cooperation programs do perform better in Chinese context:

- **Programs which are in line with Chinese colleges’ specialty.** A good example is Guangzhou Civil Aviation College and its partnership with Seneca College of Applied Arts and Technology, and Canador College of Applied Arts and Technology. Based on their agreements, Seneca College offers “2+1 program” for college diploma in air cabin crew, electronic engineering technology, computer network technology and computer programming. Canador College offers “2+1 program” in aircraft electrical equipment and machine repair, aircraft structural repair, and aircraft digital equipment repair.

- **Programs which are the best offers of Canadian colleges.** Seneca College’s Bachelor of Aviation Technology program is the one of the best aviation technology–based programs in Canada. It helps students to demonstrate a comprehensive understanding and the appropriate application of aerospace principles, airplane design, airplane characteristics, and to master technical and practical skills required to work in a variety of airside operations roles.
Programs which have better labor market perspectives. Hunan Railway Professional Technology College works with Douglas College from Canada to offer dual degrees in Business English and Computerized Accounting. These majors are among the most popular majors in the South China. Program graduates can easily find decent jobs in the local labor market.

Programs which follow the municipal or provincial strategic plan. For instance, Chinese government begins to support college majors which are critical for local industry upgrading. Chinese colleges are highly interested in finding international partners in these major areas.

Cooperation model

Associate degree or college diploma level: “2+1” program. Guangzhou Civil Aviation College connects with Seneca College of Applied Arts and Technology and Canador College of Applied Arts and Technology to provide “2+1” program at the associate degree level. Hunan Railway Professional Technology College works with Douglas College to offer dual degree program.

Bachelor’s degree level: “3+1” program: Shenzhen Polytechnics works with 19 institutions from 8 countries to provide “3+1” program at Bachelor’s level. In these programs, students study 3 years in China and spend another one to one and half year in destination countries to complete their Bachelor’s degrees.

Multiple degree level: “3+0” and “3+2” program. Fujian International Business and Economics College works with College of the North Atlantic from Canada to provide “3+0” program and offers college diploma. This college also cooperates with Fachhochschule Nordhessen from Germany to provide “3+2” program for Master’s degree, majors in international financial, logistics management and exhibition planning and management.

IV. Thinking about Compatibility

Given the huge size, complex structure, and many competitors in Chinese vocational higher market, delivering quality Finnish vocational education to China is not an easy business. One of the critical dimensions of improving Finland’s export readiness is gaining knowledge of overseas education market. This paper has provided a critical evaluation of Chinese
vocational sector and its current market condition, which can complement earlier literature on Finland’s export readiness and strategies for Sino-Finland cooperation.

However, in order to develop an appropriate strategy for international cooperation with Chinese vocational education sector, it is better to construct an analytical framework based on compatibility, i.e., the degree of match or fit between Chinese and Finnish vocational education sectors and institutions.

In this paper, we will focus on comparing vocation education at tertiary level, i.e., comparing Chinese vocational colleges and Finnish Universities of Applied Sciences. In China, vocational colleges include Higher Vocational Education Institution (gaozhi in Chinese) and Specialized Vocational College (gaozhuan in Chinese), both offering 3-year (short cycle) college education and granting associate degrees. This paper intends to compare them with 24 UASs in Finland created in mid 1990s. The original aim of the Finnish UASs is to improve the educational services especially in those regions that did not have their own university and now they become the innovation hubs for regional development. We will not discuss vocational education at secondary level (vocational secondary schools in both countries) due to page limit.

1. Dimensions of compatibility

Compatibility refers to the extent of match or fit between educational systems in terms of institutional environment, value or social foundation for education, mode of education provision, regulatory framework, and funding mechanism, as well as strategies to deal with temporary incompatibility. Compatibility between education sectors can be examined from the following dimensions.

- Socioeconomic and political system: What are the institutional environments in each country?
- Values or social foundation for education: What are the ideological or philosophical arguments behind each education system?
- Provision: How does each country provide its education service? To whom? Which kind of service? Through public or private provider?
- Regulatory framework: What are legislations and policies regarding education sector? For international education? For vocational education?
- Funding: How does each country finance their educational services? Who should pay
for it? What should be publically financed and which costs can be shared? What are appropriate funding mechanisms?

2. Framework for assessing compatibility

Kallo (2014) 22 once doubted the meaning of comparing education systems with different sizes and cultural values, such as Chinese and Finnish higher education system. To make meaningful comparison, it is critical to define appropriate unit of analysis. This paper proposes to analyse the compatibility at both system and institution level.

Using the five dimensions for compatibility, one can compare Chinese and Finnish systems using Table 6. Examining the system compatibility includes the comparison of the ideological orientation of each system, the system structure, the development stage of each system, governance model, and the funding pattern of each system.

Table 6 System Compatibility

<table>
<thead>
<tr>
<th>System Compatibility</th>
<th>China</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional background</td>
<td>Middle-income country with rapid economic growth</td>
<td>High-income country with modest economic growth</td>
</tr>
<tr>
<td>Economic development</td>
<td>Not defined</td>
<td>Statist skill formation system</td>
</tr>
<tr>
<td>Skill formation system</td>
<td>Pursuing excellence through differentiation</td>
<td>Pursuing excellence through equalization?</td>
</tr>
<tr>
<td>Values or social foundation for education</td>
<td>Large, stratified higher education system, resembling a pyramid</td>
<td>Small and rather homogeneous system; research universities and UAS have equal legal status?</td>
</tr>
<tr>
<td>Development Stage</td>
<td>Low participation</td>
<td>High participation?</td>
</tr>
<tr>
<td>Provision</td>
<td>Public institutions are affiliated to local education authorizes; Highly decentralized, provincial governments and sector bodies play significant roles</td>
<td>Now the government has granted operating license to the maintaining organizations of UASs (such as municipalities, federation of municipalities, limited companies or foundations); by 2015, all polytechnics will get independent legal status as limited companies and the government will grant the</td>
</tr>
</tbody>
</table>

operating license to the limited companies?

| Funding | Formula funding; Revenue diversification through cost-sharing, declining share of government input, limited financial aid | Formula funding; For University of applied science, teaching is funded by first stream unit price funding of the MOE, research and development are funded by external second and third funding stream (Anttiroiko, 2014)? |

Source: Authors’ summary.

For the institutional compatibility, it is possible to borrow the framework of U-multirank developed by CHEPS at University of Twente (See Table 7). The critical dimensions for comparison include institutional characteristics and profile, teaching and learning of each institution, research or knowledge transfer performance, regional engagement, and international orientation of institution. Chinese scholars have conducted research in some of the dimensions, but it is not clear whether there is any comparable studies for Finnish institutions.

Table 7 Institution Compatibility

<table>
<thead>
<tr>
<th>Institutional characteristics/ profile</th>
<th>China</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution mission</td>
<td>Enhancing employability (Yang, 2012)</td>
<td>Improving educational services especially in those regions that did not have their own university</td>
</tr>
<tr>
<td>Institution revenue structure</td>
<td>Tuition and fees &gt; 50% (Zhong, 2010)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Institution selectivity/ranking</td>
<td>Stratified: 200 selective vocational colleges</td>
<td>24 UASs have similar quality?</td>
</tr>
<tr>
<td>Teaching and learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student enrollment pattern</td>
<td>Majority traditional students, Full-time enrollment (Bao, 2012)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Student learning module</td>
<td>Passive, limited access to online learning (Bao, 2012)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Curriculum and pedagogy</td>
<td>Rotation between classroom learning and workplace training, 40% credits for internship/apprenticeship (Yang, 2012)</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

23 www.umultirank.org
Student assessment | Relying on professional certificate exams (Yang, 2012) | Unknown
---|---|---
Faculty ability and student-faculty interaction | Faculty educational credential increases, interaction low | Unknown

Research/knowledge transfer

| Publication/patent | Not much | Unknown |
| External research funding | Not much | Unknown |

Regional engagement

| Graduates working in the region | Very high, 83% (Liu, 2012) | Unknown |
| Income from regional sources | Not clear | Unknown |

International orientation

| Foreign language based degree programs | Not much (Yang, 2013) | Unknown |
| Student mobility | Low (Yang, 2013) | Unknown |

Source: Authors’ summary.

In summary, this paper advances current literature in several fronts. First, it provides detailed information on characteristics of Chinese vocational education sector and critical analysis of current conditions of vocational market. Such knowledge is critical for improving our understanding of the export readiness of Finnish higher education sector.

Second, this paper points out the limitation of the one-dimension concept of export readiness, and shifts the discourse to a more broader and appropriate concept of compatibility. The study outlines a simple framework for analysing compatibility at system and institution level. For the future research, it could be interesting to using this framework to empirically test the compatibility of Finnish and Chinese vocational education system.
Reference


Appendix

Table 8: Milestones in China’s Vocational Education and Labor Market Development

<table>
<thead>
<tr>
<th>Year</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978-1984</td>
<td>First relaxation of the state-run allocation of jobs accompanied by a diversification of ownership structures.</td>
</tr>
<tr>
<td>1984-1992</td>
<td>Gradual introduction of the work contract system, end of the guarantee of lifelong employment.</td>
</tr>
<tr>
<td>1980</td>
<td>Structural reform of the vocational education system</td>
</tr>
<tr>
<td>1985</td>
<td>Resolution of the Central Committee of the Communist Party: Vocational education should be given priority and no longer be the weakest link in the educational system.</td>
</tr>
<tr>
<td>1994</td>
<td>Promulgation of the Bill on Working Law: Introduction of a legal system for the regulation of employment whilst at the same time adding preconditions to make the labour market more flexible.</td>
</tr>
<tr>
<td>1996</td>
<td>Vocational Education Act in China passed: Regulations for the involvement of companies in vocational education. Opening the education sector for non-state-owned providers of vocational education services.</td>
</tr>
<tr>
<td>2000</td>
<td>Ministry of Education drafted Standards for Establishing Higher Vocational Institutions (Temporary)</td>
</tr>
<tr>
<td>2002</td>
<td>State Council resolution for vocational education: The situation in structurally weak regions and the orientation of demand for vocational education should be improved.</td>
</tr>
<tr>
<td>2005</td>
<td>State Council resolution for vocational education: New emphasis on practical orientation, modernization of school administration, an increase in the number of students and an investment program for vocational education.</td>
</tr>
<tr>
<td>2005</td>
<td>National Conference of Vocational Education: Prime Minister Wen Jiabao underscored the socio-economic significance of vocational training for national development.</td>
</tr>
<tr>
<td>2006</td>
<td>Ministry of Education and Ministry of Finance: Opinion on implementing the construction of national demonstrative vocational higher education institutions</td>
</tr>
<tr>
<td>2006</td>
<td>Ministry of Education: Opinion on improving teaching quality in vocational higher education institutions (2006: No. 16)</td>
</tr>
<tr>
<td>2007</td>
<td>State Council resolution for building national financial aid system for needy students in vocational middle schools and tertiary institutions</td>
</tr>
<tr>
<td>2007-2008</td>
<td>Ministry of Labour and Social Security, Ministry of Education: providing training for people in rural areas with non-agriculture skills. Providing subsidies and/or tuition exemption to vocational middle school students coming from rural areas.</td>
</tr>
<tr>
<td>2008</td>
<td>Official passing of the Employment Promotion Law and the Work Contract Law</td>
</tr>
<tr>
<td>2010</td>
<td>Ministry of Education announcement on implementing talent-training evaluation in vocational colleges.</td>
</tr>
<tr>
<td>2010</td>
<td>State Council resolution on reinforcing vocational education to promote employment</td>
</tr>
<tr>
<td>2010</td>
<td>Ministry of Education and Ministry of Finance: Opinion on implementing the construction of national demonstrative and key vocational higher education institutions</td>
</tr>
<tr>
<td>2010</td>
<td>Medium and Long-term National Education Reform and Development Plan (2010-2020)</td>
</tr>
<tr>
<td>2014</td>
<td>Modern Vocational Education System Construction Plan (2014-2020)</td>
</tr>
<tr>
<td>2014</td>
<td>Decision on Accelerating the Development of Modern Vocational Education</td>
</tr>
</tbody>
</table>

Source: Author’s summary based on various government documents.