Designing Self-Enforcing Programs Embedded in the Local Economy: The Key for Successful International Cooperation of Vocational Education

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Abstract: International education cooperation is conducive to promoting the cross-border circulation of advanced educational experiences and enhancing global human capital. China has become the main destination for students from developing countries, and how to better carry out international cooperation programs in Chinese education has become an important issue. This paper focuses on international cooperation in the field of vocational education and takes a vocational college in China as a case to explore the performance of different international cooperation modes between China and developing countries. The study did a within-case design, and three projects representing three modes of cooperation were selected for comparison. The article believes that the key to success lies in the design of cooperation, and those projects which closely integrate local industries, colleges and students will thrive and prosper. The article answers the question of how international cooperation in vocational education should be carried out.

Keywords: international cooperation, vocational education, industry-education integration, cooperation mode

1. Introduction

In recent years, as China's international influence have increased, the pattern of international cooperation and exchange in higher education has also changed [1-3]. The mode of international cooperation in China has changed from "inviting in" to "combining inviting in and going out". In the past, China focused on introducing foreign educational resources to speed up the process of education reform and open up and narrow the gap with developed countries. In recent years, China has been paying more and more attention to going out with its own educational experiences [4]. Vocational colleges and universities in CHINA have begun to export their experiences in education, teaching, and academics, and to strengthen exchanges with foreign institutions.

The projects contain the Chinese experience of going abroad are growing rapidly, and many researchers have conducted studies mostly around language and cultural programs such as Confucius Institutes and language learning centers, but studies on international students and their career-path-building in vocational education are still rare. As an emerging country with promising potential job prospects, China is increasingly becoming a major study destination for international students. The total number of international students coming to China has reached 500,000 in 2021[5]. The question
worth exploring is how to design international exchange programs in vocational education in China, and what cooperation mode could benefit overseas students, colleges, and local industries by fully utilizing the advantages of Chinese culture, industry, and education fields.

This paper explores the international cooperation mode of Chinese vocational higher education institutions through a case study approach. The research selects three international cooperation projects carried out by a Chinese vocational institution over the years and compares their backgrounds, cooperation modes, and project effectiveness. And the comparative case study analysis is based on the interviewer, news reports collection, and participating observation. The reasons for the success or failure of the three projects are analyzed, and the key to the effectiveness of the cooperative projects was explored.

2. Literature Review

The study has identified two major forms of international cooperation in vocational institutions, one is to invite international educational advanced experience and science and technology, and another is to send high-quality educational resources and technology abroad.

2.1 "Inviting in" Mode in Vocational Institutions

China's vocational education still has room for improvement and needs to introduce advanced foreign professional and industrial experience into domestic vocational colleges to reach international professional standards. Foreign experience can be invited in through two modes, one is to introduce advanced education systems, and the other is to send national talents abroad for professional training or learning.

2.1.1 Invite in Advanced Foreign Education Systems

The mode of inviting foreign advanced education systems can be carried out in the form of learning the advanced foreign systems [1]. Specifically, includes foreign advanced industry standards, systems, talent training modes and curriculum contents, and localized transformation and promotion of implementation in China vocational colleges. For example, Hangzhou Vocational Institute of Technology introduced Japanese comic industry standards, the studio system, talent training mode, curriculum content, etc., set up a modern apprenticeship class for Japanese flip animation, and adopted a modern apprenticeship class mode for tiered teaching [6]. Based on Sino-Japanese school-enterprise cooperation and modern apprenticeship system, the local vocational institute has promoted the innovation of international talent cultivation mechanism, increased the international content, and improved the quality of talent cultivation.

2.1.2 Going Abroad for Training

The mode of inviting in also can be conducted in foreign advanced institutions. For instance, the cooperation between vocational colleges in China, named Jining Technical College, and the Industrial Education Authority of Singapore (ITE for short) is the case of "going out to learn from the experience". Singapore ITE has formed a mature international education consulting service [7]. Jining Technical College sends its managers to Singapore for course training or students to attend international training programs in Singapore. For example, in the student internationalization training program, students gained the chance to intern in Singapore school-run enterprises or cooperative enterprises. etc. Therefore, they could learn by doing in multinational companies, study and practice there, and even could be employed by Singapore local companies after they graduated. Through the introduction of ITE programs, domestic institutions have invited higher quality educational resources
from abroad, broadened the horizons of teachers and students, and improved the competitiveness of
the school.
Through the introduction of the foreign advanced talent training mode, domestic vocational
institutions solve the problems of mismatch between the supply of local talent resources and the job
demand of enterprises, as well as to helping schools broaden their enrollment channels and inject new
connections of school talent training.

2.2 The "Going out" Mode in Vocational Colleges

After years of development of higher vocational colleges and universities, China's vocational colleges
and universities have accumulated numerous experiences in exploring the path of "going out" in all
aspects and have formed two types of international cooperation and exchange modes. One is to go
abroad with advanced experience and train foreign students on site, and the other is to provide
education and training to foreign students in China.

2.2.1 Sending Chinese Experience Abroad

In terms of sending advanced educational experiences abroad, two typical successful modes are
Confucius Institute and "Luban Workshop". Confucius Institute which centered on the Chinese
language and culture had been researched a lot in recent years [2][3][8]. However, unlike the
Confucius Institute, the "Luban Workshop" which resembles vocational education and focuses on the
exchange of industrial skills and production modes, will be briefly introduced below.

The "Luban Workshop" mode refers to a cooperation mode based on the rigorous craftsmanship
of the Chinese traditional figure named Luban who was diligent, innovative, and dedicated to his
work. By maintaining Luba’s spirit, Chinese vocational institutes export advanced education
experience abroad, especially to countries along the One Belt and One Road. For example, Tianjin
Light Industry Vocational and Technical College, Tianjin Transportation Vocational College, Ain
Shams University, and Egypt TEDA Development Company. Ltd jointly established the training and
employment base of the Egyptian "Luban Workshop". By integrating the needs of local factories,
colleges, and students, China's vocational education talents are "going out" with advanced vocational
education experience to help the overseas country. Unlike the previous mode which focused on
student and teacher exchanges, "Luban Workshop" mode is larger in scale, mature, comprehensive,
and systematic, and establishes a new mode of cooperation and exchange in vocational education.
Therefore, this mode is not only a new mode of Sino-foreign cooperation in running vocational
colleges but also a new way of foreign educational assistance to silk and belt countries. Moreover,
this mode can be rapidly replicated, and 20 "Luban Workshop" have been established in 19 countries
and regions [9][10]. As a result, the cooperation outcomes create more work opportunities for the
locals, and the unemployment rate decreased in local countries. In short, this is a self-reinforcing
circle that is sustainable and beneficial to the local economy.

2.2.2 Cultivation of International Students in China

In the cultivation of international students in China, most contemporary researchers are mainly
concerned with the cultivation of international students in general colleges and universities [11]. The
emerging mode of Chinese-foreign cooperation in running colleges and universities also has been
explored by researchers. Universities such as Xijiao Liverpool University, Nottingham University
Ningbo, Duke University Kunshan, and Michigan College of Shanghai Jiaotong University are
Chinese-foreign joint-venture universities, established by one famous foreign university and one
domestic university. These universities can not only issue foreign universities diplomas but also
provide unique study and living experiences in China for oversea students, thus attracting a large number of foreign students.

Regarding the cultivation of foreign students in vocational education, the relevant researches are still at the stage of describing the basic situation, such as the research on the scale of foreign students in vocational education, the scholarship situation, and the difficulties faced by foreign students [4]. In recent years, the international cooperation in vocational education around the "One Belt, One Road Initiative" has been growing rapidly and has attracted attention of academics. However, there is not much discussion on the program design for international students training in China [12]. Among the few studies discussing this issue, researchers have only preliminarily summarized the practices. There is a need for a methodology for social science studies [6][13][14][15]. For example, the importance of the integration of industry and education is mentioned, but those studies did not clearly describe the relationship between the cooperation mode and performance of the project, i.e., without a methodology for causal inference.

2.3 Summary

There are many studies on the invite-in mode of international cooperation, with analysis and case studies on its components, operation mechanism, and effectiveness. The projects of Chinese experience going out are growing rapidly, and researches on Confucius Institute and Luban mode increased as well. However the studies on foreign students in vocational education and training are still rare, and the published articles not only lack international vocation education standard knowledge but also need to be improved to support the design of cooperation programs.

China, as an emerging country, is increasingly becoming an attractive study destination for international students. As a major manufacturing country with a well-developed industrial chain, China's achievements in engineering project construction and other areas are recognized globally. It is a question that is worth exploring, how international exchanges in vocational education in China should be designed and what modes of cooperation could make the most use of the advantage of China's cultural, industrial, and educational domains? Exploring effective modes of international cooperation in Chinese vocational education could be helpful for China to improve the mode of education and training mechanism, support to spread Chinese experience to the countries that needed and also could enhance the effectiveness of South-South cooperation (among the south parts countries of the earth).

3. Methodology and Data

This paper uses a case study approach to explore the foreign exchange and cooperation modes of a Chinese vocational higher education institute (hereafter referred to as College H). Three projects representing three cooperation modes were selected for comparison in the study, and an attempt was made to analyze the reasons that lead to success or failure.

Data collection method: Interviews were conducted with the head of the International Exchange and Cooperation Office and some students of College H. Materials such as information from the school's official website and reports from mass media were compiled, while detailed field notes were made in a participatory observation style.

Basic information of the case: College H is located in the southernmost part of China, an island tourist city, surrounded by countries are the Philippines, Brunei and Malaysia, and with close interaction with Myanmar, Nepal and India. The college was established in 2005, and its foreign cooperation and exchange work started in 2011 and began to recruit international students in the same year. It has become one of the colleges with the largest number of international students among the higher education institutions in Hainan Province. Most foreign students came from Nepal, Russia,
Ukraine, Kazakhstan, Israel, India, Sri Lanka, and Thailand. College H has been committed to training "international professional craftsmen" for foreign students' home countries' local economy, and rich experience has been accumulated in the processes of cultivating international students through local school-enterprise cooperation mode. The efficient education mode made the city become a window for the city to open up to the world.

Basic information of the projects: In this paper, three projects that have been cooperated with foreign colleges before 2019 were selected. There are cooperation projects between College H and the institutional units in Nepal, Thailand, and Belarus. These three projects are all about vocational education, reflecting the characteristics of the Chinese experience going out, and all of them had achieved certain effectiveness to some extent. Considering the global outbreak of the Covid-19 epidemic and the disruption of international exchanges in education, the study only selects international cooperation projects that were already underway before the epidemic began. To exclude the impact of the epidemic on the projects, the discussion of the effectiveness of the projects also ends in early 2020.

4. Results

The study will present three projects that College H has conducted with Nepal, Thailand, and Belarus, discussions on their backgrounds, collaboration modes, and project effectiveness will be carried out and based on this, a comparison and analysis of the keys to project success will be applied.

4.1 Nepal Project

4.1.1 Background

The project between the International Institute of Tourism and Hospitality Management (IITHM) in Kathmandu, Nepal and College H in China started negotiated in 2009, and both sides had signed agreements that included sending students and teachers to each other's colleges. The first group of 27 Nepal students who majored in Hospitality in College H arrived in 2011 and started their one-year study journey. College H held a grand opening ceremony to show their warm welcome. It implied that formal cooperation in between was started. The school leaders of both sides have long attached importance which is essential to building solid cooperation. From 2011 to 2020, during nine years of cooperation, in every term, the president or the head of Nepal university would come along with a student delegation came to College H and the two sides would exchange new ideas on project development thoroughly and in detail. The high frequency of meetings between the two colleges has promoted the two sides to build a friendly and solid cooperation relationship which enhanced the rapid growth of the scale of the program. In December 2017, the number of enrolled Nepalese students reached 781, which was also the highest number of foreign students in the college's history.

4.1.2 Cooperation Mode

The project contains three parts, namely, students, and local industries, and they are integrated by meeting each party's needs. In detail, Sanya (the city College H located) is a world tourism destination and many luxurious hotels need staffs who could not only speak English fluently but also possess hospitality knowledge. College H had built cooperation relationships with local hospitality industries which could accept students to intern or work there, so students could learn professional knowledge by working in the real workplace. Students from Nepal who could speak English and also master hospitality knowledge are the ideal staff for Sanya Hotels. In addition, the intern students' source is solid and sustainable because of the long-term and friendly cooperation between two colleges. The
local hotels could save a great budget and time on staff employing and training by accepting the Nepal students to intern there.

Nepal students are also benefited in two ways. Firstly, earn tuition fees by working in cooperated hotels. For Nepal students, the tuition fee and living expenses in China are quite high compared to their currency buying power. Their living and eating expense was covered by the hotel, and the salary they earn could pay the tuition fees. Therefore, Nepal students study in College H is financially affordable. Secondly, the working experience gained in local star hotels can be directly applied to their practical work when they return home. Many students who participated in the project reported that the Chinese work experience they obtained played a big role in job hunting in the hospitality field as the work experience in China was recognized and valued by Nepal local companies.

This mode is similar to the Chinese vocational education mode which takes place among Chinese students, the order-form [1] [16]. However, applying the order-form in cultivating foreign student processes is a creative option in educating foreign vocational students. Nepal project has not only adopted the order-form, emerged with local industries but also integrate well with their home countries' industries.

4.1.3 Impacts

The project worked very well and has attracted a large number of foreign students come to college H. According to the statistics, there were 40,000 foreign students in 21 universities and colleges in Hainan in 2019, and College H occupied 1/3 of the total, exceeding most undergraduate universities' foreign students. In addition, the Nepal program is so popular among Nepalese students that students from other countries such as Israel, India, Sri Lanka, Thailand were also attracted and came to college H. On March 11, 2019, the Acting Consul General of the Consulate General of Nepal in Guangzhou visited College H and expressed their gratefulness for the great efforts and contributions College H did to the educational cooperation and exchange between China and Nepal. It is because Nepal students and their local industries have benefited a lot from the project and have built a good reputation in the region, the Consul General of the Embassy of Nepal in China was able to visit College H actively and this behavior enhanced cooperation between two colleges even two regions.

4.2 Thailand Project

4.2.1 Background

In September 2017, in Bangkok, Thailand, in the presence of the Governor of Hainan Province, the Minister of Public Health Department of Thailand, and others, Hainan Province Cihang Public Welfare Foundation, the Confucius Institute of the Maritime Silk Road in Thailand, and College H signed a tripartite agreement. The agreement focused on aviation service training for Thai students. The project aims to help train more aviation service talents in Thailand and increase the friendly exchange between China and Thailand. Nearly 200 students applied for the program and 30 students were selected to enter the flight attendant training class, which officially started on May 18, 2018.

4.2.2 Cooperation Mode

The project is an international cooperation project which only emphasizes on airline flight attendant training. Four parties are responsible for different work, the cooperation agreement is signed by the Chinese and Thailand governments, Hainan Provincial Charity Found provided more than 1.5 million RMB and the Confucius Institute on the Silk Road of the Sea in Thailand assisted in local enrollment in Thailand. H college is responsible for providing three-month training courses. They designed the setting, funding arrangement, curriculum, interview and selection, talent training program, and
various activities together. In terms of teaching, the program has not only designed professional courses related to the training of cabin crew but also arranged Chinese cultural courses such as tea art and calligraphy to improve the overall quality of Thai students and help them integrate into Chinese culture. After the students finished the training course, eight Thai students were selected by Chinese airline companies after interviews [2].

4.2.3 Impacts

The project was reported by famous media reports, such as the People's Daily and other media, and had obtained outstanding public attention at the early stages. Working as a flight attendant, the high salary and career path are attractive to Thai students, so many students are looking forward to staying in China and working in the aviation service industry.

However, with only 30 students participating, the project was not renewed and expanded at a later stage for many reasons. Firstly, the main problem was that the investment was too high, needed about 50,000 RMB per student which much higher than domestic students educating, without further financial support from China Cihang, the program is impossible to be conducted. Secondly, the project was initially driven by two countries' governments and financially sponsored by Charity Found of Cihang, so the cooperation is more like political strategy cooperation instead of an education agreements. Also, the flight attendants supplied exceeded the demand in the human resource market, and the job vacancies in airplane companies in China were limited which makes the Charity Found of China Cihang reluctant to invest more found on the project.

In 2018, when the project reached the point of renewal, College H found that the government and HNA Group did not show interest in moving forward. As a result, the project was put on hold at the end of the first phase. Afterward, HNA Group itself suffered from declining profits and a broken capital chain and was reorganized in bankruptcy, which also had a huge negative impact on project maintenance.

4.3 Belarus Project

4.3.1 Background

With the help of teachers from College H who had studied in Belarus before, in April 2017, College H signed an international exchange and cooperation agreement with the Belarusian State University. Then in December 2017, the Hainan Education Center of the Belarusian State University was established in College H. The center is dedicated to building a training base for Russian-speaking personnel in Hainan and a base for students of Belarusian State University to study Chinese. Students from College H also study in Belarus through the cooperation arrangements.

4.3.2 Cooperation Mode

The Belarusian program embodies a mode of cooperation with language learning at its core. This mode originated from the staff's connection from College H with Belarus college. As the platform of cooperation between the two universities was built by the Russian language teachers of College H, who used to study in Belarusian, and the two colleges' presidents have not met or communicated as frequency as Nepal project. In addition, the core of the cooperation between the two universities was mainly focused on College H's staff's connections with Belarus University.

Around the platform of the Hainan Education Center of the Belarusian State University, various programs have been held. For example, the two schools have established a mechanism of mutual visits, exchange of teachers and students, a platform for sharing information resources, and academic exchange activities between teachers, to achieve "two-university" barrier-free academic exchanges. 
and two-way teacher training and exchange activities; learning, intern and employment; to make full use of modern information technology, the establishment of information resources shared by two universities, and learning management experience from each other[1].

4.3.3 Impacts

The project has attracted a certain number of international students from Belarus. By 2019, 60 Belarusian students in total have been studied in college H. However, the project is more of a student exchange program and other cooperative programs were not conducted fully.

College H benefits a lot from the project. Firstly, Chinese students who majored in Russian have the chance to pursue a higher degree in Belarus, 34 students have got the chance of undergraduate and graduate study, two of them are pursuing the doctoral degrees now. Secondly, the cooperation provides a good platform for continuing education of Russian teachers and students and helps to improve their qualifications as well as their overall language skills. Also, College H has made full use of the resources of the international academic community to improve the ability of teachers and students to communicate and cooperate across cultures. Therefore, College H has also become the institution with the largest number of students majoring in Russian among vocational institutions in the country.

However, after the expiration of the cooperation agreement, the project was not renewed. One reason is that the faculty members who were previously in charge of the program were no longer responsible for the program due to a change in an administrative position. Another reason is that the two headmasters of the two colleges were not positive to promote the program as the financial income from this project is not satisfying.

4.4 Comparisons of three projects

The three collaborative projects included in the study are all projects that focus on foreign students coming to China for exchange, but the significant differences can be identified in the scale, duration, and effectiveness of the three projects (Table 1). The Nepal project lasted for nine years, with a peak enrollment of nearly 1,000 students a year, and the project had a sustained impact on local enterprises as well as in neighboring countries. The Thailand project was implemented only once and lasted for less than six months, with only thirty students involved. The social impact is limited as the was suspended due to project fund shortage and other issues. The Belarus project was implemented for one agreement cycle, about 2 years, and the number of international students coming to China through the project was around 60. The project was not able to renewed due to the replacement of the person who in charge and the inactivity of the two colleges' headmasters.

Why did the Nepal program achieve great results and continued growth in scale, while the Thailand and Belarus programs were limited in size and difficult to renew? The study found that the biggest difference among the three projects is the degree of integration with the local economy. The Nepal program's student training was designed to integrate with local Chinese industries from the initial program design, curriculum arrangement, and internship. Every phrase closely integrates the students' overall abilities and talents' qualifications requirements from local enterprises and forms a positive interest chain and a symbiotic relationship between the students, school, and enterprises. The entire project was perfectly merged with the international tourist destination and the practical needs of star hotels.

However, in contrast, the integration of Thai and Belarusian programs with the local economy are very loose and the benefits gained are not significant. Although the Thailand project is a professional training project, its connection is limited to airlines and the project is very costly. The Belarus project was limited to language training and student exchanges, and thus did not integrate local industries
into the project design at an organizational level. As a cooperative program organized by a vocational college, the Belarusian program of College H has a limited attraction to foreign students, and the overall program size has not increased significantly.

Table 1: Summary of the three international cooperation projects.

<table>
<thead>
<tr>
<th>No.</th>
<th>Project name</th>
<th>Background</th>
<th>Mode of cooperation</th>
<th>Effect &amp; Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nepal project</td>
<td>-Inter-university agreement project established by both institutions -Nepal students come to China and study -Comprehensive training: Integration of industry and education -Self-reinforcing</td>
<td>Industry-education integrated and self-enforcing program -School-enterprise cooperation, order-form talent-training mode -Self-enforcing: the college, enterprises and students benefit from each other</td>
<td>Duration: nearly 9 years Scale: many international students, the highest No. reached 900 Impacts: -Praised by participants and attract students from other countries -Promote political and economic exchanges -Promote recruitment of local enterprises</td>
</tr>
<tr>
<td>2</td>
<td>Thailand project</td>
<td>-Promoted by both sides’ governments -Funded by enterprise -Relying on third-party organization to enroll Thailand students -Single training project</td>
<td>Domain-specific training program -Short-term training of flight attendant -Unsustainable: project conducted just for once costly, corporate-funded</td>
<td>Duration: half a year Scale:30 students Impacts: -positive evaluation by participants -later expansion of the program was hindered by the bankruptcy of HNA</td>
</tr>
<tr>
<td>3</td>
<td>Belarus project</td>
<td>-Inter-university agreement -Initiated by teachers of College H who had studied in Belarus before -Send students to each other’s college</td>
<td>Language-learning program -Only focus on language training and no in-depth relation with local social-economic -Unsustainable Cooperation relationship is fragile, rely in on staffs’ connections</td>
<td>Duration: 2 years Scale: 60 Belarus students and 34 Chinese students Impacts: -Program benefits were not significant and cooperation limited to inter-school exchange of students -Cooperation stopped after the program director changed</td>
</tr>
</tbody>
</table>

5. Conclusion

With the growing influence globally, China is increasingly becoming a major study center for international students, especially for those from developing countries. How to improve the access to domestic education for international students and how to improve the international competitiveness of China education have become an important issue. This article discusses the above issues from the
perspective of how international cooperation in vocational education institutions should be carried out. It is found that in the oversea student program in China, to make the projects produce good learning outcomes and make incredible progression, it is necessary to integrate industry and education well and fully combine the programs with local industries. The program should be launched by combining the strengths of students, enterprises, and schools in terms of their abilities, resources, and needs. And the establishment of a systematic and realized self-reinforcing project requires efficient interaction between Chinese and foreign institutes. Chinese institutions should fully explore the connection between local industries and international students and provide the opportunity for the growth of international cooperation projects so that the cooperation projects could benefit multiple parties and gain long-lasting vitality.

International education cooperation is conducive to promoting the cross-border circulation of advanced educational experiences and enhancing global human capital. The findings of this paper shed light on how to conduct the international cooperation of vocational education in the context of south-south cooperation. Emerging countries like China will play a more important role in leading the rest of the south and take more responsibility for providing well-designed projects of vocational education for oversea students.

References