Sociology Study, Jan.-Feb. 2024, Vol. 14, No. 1, 54-68
doi: 10.17265/2159-5526/2024.01.005

# The Effectiveness of Partnership in Talent Training Between Industry and Higher Vocational Colleges in China

CHEN Yan
Shandong Vocational College of Light Industry, Zibo, Shandong, China
Christina Andin
Universiti Malaysia Sabah, Malaysia

This paper is based on the partnership between China's higher vocational colleges and industry, and obtains a large number of data on industry-college partnerships through case analysis, interviews and questionnaires. This paper analyzes the main factors that affect industry-college partnerships and the current problems and challenges, then puts forward the solutions.

*Keywords:* industry-college partnerships, environmental factors, training factors, people factors

## Introduction

As a manufacturing powerhouse, China's economy is developing rapidly, requiring a large number of highly skilled workers. Industry-college partnerships seem to be the solution to the global training of skilled workers. Higher vocational colleges and industry establish partnerships to train students with vocational skills, provide high-quality staff for enterprises and keep them competitive. Based on in-depth interviews and questionnaires, this paper analyzed and researched four cases from Shandong Vocational College of Light Industry (see Table 1), and analyzed factors contributing to the sustainability of the partnerships in relation to Lendrum's (2003) framework.

Table 1
*Partners of Industry-College Partnerships and Cooperative Majors*

| Partners | Department partner | Industry partner | Cooperative major |
|---|---|---|---|
| DP1 & IP1 | Department of information engineering | Bestlink Technology Co., Ltd. | Modern communication technology |
| DP2 & IP2 | Department of textile engineering | Lutai Textile Co., Ltd. | Textile design |
| DP3 & IP3 | Department of business administration | Tianjin Lianhang General Aviation Co., Ltd. | Air crew |
| DP4 & IP4 | International fashion institute | Shanghai Saite Silk Import and Export Co., Ltd. | Fashion and costume design |

## Methodology

The research method of this paper is case study. For each case, the background characteristics of respondents

CHEN Yan, Ph.D. student, Faculty of Education and Psychology, Universiti Malaysia Sabah, Malaysia; associate professor, Department of Textile Engineering, Shandong Vocational College of Light Industry, China.
Christina Andin, Ph.D., Faculty of Education and Psychology, Universiti Malaysia Sabah, Malaysia.

related to partnerships are presented for department and industry partners. The partnership and factors contributing to the sustainability of the partnerships are analyzed.

Cross-case analysis is also used because it makes a comprehensive analysis of four cases. As Spangler (2002) stated that one purpose for doing cross-analysis is to enhance generalizability, which is an appropriate goal for qualitative studies.

**Background Characteristics of Respondents**

Eight respondents participated in the interviews from both department partners and industry partners. In addition, six respondents from the college participated in the survey.10 of 14 surveyed were equally distributed between teaching administrator/enterprise manager (4/14), managers of industry-college partnerships (4/14), top management (2/14). In addition, three respondents were teacher/enterprise technician and one respondent was in the "other" category, who was office staff. In addition, more than half of respondents acknowledged themselves as those who managed these partnerships (57.1%). Other respondents identified themselves as those who involved in these partnerships (42.9%).

**Questionnaire**

The questionnaire was randomly sampled and had no repeated sampling, as shown in Table 2. The sample of higher vocational colleges came from 4 schools, distributed in 3 provinces of China. The sample of industry partners came from 6 enterprises, distributed in 4 provinces of China. The respondents in colleges were divided into five types: teaching manager, teacher, industry-college partnerships personnel, senior manager and others; about 165 samples were obtained. On the other hand, the respondents from enterprise were divided into business manager, master, industry-college partnerships personnel, senior manager and others; about 176 samples were obtained.

Table 2

*The Total Population*

| | Types of respondents | DP1 | DP2 | DP3 | DP4 | Total population |
|---|---|---|---|---|---|---|
| 1 | Teaching manager | 6 | 6 | 6 | 6 | 24 |
| 2 | Teacher | 23 | 22 | 23 | 23 | 91 |
| 3 | Industry-college partnerships personnel | 3 | 4 | 3 | 4 | 14 |
| 4 | Senior manager | 1 | 1 | 1 | 2 | 5 |
| 5 | Others | 8 | 7 | 8 | 8 | 31 |
| | Types of respondents | IP1 | IP2 | IP3 | IP4 | Total population |
| 1 | Business manager | 5 | 5 | 5 | 5 | 20 |
| 2 | Master | 25 | 24 | 25 | 25 | 99 |
| 3 | Industry-college partnerships personnel | 5 | 4 | 4 | 3 | 16 |
| 4 | Senior manager | 1 | 2 | 1 | 2 | 6 |
| 5 | Others | 8 | 9 | 9 | 9 | 35 |
| Overall | | | | | | 341 |

## Impacting Factors on Partnerships

In the four cases, the shortest partnership was three years and the longest was fourteen years. They have experienced the adaptation and running-in of the initial stage of partnerships, as well as the influence of

numerous internal and external changes. In general, these influencing factors include environmental, training and people factors.

**Environmental Factors**

**Location.** The findings of the questionnaire from industry responses showed that accounting for 67.61% of partnerships were established in the local region where the enterprise is located, followed by other regions of the city (47.73%) and other cities of the province (44.32%) where the enterprise is located. 30.68% of respondents stated that partnerships had been established in other provinces of China. The findings of the questionnaire from department responses showed similar to the respondents from industry respondents. Partnerships are mainly established in the local region and other regions of the city (142) and the province (134) where the department is located, with the proportion of 86.06% and 81.21% respectively. At the same time, 54.55% of respondents stated that partnerships had been established in other provinces of China.

Of the partnerships discussed in interviews, two involved delivery in other provinces of China and two operated only in the city in which both the department and company were situated. Respondents to the survey revealed that there are no overseas corporate partnerships at present.

The industry partner's geographic proximity was considered very important by the department partner. The benefits in learning close to the workplace meant that they were easily accessible so that internship was more convenient, and the department staff could attend meetings or visit students on site easily. This type of partnership was common in industry-college partnerships. From the enterprise perspective, they are also willing to form partnerships with local higher vocational colleges. When the company wants to increase the skills of employees, they do not need to send them far away the company's location. Even college teachers can come to the company to teach them. This situation happens from time to time. In many cases industry chooses a local college to show their support for the local economy and education. Companies that offered employment in regional locations stated they wanted to show their support to the area by selecting their partners from within their local area or city.

Therefore, each partner felt that location played a key role in the overall collaborative process. In their review of educational institution and industry links and partnerships Melville and Hawke (2002) examined partnership outcomes in terms of the initiating source, the purpose of the partnership, the location of the learning, and the management or leadership of the program. The research shows that location is one of the factors contributing to the success of partnerships.

The interviews also revealed that more than one-third of industry-college partnerships have partners in other provinces of China. This is mainly based on the reputation of the partner. Only by having a good reputation can college or industry attract partners from other provinces, and at the same time, such partnerships will be more conducive to enhancing visibility in the future.

**Reputation and track record.** 68.18% of respondents from enterprises believe that a good reputation is conducive to industry-college partnerships. For those from colleges, the figure is 83.64%. Moreover, 67.05% of respondents from enterprises consider that their companies have a very successful record in industry-college partnerships, and 78.18% of respondents from colleges think so too. The details are shown in the following Table 3.

All the case studies in this research also point to the importance of a partner's reputation in the field of expertise and a track record of industry-college partnerships.

All departments of Shandong Vocational College of Light Industry noted the recognition they obtained in the industry-college partnerships with big companies. This included the partnership with listed companies (e.g. IP2), leading enterprises in the industry (e.g. IP1 and IP4) and enterprises with professional advantages (e.g. IP3). Department partners considered that these partnerships usually improved their status in the professional field, raised the profile of their organization, and improved their competitiveness in recruiting students. It has also boosted the college's reputation, especially in creating new industry-college partnerships in other provinces of China.

Table 3

*Details of Respondents from Enterprises and Colleges*

| Question | Respondents from enterprises | | | Respondents from colleges | | |
|---|---|---|---|---|---|---|
| | Strong agree | Agree | Percentage | Strong agree | Agree | Percentage |
| Good reputation | 80 | 40 | 68.18% | 90 | 48 | 83.64% |
| Successful record | 78 | 40 | 67.05% | 73 | 56 | 78.18% |

In DP2's case, their status and reputation for excellence enhanced their image with IP2. Shandong Vocational College of Light Industry has been running schools for a long time, and its textile major has always been a key major, enjoying a high reputation in Shandong Province. Compared with a short history of textile major in some universities, DP2 has even more professional advantages. DP2 has a school-run factory and various training rooms, cultivating students with high quality and good professional skills. Therefore, IP2 started recruiting DP2's students since 2005. In 2008, IP2 and DP2 implemented the training of "order class" and officially started industry-college partnerships. This insight demonstrated the importance of the reputation in industry-college partnerships, and created a positive benefit for DP2.

The potential continuation of partnerships for all departments is related to the development into larger and more significant projects which might provide more benefits or students to the departments. In general, therefore, the reputation acquired from delivering high industry-college partnerships enhanced and enlarged their industry-college partnerships.

**Benefits.** In the survey, 14 respondents whether from departments or industries, say that they all benefited from industry-college partnerships. Moreover, in the questionnaire survey, 83.63% of college respondents and 69.89% of enterprise respondents agree or fully agree with the statement that they benefit from industry-college partnerships. In summary, the respondents considered that partnerships were mutually advantageous business relationships which improved the development of college and industry.

One respondent from college thinks that "there is no doubt that we benefit from industry-college partnerships. Students can practice in enterprises to improve their operational skills, adapt to the corporate culture, and lay a good foundation for future work" (DP2 interview, 2022).

In addition, in the research on scientific research, 40.61% of the respondents of the colleges strongly agree and 32.73% agree that industry-college partnerships are beneficial to scientific research work, 73.34% in total. On the other hand, 43.18% of respondents from enterprises strongly agree and 25% agree that industry-college partnerships are beneficial to their scientific research work, 68.18% in total.

In four case studies, it was also found that both partners could benefit from industry-college partnerships. And as partnerships progress, the forms and benefits of partnerships will evolve. Lasting benefits may be the secret to a long-term industry-college partnerships. These cases demonstrate the importance of mutual value for

partners as Bowie (1994), Foskett (2005), Meister (2003) and Uhlik (1995) suggested. In each case, college partners and industry partners emphasized the importance of benefits for their respective institutions as the foundation of their relationships.

Table 4 summarizes the benefits driving partnerships from each participant organization's perspective. It is important that each derives some benefit from the partnership, which is the reason that industry-college partnerships can last for a long time, even above ten years.

Table 4

*Industry-College Partnership Benefits for Both Partners*

| Partners | Industry-college partnership benefits |
|---|---|
| DP1 | The construction of internship base and enrollment, improve teachers' practical ability |
| IP1 | Reduce recruitment and training costs, increase in the company's reputation |
| DP2 | Provide good employment opportunities for students, increase the number of students enrolled, improve the level of scientific research, enhance the reputation |
| IP2 | Employee recruitment and the stability of employees |
| DP3 | The construction of internship base and enrollment, the popularity of the college |
| IP3 | Increas company's income through training services, good reputation |
| DP4 | The construction of internship base and the purchase of internship equipment, improve the professional skills of students, promote the development of education and research |
| IP4 | Targeted and free internal training activities, a culture of knowledge and experiences sharing |

**Partnership development.** The two partners based on different driving forces, or based on the benefits brought by industry-college partnerships, reached the intention of partnerships. Usually they sign a formal contract at the outset that clearly defines the deliverables, roles and financial terms of agreement (Bray & Scalzo, 2005; Kuglin & Hook, 2002; Meister, 2003). All four case studies in this study involved the signing of formal agreements at the beginning of the relationship.

DP2 and IP2 singed a formal contract at the beginning of the partnership, which included clear expectations about program objectives, contents of the partnership, financial arrangements, responsibilities and obligations of both partners.

When a partnership has matured to a stage where administrative arrangements are in place, the partners have confidence in each other and the business of the association can progress. This "harvesting phase" is where the association enjoys its accomplishments and benefits from the efforts to get administrative arrangements right (Mulcahy, 2003).

After the formal contract of industry-college partnerships is signed, it is generally renewed annually or every three years. It depends on how the partnerships develop.

Many of the partnerships were viewed as a continuing process of relationship development which frequently involved more than direct training. Thus partnerships have a specified end point. However, the partners were always ready to assess their value and, on that basis, expand or extend the partnership. In relation to assessing their value, while some were being regularly evaluated, others were evaluated over a particular cycle, agreed by both sides. The evaluation is mainly carried out from the aspects of talent training, practical teaching, scientific research achievements, teacher training, social services, employment and entrepreneurship, function utilization and the performance of the contract. The results of performance evaluation can be divided into qualified and unqualified. The unqualified project will be ordered to rectify together with industry partners, and the project that still fails to meet the requirements within the specified time will be cancelled.

Three of the four cases renewed their contracts after one to three years, while the other just finished three years and is in the process of renewal. These partnerships were dependent on continued financial benefits, whether from college, industry or government, and the partnership could not survive if financial benefits levels were reduced or discontinued.

Case study 1 (DP1/IP) is currently the largest industry-college partnership project invested by industry-partners. In 2014, IP1 began to invest to purchase practical training equipment, and in 2020, it signed a supplementary agreement to make additional investment and build a industrial park in the DP1.

Case study 2 (DP2/IP2) is a thirteen-year partnership which began by "order class". This is the longest industry-college partnership of the four cases. They cooperated to build a factory in the college and a college in the factory. The college teachers attended company meetings to learn about the operating systems of the business and worked alongside business employees on site. The company experts went to college to teach students, prepare lessons with teachers, and participate in teaching and research activities. The partnership between DP2 and IP2 has always been in the form of "order class". Even if the leadership changes during this period, the partnership has not been affected.

It can be seen that during the partnerships, both partners can benefit from each other and establish trust. Both partners have the same direction and strategy in industry-college partnerships.

**Training Factors**

**Flexibility and customization.** Traditional school education is step-by-step, but vocational education has different requirements. Students trained by vocational education should adapt to the job requirements of enterprises. The sooner students adapt to the job after graduation, the more welcome they will be. In the past 20 years, reform has always been the task of higher vocational colleges. Not only teaching reform, but also management and organizational structure to make the school's talent training model more suitable for the requirements of the industry partners. From school as the main body at the beginning, to school and enterprise dual body, at present, there is also the emergence of enterprise-led industry-college partnership model. The form of industry-college partnerships is more and more flexible, and there are more customized industry-college partnership projects.

In industry-college partnerships, customized courses and order classes are relatively early forms. Later, there are forms of the factory in the college and the college in the factory, modern apprenticeship, vocational education group, college-industry co-education and other forms. Now there is industry-college partnerships under mixed ownership dominated by enterprises. Industry-college partnerships are becoming more diversified and better able to meet the requirements of enterprises.

In case four, the partners adopt a mixed ownership model, which is an enterprise-led industry-college partnerships. Industry partner is more active in participation, teaching is more flexible, closer to the actual production, and it can better cultivate talents for enterprises. All these are conducive to the development of the major, and it seems that the prospect is good at present.

In case one, a high level of customization was demonstrated. DP1 sent staff to IP1 to the real training for one to two weeks because the industry partner proposed that new training material should be delivered to the student of customized class, named "modern apprenticeship quality class". This was seen as a kind of customized course.

Through customized learning, students' learning is more targeted. In colleges, students are familiar with the working process of the enterprise and master the knowledge and skills required by the enterprise. College

learning and enterprise use is “zero distance”. Students are trained according to the standards of enterprises, so when they graduate, they are more suitable for the job. Graduates of industry-college partnerships adapt to the demands of the workplace more quickly than other new employees.

68.75% (78 fully agree and 43 agree) of respondents from industry partners think that they have a flexible model of industry-college partnerships with each other, while the percentage is 78.79% (68 fully agree and 62 agree) of colleges. However, 69.32% (79 fully agree and 43 agree) of enterprise respondents and 80% (78 fully agree and 54 agree) of college respondents believe that they have classes or courses based on industry-college partnerships.

For course content, respondent data from enterprises and colleges are not quite the same. While 69.7% of respondents from colleges agree that the course is in line with industry needs, only 38.18% of them fully agree. Among the respondents from enterprises, 45.45% fully agree and 22.16% agree, which maintains the normal level.

It can be seen that the college constantly selects course content according to the requirements of enterprises, and this kind of course reform is continuous and dynamic. From the results, the enterprises are basically satisfied with the effect of the course reform of the college, and the graduates cultivated by industry-college partnerships can adapt to the requirements of the workplace faster than other new employees.

**Teaching management.** The teaching management of higher vocational colleges is divided into two levels: college and department (institute). The Teaching Affairs Office is the main department of teaching management, and the department (institute) organization is the basic unit of teaching management organization. The head of the department (institute) is responsible for the teaching and management of the department (institute). The teaching director and the teaching secretary deal with the specific work of daily teaching management. The teaching management of industry-college partnerships mainly focuses on four aspects: practice management, teacher management, teaching process management, supervision and evaluation.

***Practice management.*** Student practice is a very important link in practice teaching in higher vocational colleges. It requires close cooperation and communication with industry partners to better complete. Colleges generally have practice bases built in partnership with enterprises, including on-campus and off-campus practice bases. The campus practice base is mainly used for daily professional courses learning and training, to ensure the integration of teaching, learning and doing. Off-campus practice base is mainly used for students’ cognitive practice and post practice. Cognitive practice refers to an activity that organizes students to visit, observe and experience the internship unit and form a preliminary understanding of the internship unit and related positions. Post practice refers to the activities in which students with certain practical post working ability participate in practical work independently or independently under the guidance of professional staff. The internship duration is generally 6 months to 12 months.

Student practice is an important work in school teaching. Higher vocational colleges usually set up practice management leading groups to comprehensively coordinate student practice work. Each department (institute) is the main body responsible for the teaching and management of student internship, and is responsible for the full implementation of internship related matters. The relevant departments (institute) should perform their own duties and coordinate management to do the internship work well together.

During the internship period, the college selects college instructors and employs enterprise instructors to guide students in the whole process of internship work. They are responsible for the completion of the relevant student internship management system data filling work, do a good job of the department (institute) student

internship daily inspection work, and make good records, complete student practice assessment, write internship summary, evaluate the effect of student practice, and do a good job in the filing of internship materials.

Industry partners work closely with the college during the internship. They are responsible for the implementation of the enterprise instructor, the assignment of internship positions, and the daily management and safety education of students. They also coordinate with the college to deal with student emergencies.

***Teacher management.*** College partner and industry partner also work together to train teachers. The teaching staff plays a decisive role in the teaching quality. The requirements for teachers in higher vocational colleges are different from those in universities. Higher vocational colleges cultivate high-skill applied talents, which puts forward higher requirements for teachers. They should not only have excellent theoretical knowledge, but also have strong practical ability. The teachers should be able to teach students to learn as well as guide them to do. Teachers' quality is usually improved through teaching practice, professional practice and professional study. In addition to government-organized education, partnership with industry is an important way, especially in improving teachers' practical ability. Let teachers to practice in enterprises can contact the production and management of the first line reality, training professional skills.

The department (institute) and Industry-College Partnership Office should track the tasks, time and arrangement of teachers' practice in the enterprise, and evaluate the results after the practice.

Teachers need to go to the enterprise with problems or projects, and determine the content of practice in the enterprise according to the needs of problem solving and project research, so as to improve the pertinence and effectiveness of practice.

Teachers in higher vocational colleges are also required to obtain corresponding vocational qualifications. They become double-qualified teachers, which means they have both academic and professional certificates before they can teach professional courses.

The construction of part-time teachers is also very important in higher vocational colleges. The State has stipulated that the number of part-time teachers in higher vocational colleges should reach more than 30 percent of the total number of teachers. Hire some professional and technical personnel with relevant professional titles and rich practical experience from enterprises, and they can be part-time teachers after teacher training. It can not only alleviate the shortage of "double-qualified" teachers, optimize the structure of teachers, but also adapt to the needs of industry-college partnerships and professional structure adjustment.

***Teaching process management.*** In the teaching process, firstly, the colleges investigate the requirements of various professional and technical fields and vocational posts (groups), refer to the vocational qualification standards, and reform the course system and teaching content requirements according to the latest needs of industries and enterprises. The course system based on vocational ability training should be reconstructed with employment as the orientation. The colleges jointly develop talent training programs with industry partners. Based on the real occupational environment and business, analyze the task of professional jobs and carry out project teaching. In the teaching process, it integrates simulated practical training, vocational qualification certificate examination, skill competition and other contents to realize the integration of "teaching, learning and doing" on the whole.

In the teaching process, teachers need to pay attention to the information of teaching resources and the interactive network of teaching. Teachers are encouraged to adopt modern teaching methods such as

high-quality resource-sharing courses and teaching resource libraries to enhance students' interest in learning and improve their learning results.

In case four, daily teaching is aimed at job skills and guided by the needs of enterprises. College and enterprises establish a deep industry-college partnership. In the teaching process, the partners adhere to the "integration of unified teaching and individual guidance", improve students' design, innovation ability and teaching level of teachers by participating in the competition, and truly achieve "promoting teaching through competition". IP4 provides technical guidance for students in the competition. It has formed a talent training mode of integrating industry and college and theory and practice.

***Supervision and evaluation.*** Jing Wang (2017) pointed that the supervision and evaluation of industry-college partnership teaching quality is a very important teaching management link. The teaching supervision system of higher vocational colleges is generally divided into two levels: college and department (institute) teaching supervision, including teaching supervision, teaching inspection, student feedback, responsibility accident accountability, etc. The perfection and objectivity of the teaching supervision system will have an important impact on the evaluation results.

Teaching evaluation is based on the information provided by the supervision system, using scientific evaluation index system and data processing method to derive the quantitative and qualitative analysis results of various factors of teaching quality, and make value judgment. Teaching evaluation for industry-college partnerships includes three parts: teacher work evaluation, teaching management level evaluation and student learning evaluation. Teachers' work evaluation is the basis of the whole college teaching work evaluation. Teacher job evaluation can also directly improve teachers' attention to teaching work and help teachers improve their teaching level. The evaluation of teaching management level is the evaluation of the completion of the job responsibilities and the quality of the teaching management department. The evaluation of students' learning status is mainly the evaluation of students' learning process in college. In order to reflect the teaching mode of industry-college partnerships, the assessment objectives should be "skill-based". At the same time, the assessment personnel should not be completely composed of college personnel, but should also join the technical backbone of related industries, so as to ensure the comprehensive and scientific assessment.

As shown in Table 5, both partners are engaged in four aspects of industry-college partnerships, including practice management, teacher management, teaching process, and supervision and evaluation. There are some similarities, but also differences.

Among the four aspects, the most successful partnership is practice management. 83.64% of respondents from the colleges and 68.18% from the enterprises fully agree or agree that the two partners have training bases for industry-college partnerships. Secondly, 70.91% of colleges and 62.5% of enterprises respondents fully agree or agree with their partnerships in teacher training. The teaching process ranked third, with an average of 64.34% respondents fully agreeing or agreeing with the participation of both partners in the teaching process.

However, only 51.52% of college respondents and 67.04% of industry respondents felt that they were fully involved in assessing teaching quality. The average percentage of the same project is also the lowest in the four aspects, at 59.28%. This proportion is much smaller than other projects, indicating that there is still a gap in teaching quality assessment of industry-college partnerships.

Table 5

*Details for Teaching Management of the Data from the Questionnaire*

| Quention | Respondents from enterprises | | | Respondents from colleges | | | Average percentage |
|---|---|---|---|---|---|---|---|
| | Strong agree | Agree | Percentage | Strong agree | Agree | Percentage | |
| Practice management | 80 | 40 | 68.18% | 90 | 48 | 83.64% | 75.02% |
| Teacher management | 78 | 40 | 67.05% | 73 | 56 | 78.18% | 66.71% |
| Teaching process | 73 | 50 | 69.89% | 54 | 43 | 58.79% | 64.34% |
| Supervision & evaluation | 75 | 43 | 67.04% | 48 | 37 | 51.52% | 59.28% |

**Return on training investment.** Among the respondents from the colleges, 82.42% (88 fully agree and 48 agree) believe that industry-college partnerships are beneficial to students' employment. Meanwhile, 81.82% (81 fully agree and 54 agree) respondents of the surveyed colleges believe that industry-college partnerships are conducive to improving teaching quality. On the other hand, 72.16% (47.73% fully agree and 24.43% agree) respondents of colleges and 68.18% (46.59% fully agree and 21.59% agree) respondents of industries respectively believe that industry-college partnerships are beneficial to the cultivation of talents and the improvement of financial benefits of enterprises.

These data show that the benefits of industry-college partnerships for both partners are significant. Both industry partners and college partners can benefit. This is also the internal driving force of industry-college partnerships.

As NCVER (2001) said "Returns on training investments are nearly always positive and can be very high" (p. 1). The mission of an enterprise is to seek maximum profit. At the same time, people will also find that high performance enterprises usually attach great importance to talent investment. Indeed, the returns from training are increased when training programs are incorporated within the whole corporate plan for the enterprise (Figgis et al., 2001).

Industry-college partnerships are double-win for both partners. From the perspective of enterprise, the most needed talents can be recruited through industry-college partnerships, because the college adopts the corresponding teaching mode to train the talents needed by the enterprise according to the needs of the enterprise. Students trained by industry-college partnerships have a better understanding of corporate culture and working environment during their stay in school, which will greatly shorten the run-in period between students and enterprises and reduce the training costs for employees of enterprises. Industry-college partnerships can also enhance students' identification with corporate culture and reduce employee mobility.

In case one, "the modern apprenticeship quality class" is a high-quality class. Students learned customized courses. They all came to work for IP1 after graduation and found high-paying positions with good career development. No one who participated in the program has quit yet. This also meets the requirements of IP1 for employee stability.

From the perspective of college, it can timely understand the changes of the enterprise's operating mechanism and post requirements, and make corresponding changes to the talent training program according to these changes. Avoid the deviation between the goal of talent training in colleges and the actual needs of enterprises. In addition, through the joint construction of training base with industry partners, college can understand the real working process of enterprises, improve students' practical ability. Through industry-college partnerships, teachers can go out of campus and enter enterprises to timely understand the

technological progress of enterprises, supplement teaching and avoid the lag in imparting knowledge. The joint research and development of scientific research projects between colleges and enterprises can also improve the scientific research level of colleges.

Industry-college partnerships are also good for students. Firstly, students can understand the job requirements and make career development plans. Secondly, participate in the enterprise internship, increase work experience and employability.

**People Factors**

**Management organization.** To carry out industry-college partnerships in higher vocational colleges, various departments need to cooperate and coordinate with each other, such as department (institute), Academic Affairs Office, Student Office, as well as human resources department and internship department of industry partners. Therefore, Feng Xu, Xiaoqian Liu and Fu Gai (2010) pointed that it is very necessary to establish and improve the teaching management institutions of "industry-college partnerships and intra-college linkage".

The establishment of the management organization of industry-college partnerships includes the following aspects: the coordination organization of industry-college partnerships, the leadership group of industry-college partnerships, the specialized management agency of industry-college partnerships, and the implementation organization of industry-college partnerships—the department (institute).

In the college, the industry-college partnership leading group is the highest leading body for industry-college partnerships. The industry-college partnership leading group is headed by the dean, and the deputy dean is the deputy head. It is responsible for the strategic planning, policy research, macro-guidance and comprehensive coordination of industry-college partnerships, as well as the study and decision of major issues and important matters in industry-college partnerships.

Industry-college partnership office is responsible for organizing and implementing various decisions of industry-college partnership leading group, coordinating industry-college partnership work of the whole school.

Each department (institute) of the college is the specific executor of industry-college partnership programs, and the director of each department (institute) is the person in charge. They are responsible for the implementation of specific work of industry-college partnerships.

**Trust.** In relation to the formation and maintenance of industry-college partnerships, all four departments (institutes) and their industry partners interviewed agreed that building trust was important. They also talked about the high levels of mutual trust needed to form a successful partnership. All respondents emphasized the importance of establishing a strong relationship through ongoing discussion.

In case three, when IP3 first contacted with DP3, IP3 did not know about each other's teaching resources, internship conditions, cooperation forms, etc., but through repeated communication and exchanges and frequent contact with senior leaders, they finally reached the intention of partnership and signed a formal contract.

Moreover, high levels of trust were quoted in interviews from both department partners and industry partners as a basic element in building partnerships. The interviewee said: "in relation to maintaining the partnership, I believe it all comes down to building trust. Trust is especially important when senior leadership changes. This is also the secret of our long-term partnerships with IP2" (DP2, interviewee, 2022).

Therefore, trust is the expectation that performance will match expectations. Jianhua Pan (2017) believed that the processes that build (or reduce) trust are the events, transactions, activities or partnering processes on which partnering expectations are based. In case three, DP3 trains students according to the requirements of IP3,

increases the proportion of practical training, keeps promises, and keeps in touch. These kinds of activities help to build trust between the two partners.

**Communication skills.** The importance of interpersonal relationship can be seen from the interview. Kanter (1994) observed partnerships from this perspective, positing that the partnerships were, at their core, built upon relationships between people. Therefore, communication skills are crucial in industry-college partnerships, and good communication skills can promote successful partnerships.

According to the interview, partners generally believe that maintaining communication and exchange is a good way to continue cooperation. In case three, IP3 thinks that interpersonal skills are a quality they look for when choosing a partner. These include relationship building skills, communication skills. These are very important, sometimes related to the success or failure of industry-college partnerships.

In examining the quality of communication, Mohr and Spekman (1994) argued that successful collaboration between partners is intended to demonstrate more information sharing, more involvement in planning and goal setting and a higher level of communication. Because even after the contract agreement is signed, the ideas and actions of the partners may still run counter to the agreement.

In comparison, establishing industry-college partnerships is simple, and maintaining industry-college partnerships requires continuous efforts from both partners. Excellent communication skills are critical. It can bring all participants together to work towards a common goal. In addition, each information is timely and accurately conveyed to each person to improve the efficiency of industry-college partnerships.

Feedback is also crucial in communication. Communication is a process of constant feedback. For the negotiation of industry-college partnership programs, due to the different needs and systems of school and enterprise, both partners need to communicate several times. Timely feedback can help both partners reach an agreement faster. In industry-college partnerships, if the feedback is not handled and solved in time, it may affect the enthusiasm of the participants, and thus affect the efficiency of industry-college partnerships.

In terms of trust and communication skills, the respondents from the enterprises are different from those from the colleges. Among the respondents from the colleges, 81.82% and 84.24% respectively think that they maintain a high degree of trust and good communication with their industry partners, while the data only account for 68.18% and 71.59% in the questionnaire collected from the enterprises (see Table 6). The main disagreement is on “agree”, with respondents from colleges having more of this option. The average percentage for each category is within the normal range. This means that in industry-college partnerships, good communication and trust are maintained between two partners, while the college partners show more trust and communication.

Table 6

*Details for People Factors of the Data from the Questionnaire*

| Quention | Respondents from enterprises | | | Respondents from colleges | | | Average percentage |
|---|---|---|---|---|---|---|---|
| | Strong agree | Agree | Percentage | Strong agree | Agree | Percentage | |
| Management | 45.45% | 24.43% | 69.88% | 40.61% | 32.12% | 72.73% | 71.31% |
| Specialized department | 46.02% | 21.59% | 67.61% | 47.88% | 31.52% | 79.4% | 73.51% |
| Trust | 46.02% | 22.16% | 68.18% | 46.67% | 35.15% | 81.82% | 75% |
| Communication | 46.59% | 25% | 71.59% | 41.82% | 42.42% | 84.24% | 77.92% |

## Problems, Challenges and Solutions

Industry-college partnerships is a common strategy for higher vocational colleges to carry out industry-college partnerships with enterprises. The importance and necessity of industry-college partnerships is widely recognized. However, there are still some problems and challenges in the implementation of industry-college partnerships. For example, the teaching management is not flexible enough, the enthusiasm of enterprises to participate in industry-college partnerships is not high, the teaching quality control and evaluation system is not scientific, the informatization level of industry-college partnerships is not high, etc. As a result of these problems, the efficiency of industry-college partnerships is not high. Some industry-college partnerships are just a formality without in-depth industry-college partnerships.

To solve these problems, the suggestions of this paper are:

(1) Higher vocational colleges and industry partners carry out in-depth industry-college partnerships, combining the needs of enterprises and industries with the college's specialty setting, teaching resource development, teaching organization and implementation, and allowing enterprises to participate in the decision making, construction and management of the college. Higher vocational colleges should establish an organization and management structure suitable for industry-college partnerships, implement the flexible teaching management mode.

(2) In industry-college partnerships, enterprises' right should be improved. Change the traditional academic dominance to corporate dominance. Only with more profits can enterprises have more enthusiasm to invest in industry-college partnerships.

(3) Teaching quality monitoring and evaluation should give full play to the role of colleges, industries, enterprises, students and independent third parties, and evaluate the college's talent training program, course system and teaching implementation from different perspectives, so as to achieve diversified evaluation subjects, diversified evaluation forms and refined evaluation process.

(4) Establish an information platform based on "Internet +", improve the teaching information management level of higher vocational colleges, so as to meet the teaching requirements of industry-college partnerships.

## Conclusions

This paper on the partnerships between China's higher vocational colleges and industry partners is based on data collected in interviews and questionnaires. The four cases provide a rich opportunity to look at common issues and emerging models concerning the partnering process and factors contributing to successful partnerships. This paper analyzes the factors that affect industry-college partnerships from three aspects: environmental factors, training factors and people factors. It describes the essential impacting factors of partnering shared by the cases which contribute to enduring partnerships. Though describing key impacting factors in industry-college partnerships, this study also enhances the findings from the analysis. Figure 1 shows the framework of impacting factors.

A number of factors play a role in the formation and endurance of the four cases studied. Among them, key factors affecting industry-college partnerships include: Whether both partners benefit from industry-college partnerships is the driving force for partnerships to start and continue. It is also very important to adopt flexible partnership modes between department partners and industry partners. Industry-college partnerships are a

process of constant change and development, which needs continuous reform. In successful industry-college partnerships, it is important for both partners to maintain good communication, a high degree of trust and recognition of each other's cultures.

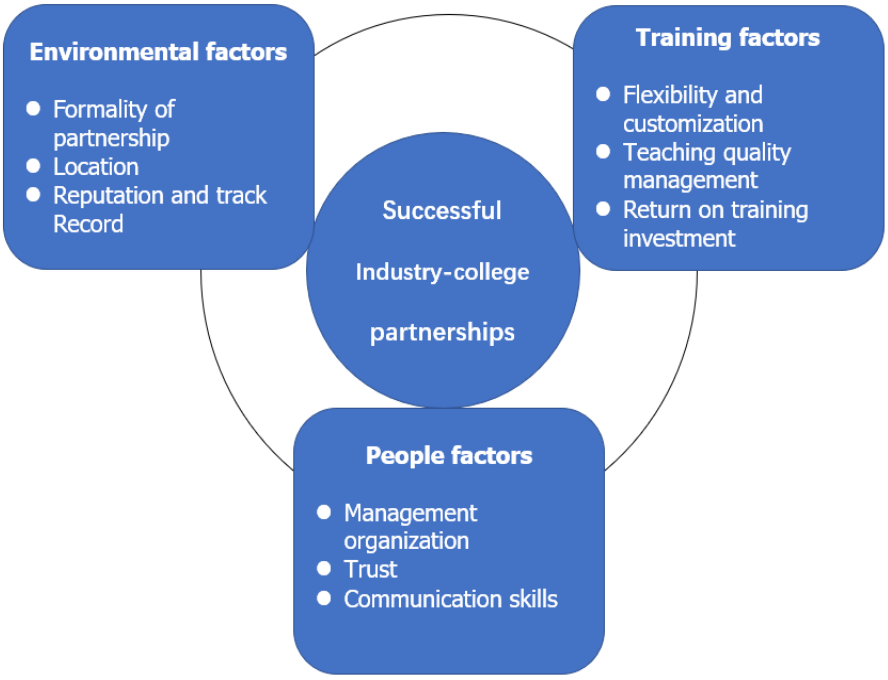


*Figure 1*. The framework of impacting factors in industry-college partnerships.

## References

Bowie, N. E. (1994). *University-business partnerships: An assessment. Issues in academic ethics*. Rowman and Littlefield Publishers, Inc.

Bray, S., & Scalzo, K. (2005). Partnerships that perform: It takes more than good intentions. *Continuing Higher Education Review, 69*, 97.

Figgis, J., Alderson, A., Blackwell, A., Butorac, A., Mitchell, K., & Zubrick, A. (2001). *What convinces enterprises to value training and learning and what does not?* Adelaide: NCVER.

Foskett, R. (2005). Collaborative partnership between HE and employers: A study of workforce development. *Journal of Further and Higher Education, 29*(3), 251-264.

Kanter, R. M. (1994). Collaborative advantage: The art of alliances. *Harvard Business Review, 72*(4), 96-108.

Kuglin, F. A., & Hook, J. (2002). *Building, leading, and managing strategic alliances: How to work effectively and profitably with partner companies*. Amacom Books.

Lendrum, T. (2003). *The strategic partnering handbook: The practitioners' guide to partnerships and alliances* (4th ed.). Australia: McGraw-Hill.

Meister, J. C. (2003). The latest in corporate-college partnerships. *T+ D, 57*(10), 52-58.

Melville, B., & Hawke, G. (2002). School/industry links and partnerships: A review. Working Paper 01-02, UTS Research Centre for Vocational Education and Training, Sydney.

Mohr, J., & Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal, 15*(2), 135-152.

Mulcahy, D. (2003). *Leadership and management in vocational education and training: Staying focussed on strategy*. (Vols. 1 and 2). Adelaide: NCVER.

NCVER. (2001). *Returns on investment in training: Research at glance*. Adelaide: National Centre for Vocational Education Research.

Pan, J. (2017). Research on the effectiveness of school-enterprise cooperation in vocational education in China (Doctoral dissertation, Shanghai Normal University).

Spangler, M. S. (2002). Concluding observations on successful partnerships. *New Directions for Community Colleges*, *119*, 77-80.

Uhlik, K. S. (1995). Partnership, step by step: A practical model of partnership formation. *Journal of Park and Recreation Administration*, *13*(4), 13-24.

Wang, J. (2017). Exploration on teaching management mode of higher vocational colleges—Exploration on teaching management mode of higher vocational colleges in Hebei Province (Master's thesis, Hebei Normal University).

Xu, F., Liu, X., & Gai, F. (2010). *A new theory of higher vocational teaching management from the perspective of combining work with study*. Liaoning Normal University Press.