

# Mediating role of Psychological Capital in relationships between school-enterprise cooperation and employment of students higher vocational education institutions

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## Abstract

The employability of vocational education largely depends upon a collaborative behavior between higher vocational education institutions and business enterprise. The school-enterprise model is a successful initiative in this regard. It requires students' in-depth training by the enterprises for industry preparedness and to enhance their employability. In this regard, the role of business enterprises or companies that would provide training to vocational students is very significant. China has experienced an increase in the pace of training applications particularly for vocational school students which has enhanced their skills and talent. This study empirically examined the success of the school-enterprise model from the perspectives of cooperative theory, constructivist learning theory, capital theory and psychological construct theoretical models. The variables of this empirical analysis included school-enterprise cooperation mechanism, psychological capital, and employability. Questionnaire surveys were conducted with college students participating in school-enterprise cooperation education. This paper discussed the relationship mechanism between school-enterprise cooperation, impact of psychological capital on their relationship to enhance employability. The research hypotheses were tested through correlation analysis, multi-level regression analysis, structural equation modeling and other statistical methods.

**Keywords:** school-enterprise cooperation; vocational colleges and universities; Training; psychological capital; employability

Employment has been a great challenge for the Chinese students in particular and the Chinese community in general. In 2017, the Ministry of Education had released data about the number of higher vocational education (HVE) institutions in China, which was growing in leaps and bounds. Out of the total number of HVE institutions, it was estimated that 1388 institutions with over 10.48 million students, approximately 48% of the total number of HVE institutions were thriving. In the light of the proposed strategic plans like "public entrepreneurship and innovation" and "Made in China 2025," Chinese employers will need about 14.2 million trained and talented students from these HVE institutions. In the absence of adequate number of HVE institutions, China will face a supply gap of 2.4 million skilled personnel. With the increase in the demand for experienced personnel, and the deepening of China's economic reforms, the job market and employment patterns in China have undergone a fundamental change. There is a great demand for trained and experienced personnel with the required skills and standards. The companies therefore look to more vocational students with practical experience, professional knowledge and skills. These are the minimum

criteria critically matched by companies to recruit the graduates from HVE institutions.

A major objective of vocational education is enhancing vocational students' employability and to explore how the cooperation of HVE institutions can help achieve this objective. It is also important to design an action mechanism for the collaborative behavior between HVE institutions and School-Enterprise (S-E) model, which requires in-depth training for industry preparedness and enhance the employability of vocational students. In this regard, the role of business enterprises or companies that would provide training to vocational students is very significant. At the school level, the impact can be determined by the intermediary role of individual's psychological capital in availing the cooperation between SVEs and companies. Such a study requires theoretical analysis and empirical testing of hypotheses, exploration of the cooperative behavior between the school and the enterprise, identifying an appropriate action mechanism such as a training model for enhancing the employability of vocational students, and finally to establish the impact of the mediating role of

psychological capital in the relationship between theory and practice (Bozkurt, 2019).

Several research studies exist on issues such as HVE institutions and the adoption of the S-E model to measure the cooperative behavior between college and business enterprises. A few of these studies have highlighted issues such as college students' employability and the specific role and impact of psychological capital. Attention has also been given to the adoption of S-E model by the HVE institutions but no such study has been carried out that measured the mediating behavior of psychological capital in the association between SVE institutions and S-E collaboration in order to enhance students' employability. Such a research gap can be addressed only through theoretical analysis and empirical research. This research study is an attempt to first summarize the content of previous literature in order to understand the state of research, followed by an evaluation of the existing employability situation of vocational students in terms of their professional competence and whether they have the required knowledge, training and skills to get job offers. This study is thus used as a case study to build the employability action plan for the students in HVE institutions with the collaboration of S-E model and by adopting the psychological capital as a mediating variable.

### **Theoretical framework**

In order to meet the employment needs and determine the talent development paths for graduates, the HVE institutions explore the application of theories such as school-enterprises (S-E) collaboration theory, constructivist learning theory, and the theory of psychological capital to build a theoretical model. This study attempts an empirical analysis of S-E cooperation actions in the light of these theories, particularly the impact of the theory of psychological capital in increasing the vocational students' employability. The study will also attempt to identify key factors and action mechanism to influence the adoption of the S-E model and training initiatives in Chinese HVE institutions. This study uses both qualitative and quantitative research methods to study the behavior of S-E cooperation, psychological capital and employability used to build the theoretical model of this study. The data was collected through surveys and a case study method analyzing the relationship between the three variables of the study. The premise framed for measuring this relationship included how psychological capital acts as a mediator between S-E cooperation and employability in vocational education. It also aimed to find

effective ways to enhance the impact of S-E cooperation mechanism on the psychological capital and the employability of vocational students. Finally, the study highlighted the role of school management and made a few recommendations.

## **Literature Review**

### **Integration of Vocational Education and Education Policy**

S-E cooperation as an educational macroeconomic policy is closely related to economic and social development and labor supply and demand. It is the main line of action of vocational education in today's world. The Australian Vocational Education expert, Smith (2012) recommends an interface between theory of S-E cooperation and knowledge production. Toner's (2012) study suggests that vocational and technical education have played an essential role in establishing technical and vocational education and training systems to produce technology diffusion and help workers get well-trained. There is no dearth of research studies that have examined the S-E innovation model and highlighted how companies rely on innovation in vocational skills. Unfortunately, technical and vocational education and training have been excluded from the government's innovation programs and policies. These policies have been replaced by essential benefits of vocational education and training. It has been assured by the Chinese education system that there shall be in place a more comprehensive innovation system that will introduce innovation policies work closely in vocational and technical education to produce more employable graduates.

### **S-E cooperation, learning environment and workplace learning**

Providing a learning environment has been used as a new perspective to study the problem of school-enterprise cooperation. It is stated that the workplace should provide adequate learning opportunities to vocational students in order to remove learning obstacles. Several researchers from different disciplines, organizations, and groups have discussed workplace learning as organizational need. This should be seen in relation to the educational background of the students and given a broad interdisciplinary research perspective. British scholar Helen Rui and Gao Xiang. (2015) points out that institutional structures often restrict the workplace learning while new types of work organization affect formation of skills. In addition, different interest groups have defined the ability of

workers to learn and understand the power of organization's operational and employee rights training programs. Brown (2000), for instance, emphasized upon the enterprises' roles in the community context in developing skills and encouraging students' participation in education and training. Besides, based on business model's perspective, social enterprises and training companies jointly provide vocational training to adult learners to develop their skills for business operations. The study also reiterated the benefit given to the community as a result of the acquisition of skills by learners.

Zhang Yi Ting (2012) analyzes the institutional elements and stakeholders' role in school-enterprise cooperation and recommends giving incentives to remove constraints. Yin Gold (2011), from the perspective of comparative analysis, assert that core elements of school-enterprise cooperation are role assignments and operation mechanism. Lung Tak Yi (2015), from the vocational educational perspective, observes that it the government's responsibility to frame industry standards, regulations for education and training institutions and oversee the entire framework for a successful implementation of school-enterprise cooperation. Zhang Bin (2014), too, agrees upon this viewpoint and considers that top-level management has a more significant impact on implementing the school-enterprise cooperation system.

In order to put the school-enterprise cooperation system in place, it is important that a few actors and agencies collaborate and launch an interactive mechanism. Each of these actors will have a specific role to play in the process. These actors include the school, the training institution, the business enterprise, the local community and any other stakeholder who has a vested interest in the implementation of the school-enterprise cooperation system (Duran, 2019; Kim et al., 2019; Can & Kutluca Canbulat, 2019; Mokoena, 2019). The interactions between these actors should be mutually reinforcing, mutually exclusive, and should eventually lead to the cooperation. There may be issues related to proprietary rights but those may be resolved by establishing a transparent property rights system as a part of the school-enterprise collaboration. The schools and businesses should establish the "principal-agent" approach with the central control option. Zhang Yong (2015), based on an efficient allocation of resources, reiterates that the real value of school-enterprise cooperation system is manifested in enhancing school-enterprise efficiency, promoting the sustainable development of school-enterprise cooperation and rational allocation of resources.

## **School-enterprise cooperation for employability**

School-enterprise cooperation is a joint participation, carried out through the personnel training mode for mutual development of both school and business enterprise. The ultimate goal of this collaboration is to train students in business skills and ensure their employability through a professional application of the attained knowledge and skills. There are many studies on school-enterprise cooperation such as Li Rong (2010), Wu Qiong (2011), Any Wave (2011), and Who Slam (2013). These studies have diverse approaches but unanimously agree on the cooperation between school and business enterprises. These studies reiterate that despite having the disparate systems and structures, schools and business enterprises can achieve the common objective of cooperation by complementing their resources. Their synergy can contribute to enhancing the employability of students (Rozakis et al., 2018; Loyrinic, 2018).

Other studies like Lou Lisha (2012), Wang (2012), and Ran (2013) assert that the cooperation between the school and business enterprises rests on helping each other in their operations. The school can be benefited by getting useful inputs from the enterprise about the needs and requirements of the market, which the school can incorporate in their curriculum, and eventually produce students with latest professional knowledge and skills, and practical and innovative abilities (Kimanzi, 2019; Makalela & Asha, 2019; Mokoena & Dhurup, 2019; Garcia-Ceberino et al., 2019). The enterprises can also guide students to develop a practical outlook required to get employment in line with the needs of the times. Simultaneously, the enterprises can be benefited by making full use of school resources by helping teachers to attend off-campus calls, especially those who have enterprise resource partnerships, or who have established a wide range of educational consultancies required by business enterprises.

## **Hypotheses**

The theoretical formulation based on previous literature review shows a relationship between HVE schools and business enterprises for a cooperative behavior to enhance the employability of the vocational students. The role of psychological capital is particularly significant in this relationship. The theoretical model framed for this study therefore includes school-enterprise cooperation, corporate behavior and psychological capital making an impact on employability. To further understand this relationship, the

variables used in the theoretical framework can be classified into two groups: first group that makes the direct impact includes schools and enterprises collaborating together to achieve students' employment. The second group that makes the mediating effect includes the variable of individual psychological capital utilized to enhance the employability that results from the collaboration between schools and enterprises. The two groups may be elaborated as under.

### **School-Enterprise Coordination to Enhance Employability**

From a synergetic point of view, both schools and business enterprises have incomparable advantages through cooperation. Vocational students can train themselves with the support of enterprises and prepare themselves as a substantial and stable human resource with a high level of professional knowledge and skills. Students and instructors in schools can gain knowledge about work and business practice through internalization and externalization. Such exposure makes a significant impact on students' employability and encourages them to participate in school-enterprise cooperation. They enrich themselves with business knowledge, develop market awareness, and learn to interact with the business environment. Enterprises can also make full use of schools and their resources. They can also invite school teachers and student interns to participate in production line and research and development.

Thus it can be believed that school-enterprise cooperation is a right combination of theory and practice. Based on this understanding, this study proposes the following hypothesis:

H1: The corporate behavior between school and enterprise and students' employability have a significant and positive correlation.

H1a: The school-enterprise cooperation and professional competence have a significant and positive correlation.

H1b: The school-enterprise cooperation, corporate behavior and professional competence of students have a significant positive correlation

### **Psychological capital and employability**

Students' psychological capital has been shown significantly making an impact on the employability in many studies. Gao Yan (2009) believes that college students' employment and entrepreneurship are inseparable. The coordination between them is the product of a good state of mind, or specifically a product of the psychological capital. Psychological capital affects graduates' ability to do job, which is utilized to raise the

level of college graduates' employment. Zhengwei Qin (2010) observes that psychological capital and professional expertise are closely related and can significantly improve students' professional ability. Lin Ping (2011) shows a correlation between students' psychological capital and employability, and emphasizes on the need to develop and enhance students' psychological capital and strengthen their competitive advantage by improving the teaching inputs. Li Hua (2011), Caoxing Tian (2011), Li Qian (2014), Sun Jingnuo (2014), and Han Jing (2016) confirm the relationship between psychological capital and the employability of students with empirical research methods. The results show the relationship between the two variables as more stable. Based on this premise, this study proposes the second hypothesis such as:

H2: Students' psychological capital and expertise have a significant and positive correlation.

### **Data collection and variable settings**

#### **Sampling, population and data Sources**

#### **Instrument**

This study used a questionnaire for data collection based on the study by Xu Xiaoying (2011), who developed a school-enterprise cooperation behavior measurement scale, to investigate the relationship of school-enterprise cooperation and their cooperative behavior. A similar study was carried out by Zhang wide (2010) who examined the amount psychological capital by measuring indicators like self-efficacy, optimism, hope, and tenacity as four dimensions of psychological capital. There are also two other studies using similar scales viz., Liukui Ying (2010) who adopted a measuring scale for job search capabilities measurement and Zidane (2009), who measured innovation capacity. Hence, the questionnaire in the current study included all these three dimensions of employability measures such as professional competence, job search skills, and the ability to innovate. The questionnaire also included major demographic characteristics and other required background information of the respondents, such as gender, age, one-child status in family, political affiliation, and professional categories such as major in school, grades obtained etc. Lastly, the questionnaire collected information about students' fundamental problems related to work experience, family economic status, and internship requirements.

#### **Sample selection and data collection**

This study selected five national universities in the Guangxi Province to administer the questionnaire. All respondents were

college students with internship experience, and belonged to the sophomore and junior classes. The non-probabilistic cluster sampling method was adopted to identify the sample of the study. Students were selected from each of the five institutions in the form of clusters, with each cluster carrying some kind of close school-enterprise association. Once the clusters were formed, a class representative was chosen to administer the questionnaire. Paper questionnaires were used primarily as it was convenient for all respondents to collect at one single spot. A few assistants were hired for this purpose that ensured filling and submission of questionnaires as per directions. The questionnaires were collected back in closed enveloped to ensure anonymity and confidentiality. However,

**Table 1**

*Contemporary employability structural models*

Author(s)	Model description
Yorke and Knight (2004)	USEM model: professional understanding (knowledge); skills (including critical skills); self-efficacy (including self-awareness development); metacognition (including the ability to learn how to learn)
Dacre Pool & Sewell (2007)	Career EDGE model: First, professional knowledge, understanding, and skills; Second, generic skills; Third, emotional intelligence; Fourth, career development knowledge; Fifth experienced social work
Ruth Bridgstock (2009)	Employability structural model's five elements: personality and personal characteristics of students; specific professional skills; general ability; self-management skills; and career development capabilities
Zhang Lihua, Liu Chennan (2005)	Employability structural model and five elements: thinking ability, social adaptability, autonomy, social practice, the power of candidates
Liu Xinmin, Wang Lei, Wu Shijian (2009)	Employability structure model with two elements: Quality and Ability; quality dimensions included personal attitudes, vocational adaptability, personality traits, and measurement of learning ability, Ability dimension obtained information from analytical skills, communication skills, self-regulation skills, teamwork ability, time ability to execute, and impression management capabilities
Lien Ping (2010)	Employability structure of the personal qualities, the basis of ability, professional competence, and social adaptability

This study was based on a few theories including coordination theory, constructivist learning theory, and positive psychology theory. These theories were used to explore the action mechanism between the school-enterprise cooperation, psychological capital, and employability. Based on these theories, the study framed the following theoretical research model:

**Findings and discussion**

**Multiple regression analysis of school-enterprise cooperation and employability**

This study used statistical analysis software SPSS, AMOS 22.0 to analyze and process the data. The measurement scale on the

a few respondents preferred to fill questionnaires online which were accepted too. A total of 320 questionnaires were distributed, out of which 306 questionnaires were returned making the submission percentage at 95.6%. The questionnaire items for each of the variables are included in Appendix A

**Model building**

To further explore college - enterprise cooperative behavior, and to study the relationship between psychological capital and employability of college students, this study utilized literature search, surveys, statistical analysis, and other contemporary models to construct its theoretical model and hypothesis validation. A few of these resources are cited in Table 1

survey questions were reliability and validity, factor analysis, descriptive statistics, multiple regression correlation tests, and like. The variables that were measured on statistical software included the behavior of school-enterprise cooperation, impact of psychological capital on this behavior and on college students' employability.

In the first stage of this research, the major focus of analysis was on school-enterprise cooperation and employability of the analysis. The objective was to explore the specific impact of demographic characteristics on students' behavior, in particular and on school-enterprise cooperation employability in general. The Model 1 examined the influence of the demographic characteristics of a variable degree on students'

employability. The Model 2 explored the impact of students' demographic characteristics on the basic situation or general scenario of students' employability. The Model 3 explored the impact students' demographic characteristics on schools and enterprises and their cooperative behavior and students'

employability. Employability was further divided into three dimensions namely professional ability, job seeking ability, and the ability to innovate, as shown in Theoretical model (Figure 1).

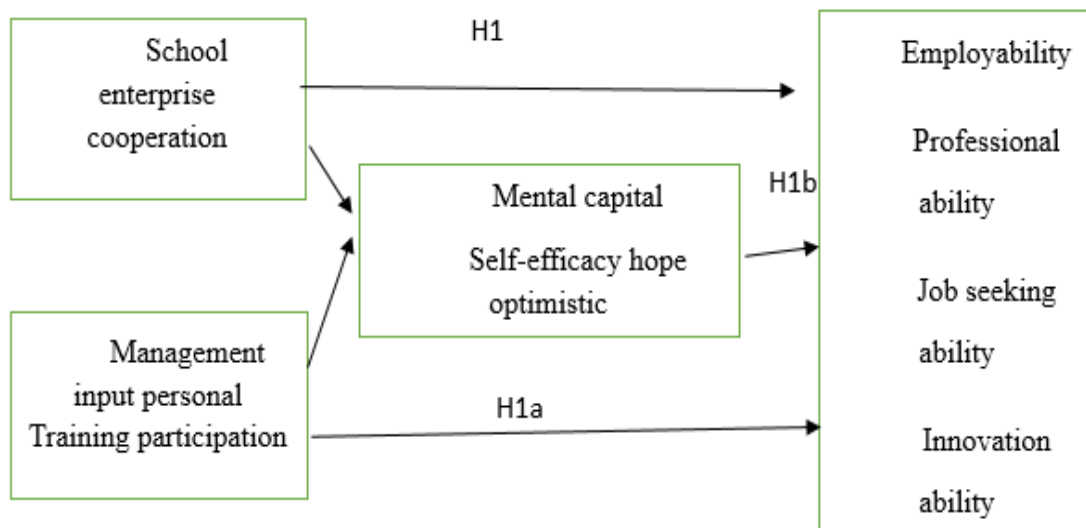


Figure 1 Theoretical model

**Impact of school-enterprise cooperation of professional competence analysis**

Table 2 cites the multiple regression conclusions reached after analyzing school-enterprise association of professional competence:

In model 1, female gender variable ( $\beta = -0.159$ ) and variable ranking scores ( $\beta = 0.072$ ) at the level of  $p < 0.05$  is significant. It means that, in relation to female students, male students have more professional competence; this is also stated in student achievement which shows higher ranking within the class of their professional ability. In Model 2 and Model 3, female gender variable ( $\beta = -0.150$  and  $\beta = -0.148$ ) and variable ranking scores ( $\beta = 0.051$  and  $\beta = 0.066$ ) both at  $p < 0.05$  level are seen making a significant impact on professional competence variable. This suggests a strong influence of these two variables on professional competence and stability, which are two crucial factors that affect students' professional ability. The Practice factor shows that there is a more significant difference between

students' professional competence between liberal arts and science and engineering majors across colleges and universities. The Expertise factor includes specialized knowledge and expertise in skills. It suggests college students discriminate between majors in acquire technical knowledge: professional expertise in liberal arts is preferred more by female students, while male students prefer science and engineering major to enhance their professional expertise. These data results suggest that more focus should be given on developing students' professional skills in science and engineering as compared to liberal arts, as far as male students are concerned. In terms of performance ranking factor, the top-ranking students who acquire specialized knowledge are undoubtedly very strong. In schools, teachers tend to focus more on better performing students and also make available internship and job opportunities to these top ranking students. These students also get more guidance during the internship which leads to enhancing their professional knowledge and skills.

**Table 2**

*School-enterprise association of professional competence of multiple regression models*

	Model 1		Model 2		Model 3	
	$\beta$	P	$\beta$	P	$\beta$	P
A woman (A)	-0.159**	0.01	-0.150**	0.01	-0.148**	0.03
Age	0.401	0.67	0.301	0.63	0.405	0.62

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	Model 1		Model 2		Model 3	
	$\beta$	P	$\beta$	P	$\beta$	P
Age square	-0.012	0.70	-0.022	0.65	-0.012	0.63
Home location (b)	-0.064	0.33	-0.070	0.36	-0.021	0.6
C-child (C)	0.049	0.49	0.054	0.58	0.054	0.38
Political affiliation(D)	-0.068	0.51	-0.081	0.68	-0.007	0.39
Professional category(E)	0.036	0.54	0.017	0.81	0.035	0.51
Grades ranking	0.072**	0.01	0.051**	0.04	0.066**	0.01
Cadres working experience (F)			-0.182***	0.00	-0.158***	0.00
Family's financial situation			-0.023	0.61	-0.005	0.68
Number of internship jobs			0.115	0.31	0.037	0.61
Factor theory					0.069	0.19
Practice factor					0.246***	0.00
Teaching participation factor					0.224***	0.00
Factor management counseling					0.221***	0.00
Constant	2.31**	0.04	2.81**	0.03	3.76**	0.03
F value	2.05**	0.01	2.50**	0.01	8.78***	0.00
Adjusted R2	0.03		0.05		0.28	
Sample size	306		306		306	

Note:  
 (1) \*p<0.1, \*\*p<0.05, \*\*\*p<0.01  
 (2) A: male category reference, B: reference category towns, C: reference category is the only child, D: reference category CCP members, E: reference category liberal arts, F: reference category served cadres.

In model 2, the CADRE work experience variable ( $\beta = -0.182$ ) is significant at the level of  $p < 0.01$ , i.e., concerning factors like faculty, student grades, or classes for cadres, but student's professional capacity is relatively low. In Model 3, cadres working experience variable ( $\beta = -0.158$ ) is also significant at the  $p < 0.01$ , indicating a strong and stable impact on students 'professional ability' which is an essential factor affecting students' professional knowledge. The Practice factor shows a relatively good performance in acquiring specialized knowledge. This suggests that Cadres' working experience can significantly exercise students' ability to do things. These students tend to be more adept at understanding. Standardized regression coefficients of the number of work placement are positive, indicating that the expertise is positively correlated. Practice factor also shows that help and guidance from teachers enhances students' professional knowledge.

In Model 3, it is discovered that school-enterprise cooperation behavior factor has ( $\beta = 0.246$ ), personnel training teaching

enterprise cooperation which conducts business school participation factor shows ( $\beta = 0.224$ ) and investment counseling factor has ( $\beta = 0.221$ ), all of which are significant at the  $p$  level  $< 0.01$ . Each standard regression coefficient is also positive, indicating that the expertise has a significantly positive relationship. The Practice factor shows that school-enterprise cooperation will be an important direction for future education policies in universities and personnel training. The standard regression coefficient of school-enterprise cooperation input factor is also positive, indicating that the expertise is positively correlated, which suggests that the school teacher promotes a higher level of teaching through the curriculum design. In order to meet the training plan in line with business requirements, students' professional expertise can be more relevant to the actual needs of the enterprise. Their knowledge and skills would be less theoretical and enhance their professional competence. However, the data also reveals that the school personnel need to help enterprises solve technical

problems pertaining to students' training requirements. They should also assist enterprises in carrying out technological innovation activities. This is an important requirement to ensure students study the relevant business modules in their curriculum at all levels. Besides, it is also important that companies conduct skills competition in schools to provide opportunities of practice and training to students. Such counseling session should also be arranged for students to learn how to apply the knowledge and skills acquired and to resolve practical problems. All these measures will ultimately enhance students' professional competence.

The values of all 3 models can be integrated in order to examine the overall situation. By doing so, it is observed that these values are: Model 1 F value 2.05, P-value of 0.01; Model 2 F value 2.50, P-value of 0.01; and Model 3 F value 8.78, P-value of 0.00. These values show that the P values of all the three data models are less than 0.05, which is very significant. The R2 value by adjustment of the observation model also shows that R2 value of 0.031, where  $R^2 = 0.05$ . After adjusting the Model 3, R2 0.28 after adjustment model 2, it shows explanatory power with increasing model variables is significantly enhanced. This shows that concerning demographic variables and students' basic situation variables, such as schools and enterprises and their cooperative behavior is much greater, reaching 28% R2. Hence, considering the adjusted value, this study suggests that the above three models have strong explanatory power.

The data analysis and the integration of three models prove that the first hypothesis (H1) is accepted which suggested that the corporate behavior between school and enterprise and students' employability have a significant and positive correlation. However, the H1a proposed in this study (The school-enterprise cooperation and professional competence have a significant and positive correlation) is partially proven. The H1b (The school-enterprise cooperation, corporate behavior and professional competence of students have a significant positive correlation) is fully proven. It also suggests that in order to achieve school-enterprise cooperation, such input factors like personnel training, enterprise cooperation, teacher's cooperation, business school participation in counseling and so on make a significant positive impact on students' professional skills.

### **Multiple regression analysis of psychological capital and employability**

In the second stage of this research, the focus of analysis shifted to the impact of psychological capital on students' employability. Three models were designed wherein Model 1

explored demographic characteristics in a variable degree to examine the influence of psychological factor on students' employability; Model 2 studied how the demographic characteristics of the premise were controlled and explored the impact of their employability; Model 3 focused on the management of demographic characteristics and examined the extent of the impact of students' psychological capital on their employability. Employability was divided into three dimensions: professional expertise, job search skills, and the ability to innovate. The following sub section unfolds multiple regression analysis, and results of specific data analysis.

### **Impact of Psychological capital on professional competence analysis**

Table 3 exhibits the conclusions reached in measuring the impact of Psychological capital through a multiple regression model:

Table 3 data presents the effect of demographic variables and students' essential situation variables on professional knowledge. The multiple regression analysis of these variables provided more information about school-enterprise cooperation and employment ability. The data suggests that only the female gender and achievement ranking variables have a significant influence on students' professional capacity. In the basic situation of students, only the cadre experience variable has a considerable impact on professional ability. For instance, in model 6, after controlling for demographic variables and students' basic situation variables, the psychological capital has self-efficacy value as ( $\beta = 0.181$ ), positive ( $\beta = 0.165$ ) at  $p < 0.05$ , to achieve significant 0.01 level. Likewise, factors such as toughness ( $\beta = 0.114$ ), desired ( $\beta = 0.133$ ) are significant at the  $p < 0.05$  level. Significantly, these factors affect students' academic studies, because standardized regression coefficients are positive, indicating that the professional expertise has a significant positive correlation.

The Practice factor shows that knowledge and ability to succeed confidently on their own and society play a major role to overcome professional difficulties. Students can stay motivated to achieve their learning goals and acquire specialized knowledge and application expertise more confidently and skillfully.

The values of all 3 models can be integrated in order to examine the overall situation. By doing so, it is observed that these values are: Model 4 has F value 2.05, P-value of 0.01; Model 5 has F value 2.50, P-value of 0.01; Model 6 has F value 13.82, P-value of 0.00. The results show that in all three data models, P value is less than 0.05 which are very significant. The R2 value by



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adjustment of the observation model shows that the model is adjusted at value of 0.03 1 against R2 = 0.05. After the model 3 adjusted R2 value of 0.39, model 2 shows explanatory power with increasing model variables significantly enhancing R2 and P values. When considering the adjusted value, this study suggests that the above three models have strong explanatory power. This also shows that concerning demographic variables and students' basic situation, the four dimensions of the

psychological capital explanatory power of expertise are much more significant. Looking at the comprehensive data analysis results of three models, the second hypothesis (H2) (Students' psychological capital and expertise have a significant and positive correlation) is fully proven. This suggests that students' psychological capital has a very strong performance in enhancing students' professional competence and hence their employability.

**Table 3**

*Multiple regression model showing the impact of Psychological capital*

	Model 4		Model 5		Model 6	
	$\beta$	P	$\beta$	P	$\beta$	P
A woman	-0.159**	0.01	-0.150**	0.01	-0.102*	0.09
Age	0.401	0.67	0.301	0.63	0.111	0.25
Age square	-0.012	0.70	-0.022	0.65	-0.027	0.26
Home Location b	-0.064	0.33	-0.070	0.36	0.010	0.85
C-child	0.049	0.49	0.054	0.58	0.012	0.84
Political affiliation d	-0.068	0.51	-0.081	0.68	-0.045	0.58
Professional category e	0.036	0.54	0.017	0.81	0.019	0.69
grades ranking	0.072**	0.01	0.051**	0.04	0.039**	0.02
Cadres working experience f			-0.182***	0.00	-0.044*	0.09
family's financial situation			-0.023	0.61	0.014	0.66
The number of internship job			0.115	0.31	0.014	0.83
Self-efficacy factor					0.181***	0.00
Toughness factor					0.114**	0.04
Hope factor					0.133**	0.02
Optimistic factor					0.165***	0.00
constant	2.31**	0.04	2.81**	0.03	10.21**	0.02
F value	2.05**	0.01	2.50**	0.01	13.82***	0.00
Adjusted R2	0.03		0.05		0.39	
Sample size	306		306		306	

Note:

(1) \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

(2) a: Reference category for men, b: reference category for the town, c: reference category is the only child, d: reference category are Communist Party members, e: reference category for the liberal arts, f: reference category served as cadres.

To sum up the findings, after doing the multiple regression analysis, research hypothesis testing, and structural equation modeling which examined the variables of the study, it has become evident that schools and enterprises are significantly positively correlated in their cooperative behavior. The results

also reveal that schools and enterprises collectively are significantly and positively correlated with students' professional ability and their employability. This is due to the fact that the school-enterprise cooperation behavior is also

significantly and positively correlated with students' professional ability and their psychological capital.

## Conclusion and recommendations

China has experienced an increase in the pace of training applications particularly for vocational school students which has enhanced their skills and talent. Such a change has affected only half of the population, while the other half still faces the issue of employability and lack of training applications. Though employability is related to individual students' success, but both schools and enterprises play a major role in upgrading their skills and talent. The action of school-enterprise cooperation school "training theory input factors' impact on employment ability was not significant. This result is understandable, because "training theory input factors," study mainly put school on theoretical knowledge of students training, such as the school's teaching level, student-teacher skills, curriculum design is reasonable school-enterprise cooperation behavior of schools vocational student's professional skills, job search, innovation cannot be put through the story of theory at school and significantly improve employability, and thus its impact was not significant. Universities need to theoretical knowledge, and skills students have learned to solve practical problems in the enterprise and enhance students' employability in learning by doing school-enterprise cooperation in educational practice and practice.

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Results concluded that the school-enterprise cooperation in educational system is also related to the country's wealth and widely adopted by political, economic, educational, and management community. Talking about application of theories, this study is an attempt to fill the research gap as there is a lack of empirical and theoretical research in the exploratory domain of research. This study has empirically examined school-enterprise cooperation from the perspectives of cooperative theory, constructivist learning theory, capital theory and psychological construct theoretical models. This empirical analysis also explored the role and influence of the relationship between the school-enterprise cooperation mechanism, psychological capital, and employability. It provided very useful inspiration for the promotion of employability training applied talents in our country. There is still a great need to promote school-enterprise cooperation in education since school-enterprise partnership plays a broader role in bringing together schools, businesses, and government.

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## Appendix A

### Questionnaire items for measuring school-enterprise cooperation behavior, psychological capital and employability

**Table 1** Measurement of cooperation behavior in schools

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio. 1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree	1	2	3	4	5
1	Instructor teaching high school level	1	2	3	4	5
2	School curriculum to adapt to business needs	1	2	3	4	5
3	Training content in the school curriculum from the real business case	1	2	3	4	5
4	School internships instructor skill level is very high	1	2	3	4	5
5	The school where I help companies solve management problems	1	2	3	4	5
6	The school where I help companies solve technical process issues	1	2	3	4	5
7	For a business school where I provide staff training services	1	2	3	4	5
8	The school where I provide business services and cultural facilities	1	2	3	4	5

**Table 2** Measurement of cooperation behavior in business enterprises

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio. 1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree	1	2	3	4	5
1	A business where I participated in the construction of the school	1	2	3	4	5
2	A business where I provide employment opportunities for students	1	2	3	4	5
3	Companies where training equipment for schools	1	2	3	4	5
4	A business where I provide students with educational programs	1	2	3	4	5
5	Experts in the business where I served as a part-time teacher or school lectures	1	2	3	4	5
6	Where a lot of activity on behalf of my company to attend school (such as skill Festival)	1	2	3	4	5
7	Companies where I arrange a special teacher mentoring our internship training	1	2	3	4	5
8	Tutor level 8 where I venture arrangements is high	1	2	3	4	5
9	A business where I was able to forgive our mistakes	1	2	3	4	5

Mediating role of Psychological Capital in relationships between school-enterprise cooperation and employment of students higher vocational education institutions

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio. 1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree					
10	Companies where I have great confidence in us	1	2	3	4	5
11	Companies pay attention to where I have the technical ability of people	1	2	3	4	5

**Table 3** Measurement of Psychological Capital

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio. 1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree					
1	I'm always very good and the people around good communication	1	2	3	4	5
2	I always feel good about themselves	1	2	3	4	5
3	I can always quickly new knowledge to the school I have contacted	1	2	3	4	5
4	I can effectively the knowledge, skills, and experience into practice	1	2	3	4	5
5	I am confident that you can effectively deal with anything unexpected	1	2	3	4	5
6	I have a strong team player, able to work effectively with a team	1	2	3	4	5
7	Difficulties encountered setbacks I never give in easily	1	2	3	4	5
8	The frustration I always gain maturity and experience	1	2	3	4	5
9	To achieve the goal, I can always go unremitting efforts	1	2	3	4	5
10	The face of difficulties, I will focus all their energy	1	2	3	4	5
11	And I can come up with many ways out of the woods	1	2	3	4	5
12	I eagerly pursue their own goals and always achieve the target set by	1	2	3	4	5
13	In solving problems, I can always make full use of the resources I have	1	2	3	4	5
14	Even if others have been disappointed, I still believe they will find a way to solve the problem	1	2	3	4	5
15	Even in difficult times, I can maintain a festive mood	1	2	3	4	5
16	No matter how bad things get, there is always redemption	1	2	3	4	5
17	Face uncontrollable things; I can readily accept	1	2	3	4	5
18	Always a lot of things go wrong; I can maintain peace of mind	1	2	3	4	5

**Table 4** Measurement of employability of vocational students

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio. 1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree					
1	After attending school-enterprise cooperation, I understand more professional-technical knowledge	1	2	3	4	5
2	After attending school-enterprise cooperation, I can effectively manage time, professional skills, learning	1	2	3	4	5
3	After attending school-enterprise cooperation, I was able to identify the core elements of successfully qualified jobs	1	2	3	4	5

Order number	Do you agree with the following statements? Please make a choice based on the actual situation? Each question both radio.  1 = strongly disagree 2 = do not agree 3 = Basic agree 4 = agree 5 = totally agree					
4	After attending school-enterprise cooperation, mastering the skills learned professional requirements, and to apply their knowledge in their work	1	2	3	4	5
5	After attending school-enterprise cooperation, I can turn vision into concrete actions	1	2	3	4	5
6	After attending school-enterprise cooperation, I am keen to identify and seize employment opportunities	1	2	3	4	5
7	After attending school-enterprise cooperation, I can accurately career planning	1	2	3	4	5
8	After attending school-enterprise cooperation, I can effectively career development	1	2	3	4	5
9	After attending school-enterprise cooperation, I can propose a variety of solutions to the same problem	1	2	3	4	5
10	After attending school-enterprise cooperation, I can put my new ideas into practice	1	2	3	4	5
11	After attending school-enterprise cooperation, I can take the initiative to find new working methods, procedures, improve the quality of work	1	2	3	4	5
12	After attending school-enterprise cooperation, I dare to try new tasks, meet challenges, adventurous	1	2	3	4	5
13	After attending school-enterprise cooperation, experience new things, I'm interested in the initiative to search for information to enhance understanding	1	2	3	4	5