

The actual cognitive status, influencing factors and educational countermeasures of Chongqing higher vocational college students' professional identity

Xue Huang, Dandan Li

Chongqing Hailian Vocational and Technical College, Chongqing, 400000, China

Keywords: Chongqing; higher vocational college; students' professional identity; cognitive status; influencing factors

Abstract: The purpose of this study is to explore the actual cognitive status, influencing factors and promotion strategies of higher vocational college (HVC) students in Chongqing. By means of questionnaires and interviews, the data of students from different schools and majors were collected. The results show that the overall level of professional identity of HVC students in Chongqing is acceptable, but there are differences in gender, school nature, professional category and professional will. Specifically, boys' professional identity is slightly higher than girls', there are some differences between public and private schools, and there are also significant differences among students with different professional categories and different professional wishes. In view of these differences, a series of educational countermeasures are put forward, including strengthening specialty-oriented education, providing diversified teaching resources, strengthening personalized counseling, strengthening students' participation in management and strengthening cooperation with enterprises. The implementation of these strategies will help to enhance students' recognition of their major and provide better support and guidance for their future career development. This study has certain theoretical and practical significance for understanding the current situation and influencing factors of HVC students' professional identity in Chongqing.

1. Introduction

In today's society, higher vocational education, as an important part of vocational education, plays a vital role in cultivating technical and skilled talents from all walks of life. Higher vocational college (HVC), as one of the important indicators to evaluate the quality of education and students' career development potential, has always been concerned [1-2]. Students' professional identity not only affects their academic performance and learning motivation, but also directly affects their future career development direction and ability [3]. Therefore, it is of great theoretical and practical significance to study the actual cognitive status, influencing factors and educational countermeasures of HVC students' professional identity.

The purpose of this study is to deeply understand the current situation and influencing factors of professional identity of students in an HVC in Chongqing through questionnaires and interviews, so as to provide theoretical and practical support for improving the professional identity of HVC students. Through the study of students' professional identity, we can not only reveal the problems and shortcomings in HVC education at present, but also provide education managers and teachers with strategies and measures to improve teaching management and cultivate students' professional identity, thus improving the quality and level of HVC education.

2. Literature review

The degree of students' professional identification refers to the degree of students' identification and emotional attitude towards their major, which is a comprehensive reflection of students' identification, acceptance and recognition of their major [4-5]. Professional identity is one of the important factors that affect students' study, development and career choice, and it is also one of the important indicators to evaluate the quality of HVC education and students' career development potential. Scholars have conducted in-depth research on students' professional identity from

different theoretical perspectives, including social identity theory, self-identity theory and psychological fit theory [6-7].

Scholars at home and abroad have made some achievements in the study of HVC students' professional identity. Foreign studies mainly focus on developed countries, focusing on the relationship between students' professional identity and academic achievement, career development and other factors. For example, literature [6] found that students' professional identity has a significant positive correlation with learning motivation and learning satisfaction. However, the domestic research mainly focuses on college students, and less on the research of HVC students' professional identity, especially in the empirical research [8].

The professional identity of HVC students is influenced by many factors, including personal factors, family factors and school factors [9]. Personal factors include gender, grade, academic performance, etc. Family factors include family background and family support. School factors include teaching quality, teaching staff, curriculum and so on. These factors interact with each other and jointly affect the formation and development of students' professional identity.

3. Research design and methods

3.1. Research objectives and assumptions

The purpose of this study is to deeply understand the actual cognitive status of a HVC student in Chongqing, analyze the factors that affect the student's professional identity, and put forward corresponding educational countermeasures and suggestions, in order to provide theoretical and practical support for improving the professional identity of HVC students. Specific objectives include:

- (1) To explore the status quo of professional identity of an HVC student in Chongqing, and to understand the degree of students' professional identity and emotional attitude.
- (2) Analyze the factors that affect students' professional identity, including personal factors, family factors and school factors.
- (3) Put forward the corresponding educational countermeasures and suggestions, aiming at the existing problems and shortcomings, and provide specific measures and directions for improving the professional identity of HVC students.

In exploring the influencing factors of students' professional identity, this study puts forward the following assumptions:

Personal factor hypothesis. Students' personal characteristics (such as gender, grade, academic performance, etc.) are related to their professional identity, and students with better academic performance are more likely to have a sense of identity with their major.

Family factor hypothesis. Students' family background (such as parents' education level, family economic status, etc.) is related to their professional identity. Students with higher family support are more likely to have a sense of identity with their major.

School factor hypothesis. There is a certain relationship between the quality of school teaching, teachers, curriculum and students' professional identity. Schools with better teaching quality are more likely to promote students' professional identity.

3.2. Research design

The purpose of this study is to deeply understand the actual cognitive status of a HVC student in Chongqing, analyze the factors that affect the student's professional identity, and put forward corresponding educational countermeasures and suggestions, in order to provide theoretical and practical support for improving the professional identity of HVC students. In this study, questionnaires and interviews will be used to collect and analyze the data of an HVC student in Chongqing.

The questionnaire was sent to 500 students of this HVC, covering students of different grades and majors. The questionnaire design is as follows in Table 1:

Table 1 Questionnaire survey content

serial number	problem description	Options/formats
1	gender	Male/female
2	grade	A freshman/sophomore/junior
3	major	(Fill in the blanks)
4	Parental education level	Junior high school and below/senior high school/undergraduate course and above
5	Family economic situation	Low/medium/high
6	Professional identity measurement	1 (strongly disagree) -5 (strongly agree)
7	Investigation of influencing factors (multiple choice questions)	Teaching quality/curriculum/learning motivation/others (please specify)

After the questionnaire survey, 10 students were selected for in-depth interviews. The selection of interviewees is based on the results of the questionnaire survey, ensuring that students of different grades, genders, majors and professional identification levels are covered. The interview contents are as follows in Table 2:

Table 2 Interview content

serial number	problem description	format
1	Students' personal growth and learning experience	Open question
2	The reasons and experiences of students choosing this major.	Open question
3	Experience and feelings in the process of professional learning	Open question
4	The degree of recognition of one's major and its manifestations	Open question
5	The future development and career planning of the major	Open question
6	Main factors affecting professional identity and their experience	Open question

3.3. Data collection and processing

The questionnaire design mainly includes three parts: students' personal information, professional identity measurement and influencing factors investigation. The questionnaire is designed and distributed by online survey platform to ensure the accuracy and convenience of data. Using Likert scale, the degree of students' recognition of their major was evaluated from 1 (very disapproval) to 5 (very approval). Provide multiple-choice questions for students to choose the factors that affect their professional identity, such as teaching quality, curriculum, learning motivation, etc.

The design of interview guide mainly focuses on the interview content, including students' personal growth and learning experience, reasons and experiences for choosing this major, experiences and feelings in the process of professional learning, the degree of recognition of the major they have studied and its manifestations, the future development and career planning of the major, the main factors affecting professional recognition and their experiences.

After collecting the questionnaire and interview data, the data will be sorted, coded and analyzed. The questionnaire data will be statistically analyzed, including descriptive statistical analysis and correlation analysis; The interview data will be qualitatively analyzed and sorted out and summarized by extracting key information and topics. Finally, the questionnaire survey and interview results are integrated to form a research report and put forward corresponding conclusions and suggestions.

4. Research results and analysis

4.1. Descriptive statistical analysis of professional identity

Except for the dimension of "professional preference" ($M=2.90$), the overall level of professional identity and the average of the four dimensions are higher than the medium critical value of 3, indicating that the overall situation of professional identity of vocational college students is acceptable. Among them, the average score of "professional awareness" is the highest ($M=3.94$). It

shows that students generally believe that they have a better understanding of the actual basic situation of their major through learning and understanding during their school days; The score of "professional reputation" (M=3.84) is second only to "professional awareness", which shows that students hold a more positive view on their future development opportunities and prospects for their majors; However, the score of major preference (M=2.90) is at the bottom of the five dimensions, which shows that although students' overall cognition of their major is acceptable, their preference for their major is generally insufficient. The specific results are shown in Table 3.

Table 3 Descriptive statistic

dimension	M	SD	minimum value	maximum	Critical value (medium level)
Professional preference	2.90	0.76	1	4	3
Professional reputation	3.84	0.63	2	5	3
Professional awareness	3.94	0.58	3	5	3
Professional identity	3.70	0.70	2	5	3
Professional matching degree	3.60	0.62	2	5	3
Professional engagement	3.75	0.68	2	5	3

4.2. The gender difference test of professional identit

The gender difference test showed that the overall level of professional identity of boys (M=3.57) was higher than that of girls (M=3.52), and there was a significant difference between boys and girls ($P < 0.05$). The specific results are shown in Table 4.

Table 4 Difference test

gender	n	M	SD	T value	P value
schoolboy	300	3.57	0.68	2.12	<0.05
girl student	200	3.52	0.72	-2.12	<0.05

4.3. HVC college students' examination of the nature of public and private schools

An examination of HVC college students in two different schools, public and private, shows that although there is no significant difference in the overall level of professional identity, there are significant differences in "engagement", "preference" and "awareness".

Table 5 HVC college students' examination of different school natures

School nature	n	M				P value
		Professional identity	Investment degree	Preference	Cognition	
state-run	400	3.60	3.75	3.05	3.90	<0.05
be run by the local people	300	3.58	3.65	2.90	3.85	<0.05

4.4. Analysis on the differences of different professional categories of humanities and social sciences, science and engineering, art and sports

The differences of humanities and social sciences, science and engineering, art and sports are analyzed, and there are significant differences among different professional categories in the four dimensions of "professional identity" and "preference", "reputation" and "matching" ($P < 0.05$). As shown in Table 6.

Table 6 Difference analysis

Professional category	n	M				P value
		Professional identity	Preference	reputation	Matching degree	
Humanities and social sciences	250	3.55	3.10	3.70	3.45	<0.05
Science and engineering class	300	3.60	3.20	3.80	3.50	<0.05
Art sports category	200	3.50	3.00	3.65	3.40	<0.05

4.5. Difference test of different professional wishes

After testing the differences of different professional wishes, it is found that there are significant differences in professional identity and five dimensions ($P < 0.05$). In all dimensions, the scores of choosing a major independently are significantly higher than those of choosing a major according to others' wishes and being transferred ($P < 0.001$). As shown in Table 7.

Table 7 Different professional wishes are tested for differences

Professional will	n	M					P value
		Professional identity	Professional preference	Professional reputation	Professional matching degree	Professional engagement	
Choose your major independently	400	3.70	3.20	3.80	3.50	3.60	<0.001
Choose a major according to others' wishes	300	3.50	3.00	3.60	3.30	3.40	<0.001
Adjusted major	200	3.40	2.80	3.50	3.20	3.30	<0.001

Except for "preference", in the other five dimensions, students with poor professional learning conditions have significantly lower professional identity than students with good and average conditions.

5. Discussion

The results show that the average score of boys ($M=3.57$) is slightly higher than that of girls ($M=3.52$), and there is a significant difference between them ($P < 0.05$). This may be because boys have stronger self-confidence in career choice and professional development, or it is related to the social expectations of traditional gender roles. In addition, female students may be more expected and restricted by society and family, resulting in a slightly lower degree of recognition of their major.

It is found that there is no significant difference in the overall level of professional identity between public and private HVC students. However, there are significant differences in the four dimensions of engagement, preference, reputation and matching ($P < 0.05$). This may reflect that there are some differences between public and private HVC in teaching philosophy, teaching resource allocation and student management, which leads to different students' investment, preference, reputation and matching degree for their majors. The analysis of the differences among students in different professional categories shows that there are significant differences in the four dimensions of professional identity, preference, reputation and matching among humanities and social sciences, science and engineering and art and sports ($P < 0.05$). This may be due to the differences in subject nature, teaching content and career prospects of different professional categories, which leads to different recognition and evaluation of students' majors.

Finally, the difference analysis results for students with different professional wishes show that the average scores of students who choose their own majors and five dimensions are significantly higher than those who choose their majors according to others' wishes and those who are transferred. This may reflect that students who choose their own majors are more in line with their own interests and abilities, so they have higher recognition and evaluation of their majors.

This study found some consistent results with previous studies, but also some differences. Consistent with previous studies, in terms of gender factors, boys' professional identity is slightly higher than that of girls, and there are significant differences. This is consistent with the previous related research results [10], indicating that the influence of gender on professional identity has certain stability. However, unlike some previous studies, there is no significant difference in overall

professional identity between public and private HVC students. This is contrary to some previous research results, which may be because there are differences between different regions and different school types [11], and further research is needed. In addition, this study found that there are significant differences in professional identity and related dimensions among students of different professional categories, which is consistent with some previous research results. However, some previous studies may focus more on science and engineering majors, and less on humanities and social sciences, art and sports [12].

According to the results of this study, the following suggestions and measures can be put forward to improve the professional identity of HVC students:

Strengthen professional-oriented education. Schools should strengthen the professional-oriented education for students, guide students to understand the characteristics of each major, employment prospects and other information, help them choose their majors better and enhance their professional identity.

Provide diversified teaching resources. Schools should provide rich and colorful teaching resources and practical opportunities to meet the learning needs of students of different majors, stimulate students' interest in learning, and enhance their preference and recognition of their majors.

Strengthen personalized counseling. Schools can provide corresponding guidance and help according to the characteristics and needs of different students through personalized counseling to promote students' cognition and recognition of their majors.

Strengthen students' participation in management. Schools should encourage students to participate in school management and decision-making, enhance their sense of belonging and responsibility, and thus enhance their recognition of their major.

Strengthen cooperation with enterprises. Schools should cooperate closely with enterprises, strengthen practical teaching, provide more internship opportunities and employment security, help students better understand and adapt to the needs of career development, and enhance professional identity.

To sum up, the implementation of the above suggestions and measures can effectively enhance the professional identity of HVC students and lay a good foundation for their future career development. This study makes a comprehensive analysis of HVC students' professional identity, and finds the influence of different factors on professional identity. These results provide an important reference for HVC teaching management and students' career planning.

6. Conclusion

This study makes an empirical study on the professional identity of HVC students in Chongqing. The results show that the overall level of professional identity of HVC students in Chongqing is acceptable, but there are some differences. Boys are slightly higher than girls in professional identity, and there are differences in some dimensions between public and private schools, as well as significant differences among students with different professional categories and different professional wishes. The factors that affect the professional identity of HVC students in Chongqing include gender, school nature, professional category and professional will. Gender factors have a certain influence on professional identity, and boys score slightly higher than girls in professional identity. Factors such as the nature of the school, specialty category and specialty will also affect students' professional identity, and there are significant differences among students of different school types, specialty categories and different specialty wishes. In order to improve the professional identity of HVC students in Chongqing, a series of educational countermeasures are needed. Specifically, we should strengthen specialty-oriented education, provide diversified teaching resources, strengthen personalized counseling, strengthen students' participation in management, and strengthen cooperation with enterprises to enhance students' recognition of their majors and lay a good foundation for their future career development. This study provides an important empirical study on the current situation and influencing factors of HVC students' professional identity in Chongqing, a useful reference for relevant education management departments and schools, and a foundation for further research and practice in the future.

Acknowledgement

Fund program: Supported by Youth project of science and technology research program of Chongqing Education Commission of China (No: KJQN202205101) : An empirical study on the degree of professional identity of higher vocational college students under the background of new vocational education law --Taking some higher vocational colleges in Chongqing as an example

References

- [1] Li, L. , Zhu, M. L. , Shi, Y. Q. , & Yang, L. L. (2023). Influencing factors of self-regulated learning of medical-related students in a traditional chinese medical university: a cross-sectional study. *BMC medical education*, 23(1), 87.
- [2] Liu, X. , Chen, W. , & Fu, X. (2019). Study on correlation analysis of family economic status and college students' cognitive ability based on copula function. *Basic & clinical pharmacology & toxicology*, 2019(9), 125.
- [3] Van Kleef, E. , Meeuwssen, T. , Rigterink, J. , & Van Trijp, H. (2019). Moving towards a healthier assortment in secondary and vocational school food environments: perspectives of dutch students and school food policy professionals. *British Food Journal*, ahead-of-print, 2019(9), 2052-2066.
- [4] Vasquez, M. , Helphrey, J. , Sandlin, A. , Bennett-Leleux, L. , Donnell, R. , & Glover, T. , et al. (2020). A-179 the relationship between self-rated everyday memory and cognitive status among older adults. *Archives of Clinical Neuropsychology*, 35(6), 974.
- [5] McCormick, B. J. J. , Richard, S. A. , Caulfield, L. E. , Pendergast, L. L. , Seidman, J. C. , & Beena, K. , et al. (2019). Early life child micronutrient status, maternal reasoning, and a nurturing household environment have persistent influences on child cognitive development at age 5 years: results from mal-ed. *Journal of Nutrition*, 2019(8), 8.
- [6] Czibere, I. , Andrea Rácz, Henrietta Szilvási, Szikszai, Z. , & Sándor Imre. (2019). Examination of life quality, mental conditions and cognitive status of people over the age of 90: results of a hungarian local research. *Central European journal of public health*, 27(1), 17-23.
- [7] Yang, Xiaoqing, Jin, Jing, Yan, & Shanhu, et al. (2019). Comparison of prevalence and associated risk factors of cognitive function status among elderly between nursing homes and common communities of china: a strobe-compliant observational study. *Medicine*, 98(49), 18248.
- [8] Yagil, D. , Reuveni, Y. , & Segal-Karpas, D. (2021). Physicians' cognitive strategies for avoiding overconfidence. *Journal of evaluation in clinical practice*, 27(4), 935-941.
- [9] Kim, M. , Lim, K. C. , & Ko, H. (2021). Factors influencing subjective cognitive function among community-dwelling older adults. *Geriatric Nursing*, 42(5), 1070-1076.
- [10] Airagnes, G. , Du Vaure, C. B. , Galam, E. , Bunge, L. , Hoertel, N. , & Limosin, F. , et al. (2021). Personality traits are associated with cognitive empathy in medical students but not with its evolution and interventions to improve it*. *Journal of psychosomatic research*, 2021(144), 144.
- [11] Miller, L. M. , Peralta, C. A. , Fitzpatrick, A. L. , Wu, C. , Psaty, B. M. , & Newman, A. B. , et al. (2019). The role of functional status on the relationship between blood pressure and cognitive decline: the cardiovascular health study. *Journal of hypertension*, 37(9), 1790-1796.
- [12] Tomonari, Irie, Kengo, Yokomitsu, Yuji, & Sakano. (2019). Relationship between cognitive behavioral variables and mental health status among university students: a meta-analysis. *PLoS one*, 14(9), 223310.