

A Study on the Influence of Professional Identity and Academic Self-Efficacy on Academic Achievement among Higher Vocational Students

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Abstract: This study surveyed 548 students from higher vocational colleges in Chongqing, with 523 valid questionnaires collected for data analysis. The main findings are as follows: (1) The levels of professional identity, academic self-efficacy, and academic achievement among higher vocational students are generally above average. (2) Female students scored significantly higher than male students in professional identity, academic self-efficacy, and academic achievement. There is a declining trend in professional identity, academic self-efficacy, and academic achievement as students advance in grade, with first-year students scoring the highest and third-year students the lowest. Only children show significantly higher professional identity than non-only children. (3) Professional identity directly and positively predicts academic self-efficacy and academic achievement, while academic self-efficacy positively predicts academic achievement.

Keywords: Higher Vocational Students; Professional Identity; Academic Self-Efficacy; Academic Achievement

1. Introduction

As a critical stage in talent cultivation, the effectiveness of higher education directly impacts the overall situation of national economic and social development. The National Education Work Conference held on January 12, 2023 emphasized the need to focus on the overarching goal of building a strong education nation, with the core task of comprehensively improving the quality of talent cultivation, striving to advance an education that satisfies the people (Ministry of Education of the People's Republic of China, 2023) [14]. Currently, the hardware facilities and educational resources of China's higher education institutions continue to be optimized. However, some students, due to

subjective factors such as ideological awareness and psychological state, fail to make good use of the excellent learning environment, ending up idle all day, not only wasting their youth but also hindering academic progress and missing important opportunities for personal growth. This has a negative impact on the quality of talent cultivation in both schools and society. Therefore, in the process of promoting talent cultivation, universities should not only address macro-level factors such as educational philosophy, faculty development, curriculum design, and practical teaching conditions but also pay more attention to micro-level factors at the individual level, such as the learning psychological state, daily behavior, and actual learning outcomes of vocational college students (Liu Yingying, 2023) [8]. Professional identity and academic self-efficacy are crucial intrinsic variables in the growth of vocational college students and key factors influencing their learning development. Currently, many college students face psychological distress due to insufficient professional identity, poor academic performance, and low self-efficacy, which not only restricts their learning outcomes but also, to some extent, hinders the overall improvement of talent cultivation in higher education institutions. This study takes Chongqing vocational colleges as the research object, and uses the "professional identity questionnaire", "academic self-efficacy questionnaire" and "academic achievement questionnaire" to investigate the status of professional identity, academic self-efficacy and academic achievement of vocational college students respectively, aiming to provide reference for the future vocational colleges to formulate academic achievement related policies.

2. Literature Review

Building upon existing research, this study develops a multidimensional analytical framework to examine the underlying factors

influencing vocational students' professional identity and academic achievement. Through a comprehensive review of literature on professional identity, academic self-efficacy, and academic performance, the study employs a combined approach of literature review and questionnaire surveys. Using Chongqing vocational students as empirical samples, it demonstrates the practical application and value of relevant theories in this specific demographic.

2.1 Professional Identity

Research indicates that gender differences significantly influence students' professional identity. A 2006 study by Hu Zhihai and colleagues revealed that female students generally demonstrate stronger professional identity than their male counterparts. This phenomenon may stem from distinct psychological development patterns and physiological differences between genders, which in turn shape societal perceptions of career paths for different genders (Hu Zhihai & Huang Helin, 2006) [6]. For example, in mechanical maintenance programs, female students typically exhibit lower professional identity than male students, while in nursing programs, male students show weaker professional identity compared to their female peers.

To assess students' professional identity, researchers have developed various scales. Among these, the "Nursing Majors' Professional Identity Survey" developed by Hu Zhonghua has been widely used in related studies. In a survey of 500 nursing students, researchers found through regression analysis that there is a significant correlation between academic performance and professional identity. Specifically, students with excellent academic performance tend to exhibit higher professional identity, while those with poorer grades show lower identification with their major (Wang Haiting, 2009) [12].

Furthermore, Wang Dingming conducted a study on master's students' professional identity using the "Master's Graduate Professional Identity Survey Questionnaire," revealing a strong correlation between environmental factors and professional identity (Wang Dingming & Liu Yongcun, 2007) [11]. Nehami's research further indicates that a mismatch between career aspirations and academic majors can diminish students' learning motivation and enthusiasm,

ultimately undermining their professional identity (Baum, 2004) [1].

Research demonstrates a strong positive correlation between professional identity and academic achievement. A study by Sun Song, Dong Bingjie, and colleagues (2020) involving 354 undergraduate students in stomatology revealed that professional identity and its dimensions significantly correlate with academic performance, with professional identity acting as a mediator between learning engagement and academic outcomes [10]. Similarly, Chen Kun's (2018) research on 406 students in private vocational colleges found that learning engagement positively impacts academic achievement, with professional identity indirectly influencing this relationship through its effect on learning engagement [3]. These findings highlight the dual role of professional identity in enhancing academic success, both directly and through the mediating variable of learning engagement.

2.2 Academic Self-Efficacy

Academic self-efficacy significantly influences students' academic performance, with higher self-efficacy correlating with better academic outcomes. Zimmerman et al. (1992) demonstrated that self-efficacy directly impacts academic achievement ($\beta=0.21$) and indirectly enhances it by elevating students' academic goals ($\beta=0.36$). Brianm and Wooda (2014) found that academic self-efficacy is significantly positively correlated with learning engagement. As a mediating variable between academic self-efficacy and academic performance, learning engagement also shows a significant positive correlation with both academic self-efficacy and academic performance.

Hu Jingxian et al. (2018) conducted a questionnaire survey among 790 full-time undergraduate nursing students using general data questionnaires, academic self-efficacy questionnaires, academic emotion scales, and nursing student professional identity questionnaires [5]. The general data of nursing undergraduates were described using frequency, percentage, mean, and standard deviation. A multiple stepwise regression method was applied to analyze the relationships between academic self-efficacy, academic emotion, and professional identity. Results showed that nursing undergraduates scored below the norm in academic self-efficacy; both dimensions of

academic emotion were below the norm. Academic emotion and academic self-efficacy were positively correlated, as were academic emotion and professional identity. Academic self-efficacy played a significant positive role in the formation of professional identity. Conclusion: Academic self-efficacy, academic emotion, and professional identity are mutually reinforcing and causally related. Schools and nursing educators should adopt effective measures to cultivate and build students' academic emotion and academic self-efficacy, thereby enhancing their professional identity, cultivating high-quality and outstanding nursing talents for society, and promoting the sustainable development of the nursing profession (Hu Jingxian, Huang Shuangli, Zhang Shumin, Zhang Qian, Li Lihua, 2018) [5].

2.3 Academic Achievement

Existing research primarily examines the relationship between academic achievement and related variables, exploring their attribution and influencing factors. Wang Wenbo investigated the interaction between positive emotions, academic engagement, and academic achievement among college students, demonstrating that positive emotions can enhance academic performance through increased engagement. Cai Wenbo and Yang Lixue conducted a study on ethnic minority students, revealing that academic self-efficacy positively influences learning strategies and academic achievement, with learning strategies serving as a mediating factor (Cai Wenbo & Yang Lixue, 2019) [2].

Li Fang conducted a questionnaire survey to analyze the correlations between learning motivation, academic self-efficacy, and academic achievement. Guided by self-efficacy theory, motivation reinforcement theory, and hierarchy of needs theory, and based on reviewing domestic and international literature, she constructed a theoretical model linking learning motivation, academic self-efficacy, and academic achievement. This study distributed 390 questionnaires to college students nationwide, with 328 valid responses collected. Data analysis using SPSS and AMOS software yielded the following conclusions: First, there is a positive correlation between learning motivation and academic achievement among college students, indicating that stronger learning motivation correlates with higher

academic performance. Second, learning motivation and academic self-efficacy show a positive relationship, meaning stronger learning motivation correlates with higher self-efficacy. Third, academic self-efficacy and academic achievement exhibit a positive correlation, suggesting that stronger self-efficacy leads to higher academic achievement. Fourth, academic self-efficacy significantly mediates the relationship between learning motivation and academic achievement (Li Fang, 2020) [7]. Based on these findings, the study proposes the following research hypothesis:

H1: Professional identity has a significantly positive effect on academic achievement.

H2: Academic self-efficacy has a significantly positive effect on academic achievement.

H3: Professional identity has a significantly positive effect on academic self-efficacy.

3. Research Design & Implementation

This chapter includes: 1. Study subjects and data collection; 2. Research tools. The above two sections are discussed as follows.

3.1 Survey Subjects and Data Collection

This study conducted a survey among students at a vocational college in Chongqing. From September to November 2025, counselors distributed questionnaires to students across various departments, majors, and grades, ensuring a representative sample. Using convenience sampling, 548 questionnaires were distributed. After excluding 25 responses with irregular patterns, 523 valid questionnaires were collected, yielding a 95.43% response rate.

3.2 Research Tools

This study involves three variables: professional identity, academic self-efficacy and academic achievement. The data are obtained from the professional identity scale, academic self-efficacy scale and academic achievement scale of higher vocational students.

3.2.1 Professional identity

This study adopted the Professional Identity Scale (Qin Panbo, 2009), which comprises four dimensions: cognitive, affective, behavioral, and adaptive [9]. The cognitive dimension is assessed through 5 items, the affective dimension through 8 items, the behavioral dimension through 6 items, and the adaptive dimension through 5 items, totaling 24 items. Higher scores indicate greater recognition of

one's major, while lower scores reflect lesser recognition.

3.2.2 Academic self-efficacy

Based on the demographic characteristics of the study subjects and after preliminary screening and comprehensive consideration of existing validated scales, this study will employ the "College Students' Academic Self-Efficacy Scale" developed by Liang Yusong for investigating academic self-efficacy among vocational college students. The scale consists of 22 measurement items and is divided into two dimensions: learning ability self-efficacy and learning behavior self-efficacy. Both dimensions are measured through 11 items each, including specific questions such as "B1: I believe I have the ability to achieve good academic results." The scale uses a 5-point rating system (1 = very disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = very agree), with higher factor scores

indicating higher levels of academic self-efficacy. The scale demonstrates strong reliability and validity.

3.2.3 Academic achievement

This study adopted the College Students' Academic Achievement Questionnaire developed by Wang Yanfei, Li Yunjian, and Huang Yuexin (2011) and Du Zhikang (2022)[4,13]. To align with the academic evaluation characteristics of vocational college students, the scale was appropriately revised. The revised version employs a five-point Likert scale, comprising 13 items across three dimensions: learning performance, interpersonal facilitation, and learning ability. The 5-point scale ranges from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher academic achievement levels. Table 1 shows the strong reliability and validity.

Table 1. Reliability Statistics Table

Variable name	dimension	Item	Cronbach's α coefficient
professional identity	Cognitive	A1-A5	0.924
	emotionality	A6-A13	0.954
	Behavioral	A14-A19	0.938
	fitness	A20-A24	0.948
	Professional Identity Inventory	A1-A24	0.980
self-efficacy in learning	self-efficacy of learning ability	B1-B11	0.975
	learning behavior self-efficacy	B12-B22	0.975
	Total Self-Efficacy Scale for Learning	B1-B22	0.986
scholastic achievement	learning performance	C1-C6	0.952
	Interpersonal communication	C7-C10	0.940
	learning ability	C11-C13	0.944
	Academic Achievement Inventory	C1-C13	0.973

4. Research Design & Implementation

This study was conducted using the aforementioned research methods and tools, with the collected data and discussions presented as follows.

4.1 Common Method Bias Test

The use of self-report data may introduce common method bias. Following Zhou Hao and Long Lirong's (2004) recommendations, we applied the Harman single-factor test to assess this bias [15]. The results showed that the first factor accounted for only 29.21% of the variance,

which is below the 40% threshold. Therefore, this study demonstrates no significant common method bias.

4.2 Variability Analysis of Variables

4.2.1 Analysis of variance for gender variables

This section will investigate the significant differences in professional identity, academic self-efficacy, and academic achievement between genders, with male and female students as independent variables. The independent samples t-test will be employed for statistical analysis to examine gender differences. Specific differences are detailed in Table 2.

Table 2. Analysis of Differences by Gender Variables

variable	sex	Number of cases	average value	standard deviation	t	p
professional identity	man	305	3.711	0.829	-2.513*	0.012
	woman	218	3.888	0.740		
self-efficacy in learning	man	305	3.712	0.816	-2.054*	0.041
	woman	218	3.857	0.764		

scholastic achievement	man	305	3.874	0.786	-2.740**	0.006
	woman	218	4.060	0.736		

Note: * $p < 0.05$; ** $p < 0.01$

As shown in Table 2, the t-value of -2.513 ($p = 0.012$) in the total professional identity ranking between male and female students indicates a statistically significant difference, suggesting that female students demonstrate higher professional identity scores than their male counterparts in vocational colleges. Regarding academic self-efficacy, the t-value of -2.054 ($p = 0.041$) reveals a significant difference, with female students scoring higher in this domain. Similarly, the t-value of -2.740 ($p = 0.006$) in the total academic achievement

ranking demonstrates a significant difference, showing that female students achieve higher academic performance than their male peers.

4.2.2 Variance analysis of only child variables

This section will investigate the significant differences in professional identity, academic self-efficacy, and academic achievement among different types of only children, with only children and non-only children as independent variables. The independent samples t-test will be applied to analyze the differences between different types of only children. Specific differences are detailed in Table 3.

Table 3. Variance Analysis of Different Only Child Variables

variable	the only child	Number of cases	average value	standard deviation	t	p
professional identity	yes	103	3.984	0.867	2.851**	0.005
	deny	420	3.736	0.772		
self-efficacy in learning	yes	103	3.921	0.889	1.951	0.053
	deny	420	3.736	0.770		
scholastic achievement	yes	103	4.084	0.826	1.953	0.051
	deny	420	3.919	0.753		

Note: * $p < 0.05$; ** $p < 0.01$

As shown in Table 3, the t-value of 2.851 ($p = 0.005$) between only children and non-only children in the total professional identity ranking indicates a statistically significant difference, suggesting that only children demonstrate higher professional identity than their non-only peers in vocational colleges. Regarding academic self-efficacy, the t-value of 1.951 ($p = 0.053$) shows no significant difference, indicating no notable distinction between the two groups. Similarly, the t-value of 1.953 ($p = 0.051$) in academic achievement ranking also reveals no significant difference, suggesting that there is no significant variation in academic performance between only and non-only children.

4.2.3 Analysis of variability in grade variables among vocational college students

This section investigates significant differences in professional identity, academic self-efficacy, and academic achievement across different grade levels. With grade level as the independent variable and professional identity, academic self-efficacy, and academic achievement as dependent variables, a one-way ANOVA is conducted to analyze grade-level differences. If the F-value meets the significance threshold, a post-hoc LSD analysis is performed.

As shown in Table 4, the F-value for professional identity across different grade levels was 13.619 ($P < 0.001$), indicating significant

differences in overall professional identity. Post-hoc LSD analysis revealed that first-year vocational students demonstrated higher professional identity than third-year students, while second-year students showed greater professional identity than third-year students, with no significant difference between second and third-year students. The significantly higher professional identity of first- and second-year students compared to third-year students may be related to their developmental stage and psychological changes. Regarding academic self-efficacy, the F-value for grade-level comparison was 15.745 ($P < 0.001$), suggesting significant differences in overall academic self-efficacy. Post-hoc LSD analysis showed that first-year vocational students had higher academic self-efficacy than third-year students, while second-year students demonstrated greater academic self-efficacy than third-year students, with no significant difference between second and third-year students. In terms of academic achievement, the F-value for grade-level comparison was 20.859 ($P < 0.001$), indicating significant differences in overall academic achievement. Post-hoc LSD analysis revealed that first-year vocational students achieved higher academic performance than second- and third-year students, with second-year students ranking second and third-year students lowest.

Table 4. Analysis of Significant Differences in Variables Across Different Grade Levels

variable	grade	quantity	average value	standard deviation	F	p	posterior comparisons
professional identity	freshman	188	3.938	0.828	13.619***	0.000	Freshman> Sophomore
	sophomore	177	3.859	0.721			Sophomore> Junior
	junior	158	3.520	0.781			
self-efficacy in learning	freshman	188	3.955	0.810	15.745***	0.000	Freshman> Sophomore
	sophomore	177	3.826	0.740			Sophomore> Junior
	junior	158	3.495	0.772			
scholastic achievement	freshman	188	4.183	0.744	20.859***	0.000	Freshman> Sophomore, Junior
	sophomore	177	3.960	0.706			Sophomore> Junior
	junior	158	3.666	0.780			
Note: *p<0.05; **p<0.01; ***p<0.001					D-W price	1.947	

4.4 Regression Analysis

4.4.1 Regression analysis of professional identity on academic achievement

First, we conducted a model fit test using the R-squared value as the evaluation metric. The model achieved an R-squared value of 0.650, indicating that the control variables and professional identity variables can explain 65% of the variance in the dependent variable (academic achievement). Moreover, all VIF values for professional identity in the model were below 5, confirming the absence of multicollinearity. Next, we assessed the significance of the independent variable (professional identity) on the dependent variable (academic achievement). As shown in Table 5, the beta coefficient of 0.748 (greater than 0) demonstrates a statistically significant positive relationship between professional identity and academic achievement. This suggests that higher vocational students with stronger professional identity are more likely to achieve academic success. Therefore, Hypothesis H1-'Professional identity has a significant positive impact on academic achievement among higher vocational students'-is supported by the findings.

Table 5 Regression Analysis of Professional Identity on Academic Achievement

variable	β	t	p	collinearity diagnostics	
				tolerance	VIF
(constant)	1.327	9.130	0.000		
sex	0.033	0.810	0.418	0.978	1.023
grade	-0.104	-4.076	0.000	0.939	1.064
origin of student	-0.042	-0.894	0.372	0.990	1.010
professional identity	0.748***	29.021	0.000	0.949	1.054
R ²	0.650				
Adjust R ²	0.648				
F	240.769***				

4.4.2 Regression analysis of professional identity on academic self-efficacy

First, we conducted a model fit test using the R-squared value as the evaluation metric. The model achieved an R-squared value of 0.738, indicating that the control variables and professional identity variables collectively explain 73.8% of the variance in the dependent variable, academic self-efficacy. Moreover, all VIF values for professional identity in the model were below 5, confirming the absence of multicollinearity. Next, we assessed the significance of professional identity as an independent variable on academic self-efficacy. As shown in Table 6, the beta coefficient of 0.846 (greater than zero) demonstrates a statistically significant positive relationship. This suggests that higher levels of professional identity among vocational college students enhance their academic self-efficacy. Therefore, Hypothesis 3 (H3) is supported: Professional identity has a significant positive impact on academic self-efficacy among vocational college students.

Table 6. Regression Analysis of Professional Identity on Academic Self-Efficacy

variable	β	t	p	collinearity diagnostics	
				tolerance	VIF
(constant)	0.665	5.110	0.000		
sex	-0.015	-0.403	0.687	0.978	1.023
grade	-0.053	-2.328	0.020	0.939	1.064
origin of student	0.022	0.514	0.607	0.990	1.010
professional identity	0.846***	36.639	0.000	0.949	1.054
R ²	0.738				
Adjust R ²	0.736				
F	364.329***				
D-W price	1.967				

4.4.3 Regression Analysis of Academic Self-Efficacy on Academic Achievement

As shown in Table 7, the model's R-squared value of 0.750 indicates that control variables and professional identity variables account for 75% of the variance in the dependent variable, academic achievement. Moreover, the VIF values for academic self-efficacy in the model are all below 5, confirming no multicollinearity issues. The beta coefficient of 0.814 between academic self-efficacy and academic achievement (Table 7) demonstrates a significant positive relationship. Enhancing academic self-efficacy among vocational college students improves their academic performance, thus validating Hypothesis H2: Academic self-efficacy has a significant positive impact on academic achievement in vocational college students.

Table 7. Regression Analysis of Academic Self-Efficacy on Academic Achievement

variable	β	t	p	collinearity diagnostics	
				tolerance	VIF
(constant)	1.017	8.199	0.000		
sex	0.054	1.547	0.123	0.981	1.019
grade	-0.072	-3.328	0.001	0.930	1.075
origin of student	-0.058	-1.449	0.148	0.990	1.010
self-efficacy in learning	0.814**	37.190	0.000	0.942	1.062
R ²	0.750				
Adjust R ²	0.748				
F	240.769***				
D-W price	1.987				

5. Conclusion and Suggestion

The conclusions and recommendations of this study are summarized as follows after the data analysis and discussion in Chapter 4:

5.1 Conclusion

This study investigates the interplay and variations among professional identity, academic self-efficacy, and academic achievement among vocational college students in Chongqing. The key findings are: (1) Conclusion 1: Higher vocational students' professional identity positively correlates with academic achievement, demonstrating that stronger professional identity correlates with higher academic performance. (2) Conclusion 2: Professional identity positively influences academic self-efficacy, showing that stronger professional identity correlates with higher self-efficacy. (3) Conclusion 3: Academic self-efficacy positively affects academic

achievement, indicating that higher self-efficacy correlates with greater academic success.

5.2 Recommendations

The conclusion of the study shows that professional identity can be transformed into academic achievement more effectively through the key psychological mechanism of academic self-efficacy. Therefore, the management and service system design of higher vocational colleges should focus on the dual goals of "enhancing professional identity" and "cultivating academic self-efficacy" to integrate resources.

Implement comprehensive and precise professional awareness and career education throughout the entire academic journey. To address the relatively weak "cognitive" and "appropriateness" recognition among vocational college students, institutions should extend beyond the initial orientation phase to establish a holistic guidance system covering the entire curriculum. For freshmen and sophomores, systematic introductions to cutting-edge professional developments, societal value, and career pathways should be delivered through industry expert lectures, field visits, and interviews with distinguished alumni, helping students build a clear and positive professional cognitive framework and solidify their foundational recognition. For seniors (particularly juniors), who often experience a significant decline in recognition and efficacy, enhanced career market analysis, job-seeking skills training, and psychological counseling should be provided. This approach guides students to transform employment pressure into motivation to address skill gaps and enhance core competitiveness, thereby preventing the erosion of recognition and confidence caused by real-world challenges.

To cultivate academic self-efficacy, schools should optimize evaluation models by reforming assessment methods. As success stems from direct experience, educators should adopt diversified, formative assessments-such as project assignments, practical reports, and group presentations-while providing timely, specific, and constructive feedback. This helps students build confidence through repeated small successes. Additionally, schools must establish academic early-warning and support systems, offering personalized tutoring to students with learning difficulties. This prevents them from

developing "learned helplessness" due to repeated failures, which could undermine their self-efficacy.

Addressing group disparities through differentiated educational strategies. Schools should allocate resources strategically based on gender and institutional characteristics. To address male students' relatively weaker performance in academic achievement and professional identity, institutions may develop more practical, challenging, and competitive learning activities to boost their engagement. They should also explore teaching methodologies and evaluation criteria tailored to male learners' characteristics. For private university students, greater investment and promotion in program development are essential. By establishing distinctive program brands and deepening industry-education collaboration, institutions can enhance their social reputation and student recognition. Additionally, creating exchange platforms between public and private university students will foster mutual learning and motivation.

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