

The Influence of Professional Identity on Academic Achievement among University Students: The Mediating Role of Academic Self-Efficacy

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Abstract. Academic self-efficacy has been researched that it causes positive effects on students' academic achievement, and professional identity might be related to academic achievements in some ways. However, little research has explored the mediating role of academic self-efficacy in the relationship between professional identity and academic achievement. Our research aims to find out how professional identity and academic achievement affect academic achievement. The further exploration is whether academic self-efficacy is a mediator between them. In order to examine this, 253 university students were invited to complete an online questionnaire that contained several dimensions of professional identity and academic self-efficacy. However, academic achievement was assessed by means of GPA and major ranking. The analysis results show that there is a positive correlation between every two of them and university students' academic self-efficacy partially mediated, which means with it promotes students' achievement through professional identity.

Keywords: Academic self-efficacy; professional identity; academic achievement.

1. Introduction

Academic self-efficacy means the personal judgment for his successful completion of the academic mission capability and confidence, and consist of learning ability and behavior self-efficacy. The former stands for the ones to evaluate their capability to be competitive their studies, get higher grades to stay away from academic failure; The latter represents that students can achieve learning goals for their own learning behavior assessment, which is the estimation of their behavior results [1]. Professional identity is an individual's subjective feeling about a profession in social reality, and it is the degree to which an individual is consistent and balanced with the profession [2]. Relevant research results show that professional identity affects university students' satisfaction with learning and burnout [3], affects university students' enthusiasm for learning [4], and ultimately affects university students' academic performance and personal growth [5]. Professional identity positively affects the academic performance of university students. Earlier studies have also been carried out on undergraduate students, and the results have also shown that general self-efficacy is significantly positively correlated with professional identity [6]. Studies have shown more mediation of academic self-efficacy, analyzing whether it acts as an intermediary between the two variables. We propose the university students' academic performance are influenced by the two factors which we have talked about basing on previous research. This study aims to investigate the impact of professional identity on academic achievement, and to examine whether academic self-efficacy plays a role as a mediator.

1.1 Hypothesis

The research assumes that university students' professional identity have a positive influence on their academic achievement. Meanwhile, academic self-efficacy mediating the relationship between professional identity and academic achievement. University students' professional identity and academic self-efficacy have significant differences in gender, major, grade, etc., which have an

impact on professional achievement. There are differences in the scores of the four dimensions of professional identity, the degree of connection between it. Academic self-efficacy is different, and the impact on academic achievement is different. The two dimensions included in academic self-efficacy have mediating effects on professional identity, and there are significant differences in the degree of influence and there are differences in the impact on academic achievement.

2. Methods

2.1 Participants

Randomly selected undergraduate student participants distributed and collected online questionnaires uniformly, and a total of 253 valid questionnaires were returned. The proportion of males in the sample is relatively small, with a value of 27.7% (70), and that of females is 72.3% (183). The mean age of these participants is 20.83, with 0.92 standard deviation, age from 19 to 22. Among the variables of grades, the third-year students account for the most, accounting for 39.5%, followed by the fourth-year students, accounting for 26.1%, and then the seniors. Second, the proportion is 25.3%, the freshman is the least, and the value is 9.1%; in the distribution of majors studied, the majority of students majored in humanities and social sciences (literature, history, philosophy, economics, management, law, education, art), accounting for 68.0%, followed by natural science majors (engineering, science, agriculture, medicine), accounting for 32.0%.

2.2 Measurements

2.2.1 University students' professional identity questionnaire

The university students' professional identity questionnaire was compiled by Qin [7]. The questionnaire includes 23 items and measures students' recognition of their majors from four dimensions: cognitive (5), affective (8), behavioral (5) and appropriate (4). Cognitive identification refers to the degree of learning of the basic situation of the profession; emotional identification refers to the degree of preference for professional emotions; behavioral identification refers to the performance of professional behavior; appropriate identification refers to the match between the profession and oneself degree. The scale is scored on a 5-point Likert scale, with higher scores indicative of greater recognition of the major. The Cronbach's α of the total scale was 0.92 and the Cronbach's α of each dimension was 0.80, 0.89, 0.81, and 0.82 in this study, which indicated that the scale had good reliability.

2.2.2 Academic self-efficacy scale

The academic self-efficacy scale compiled by Liang [8]. The scale includes 22 items, which are divided into two dimensions: learning ability self-efficacy (11 items) and learning behavior self-efficacy (11 items). Learning ability self-efficacy is individuals' judgment and belief in their ability to complete their academic successfully, get good grades, and avoid academic failure; learning behavior self-efficacy is the individual will be able to use some suitable for their own learning methods. Judgment and belief to achieve learning goals. The scale is scored on a 5-point scale, and the higher scores indicates the greater efficiency. In current research, the Cronbach's α of the total scale was 0.94, and the Cronbach's α of each dimension were 0.92 and 0.87, respectively, which indicated that the scale had good reliability. The KMO values obtained in this research are all higher than 0.9, and the Bartlett values are all under 0.001, which proves that this scale has good validity and can be used in present study.

2.3 Data Analysis

All statistical processes were used SPSS28.0 to input data on the computer, and carried out scale reliability and validity analysis, correlation analysis, mediation effect analysis.

3. Results

3.1 Descriptive Statistics and Correlation Analysis

The overall correlation of the three variables is analyzed, shown in Table 1.

Table 1. Correlation of Professional Identity, Academic Self-efficacy and Academic Achievement

	1	2	3
1. Professional Identity	-		
2. Academic Self-efficacy	0.69**	-	
3. Academic Achievement	0.28**	0.34**	-
M	81.56	71.92	3.79
SD	13.51	14.09	0.67

Notes: ** $p < 0.01$.

The average value of the total scale of professional identity, academic self-efficacy and academic achievement of students is 81.56, 71.92 and 3.79. It should be noted that since the GPA calculation methods for university students' academic achievements are not exactly the same in different universities, in order to facilitate the measurement and data analysis, this study divides the students' professional achievements into grades according to the percentile system, and assigns them to the input: 90 points or more are the first grade, and the calculation 5 points; 80-90 points for the second grade, 4 points, and so on. The results are as shown in Table 1: the three have a significant positive correlation at the level of 0.01.

3.2 Mediation Effect Analysis

The mediating effect of academic self-efficacy in the relationship between academic achievement and professional identity was tested under the control of gender, grade, and professional category. The results can be found in Table 2-3.

Table 2. Path analysis of Academic Self-efficacy on Academic Achievement

Dependent variables	Independent variables	R	R ²	F	β	t
Academic Achievement		0.34	0.12	8.23***		
	Gender				-0.21	-2.35
	Grade				0.06	1.41
	Categories of Major Professional Identity				0.16	1.83
Academic Self-efficacy		0.69	0.48	57.60***		
	Gender				-0.30	-0.21
	Grade				0.38	0.54
	Categories of Major Professional Identity				2.36	1.70
Academic Achievement		0.39	0.15	8.86***		
	Gender				-0.21	-2.36
	Grade				0.06	1.33
	Categories of Major Professional Identity				0.13	1.52
	Academic Self-efficacy				0.01	3.20**
	Professional Identity				0.01	1.12

Notes: ** $p < 0.01$, *** $p < 0.001$.

Table 3. Total, Direct and Mediation Effects of PI on AA

	Effect Size	Boot SE	Boot LLCI	Boot ULCI	Proportion of Effects
Total Effects of PI on AA	0.013	0.004	0.005	0.021	
Direct Effects of PI on AA	0.005	0.003	-0.003	0.013	34.09%
Mediation Effects of PI on AA via AS	0.009	0.003	0.003	0.014	65.91%

Notes: PI = Professional Identity, AS = Academic Self-efficacy, AA = Academic Achievement.

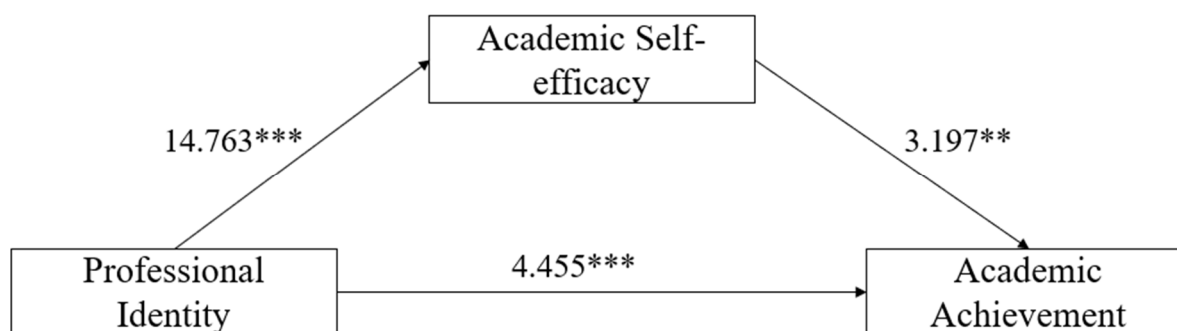


Fig. 1 Academic Self-efficacy as a Mediator between Professional Identity and Academic Achievement (** $p < 0.01$, *** $p < 0.001$)

Professional identity is a significant predictor of academic performance ($\beta=0.013$, $p<0.001$), professional identity has a significant predictive effect on academic self-efficacy ($\beta=0.710$, $p<0.001$), and academic self-efficacy has a significant impact on academic achievement. The predictive effect of is also significant ($\beta=0.012$, $p<0.01$) (Figure 1).

Furthermore, since the upper and lower bounds of the bootstrap 95% confidence interval of the direct influence of professional identity on academic achievement contain 0, indicating that the immigrant prediction influence of professional identity on academic achievement is not significant, and the direct effect (0.005) only accounts for the total effect (0.013) of 34.09%; however, the upper and lower bounds of the bootstrap 95% confidence interval of the mediating effect of academic self-efficacy do not contain 0, indicating that professional identity can significantly predict academic performance through the mediation effect of academic self-efficacy and the mediation effect. (0.009). It accounts for 65.9% of the total effect (0.013); that is, professional identity primarily influences educational performance through the mediating effect of academic self-efficacy.

4. Discussion

4.1 The Relationship Between Professional Identity and Academic Achievement

Their relationship is strong, with professional identity being a significant and positive predictor of academic achievement, in line with our hypothesis. In terms of specific dimensions, behavioral identity is significantly related to academic achievement, with the former positively predicting the latter. In previous studies, it was found that university students generally agree with their majors, but in terms of specific dimensions, their cognitive professional identity is relatively highest and their behavioral professional identity is relatively lowest [9]. In contrast, in this study, university students identified more emotionally and behaviorally with their major than cognitively and aptly with their major. It is inferred that this is due to the increasingly competitive employment pressure today and the continued impact of the new crown epidemic in recent years, which has further exacerbated the difficult employment situation. University students are no longer just focusing on employment when choosing their majors. As a result, university students have a high level of professional sentiment and

behavior after entering university studies, despite having a low level of professional awareness and aptitude, and are still pressured by examinations and employment.

4.2 The Relationship Between Professional Identity and Academic Self-Efficacy Among University Students

Professional identity is closely linked to university students' academic self-efficacy, and both are positive predictors. That are consistent with previous research results [10-12], in their analysis of the correlation between professional identity and academic self-efficacy. This finding proves that high professional identity can promote students' academic self-efficacy. A high degree of professional identity is contribute to stimulate college students' learning motivation, thus raise their academic self-efficacy.

4.3 The Relationship Between Academic Self-Efficacy and Academic Achievement

The finding that university students' academic self-efficacy significantly predicted academic achievement is consistent with the hypothesis of this study and is according with the findings of Suand Li [13, 14]. In terms of specific dimensions, this study showed that academic self-efficacy was significantly linked to academic achievement, with the former positively predicting the latter, but academic achievement was not significant effected by academic behavioral self-efficacy. On the other hand, in a previous study, for physical education undergraduate students both dimensions were significant predictors of academic achievement, and the predictive effect of students' learning ability self-efficacy on academic achievement was greater than the other[15]. This discrepancy in findings may be due to the differences in the majors of the group of undergraduate subjects selected for the study. This study also concluded a contrary finding while in Li's study, it was found that learning ability self-efficacy was relatively high and learning behavior self-efficacy was relatively low [9]. Combined with the changing trends in university students' professional identity, it is evident that university students' study behavior has shifted from being conducted with adequate knowledge of their study ability and chosen major to being goal-driven in striving to obtain academic success in order to cope with employment and life pressures.

4.4 The Mediating Effect of Academic Self-Efficacy among University Students

The study found that the direct predictive effect of professional identity on academic achievement was not significant, and that professional identity mainly influenced academic achievement through the mediating effect. Meanwhile, there is a mediating effect of university students' academic self-efficacy in the relationship between university students' professional identity and academic achievement. Specifically, when university students' professional identity is high, the more confident students are in their learning abilities and activities, the more beneficial it is to improve academic achievement. When the low level of students' professional identity, academic self-efficacy would also be affected, and thus have negative effect on academic performance. In previous studies in the field of university student learning, academic self-efficacy has often played an important mediating role in university student learning, such as the influence of professional identity on learning engagement, the influence of motivation on academic achievement, and the influence of emotional intelligence on academic achievement, all of which have been found to have mediating effects. The existence of these proven mediating effects further supports the findings of this study, the academic self-efficacy mediates the effect of professional identity on academic achievement. According to the findings of this study, professional identity through academic self-efficacy have a mediation effect, so improving students' academic self-efficacy will be an important direction to improve students' academic achievement. From the perspective of schools and teachers, universities and teachers can motivate students to use their abilities and experiences to make correct attributions when they encounter academic difficulties and setbacks so that students can always keep a positive attitude to academic self-efficacy and experience more confident about learning, thus achieving better academic success. Students, on the other hand, should choose appropriate strategies and methods for self-monitoring in

relation to themselves. The results of this research have important implications for the career guidance of university students.

5. Future Research Prospect

Expanding the sample to obtain broader conclusions. A more scientific approach to research was adopted. The most significant method used in this paper is the questionnaire method, and subsequent studies may consider adding moderating variables and other methods to further improve the accuracy and scientific nature of the findings.

Expanding the scope of academic achievement. Professional learning guidance for university students in the new employment situation. In the current study, different results from previous studies emerged in the field of the dimensional tendencies of professional identity and academic self-efficacy. This is inextricably linked to the increasingly challenging employment and graduate school situation in recent years, which has been exacerbated by the emergence of the new crown epidemic. The major choice of university students has changed significantly compared to the past, and it is important to guide how to make use of the mediating role in the influence of professional identity on academic achievement.

6. Conclusion

Overall, this study's main findings were that university students' professional identity and academic self-efficacy were positive predictors of academic achievement, with academic self-efficacy having a partial mediator effect on the influence of professional identity on academic achievement.

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