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Exploring the Influence of Academic Self-Efficacy on Students' Professional Identity: The Intermediary Role of Social Media Frequency

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Abstract: In recent years, social media has become more and more integral to Chinese daily life as new media has grown and developed. Previously, there were a number of challenges because of the lack of knowledge regarding social media usage and the problems of university students' majors. These challenges include whether the frequency of social media use affects daily learning, the extent to which university students in the new era understand the current state of their majors, whether frequent use of social media supports their studies and the mediating role of social media in these processes. Given these issues, the existing literature lacks comprehensive reference materials. In order to further examine students' learning habits, this study uses a questionnaire survey and a five-point Likert scale to investigate how ASE affects university students' major identification and how social media usage frequency acts as a mediating factor. Based on participants' moderate social media usage frequency, the results suggest a reasonable association between the frequency of social media use and its impact. There is a modest mediation influence of social media, variations in the academic self-efficacy (ASE) of participants, and a substantial positive association between the major identity and self-efficacy of university students.

Keywords: Professional identity, academic self-efficacy, social media, usage frequency

1. Introduction

People's daily routines are now completely enmeshed with social media (SM), and the exponential rise in popularity of the Internet has led to a steady increase in the use of mobile phones. Mobile phone use is becoming a divisive topic in society, particularly among college students who use SM intensively. Social networking facilitates the lives of college students, but it also has a negative impact on their academic achievement. In light of this, the field of educational research is paying increasing attention to this phenomenon. Lately, majors have also been the main focus of college students' studies, with an increasing emphasis on the importance of professional reputation. The use of SM by college students is associated with their professional identity (PI). As a result, there might be a significant relationship between college students' identification with their majors and how they use SM.

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This study, which is based on the rapidly evolving trend of SM applications and their growing influence on the student population, focuses on the relationship between ASE and PI among college students. The relationships between college students' ASE and professional identities, as well as the mediating effect of SM usage frequency, have not received enough attention in the academic literature. Researchers established the topic's significant academic significance and identified study gaps by thoroughly analyzing and synthesizing prior research publications.

In addition to investigating and evaluating the possible influence mechanisms of SM usage frequency on ASE and PI, the goal of this study is to gain a comprehensive understanding of the role that ASE plays in college students' professional identities. It is hoped to improve the current situation by reducing the detrimental effects of excessive SM use on students' academic performance and psychological state, strengthening their PI, and increasing college students' ASE via the use of rigorous survey methods and comprehensive data analysis.

In conclusion, this research has important theoretical and applied ramifications for understanding how college students' professional identities are influenced by their ASE and how SM usage frequency plays a mediating role in this relationship. Prior research in this area has shown that ASE influences college students' academic behavior and PI to some degree. The frequency of use of SM may be a significant factor in this process, reflecting the social behaviors and tendencies of individual students to some degree.

2. Literature Review

2.1. Academic Self-efficacy (ASE)

ASE is the application of the concept of self-efficacy in the field of education or learning, which was first proposed by Bandura [1]. It speaks to a person's self-assurance or conviction that they can meet particular academic objectives. The degree, tenacity, and breadth of self-efficacy all fluctuate in accordance with Bandura's theory. At the degree dimension, individuals select tasks of varying difficulty; at the strength dimension, individuals are more vulnerable to setbacks when their self-efficacy is lower, but their confidence is maintained when their self-efficacy is higher; at the breadth dimension, individual assessments of their abilities differ across domains. According to this concept, domestic researchers like Zeng and Xie also distinguish between ASE and learning behavior self-efficacy [2, 3]. Research shows that students with high ASE exhibit greater persistence and more positive coping strategies when faced with academic challenges, leading to higher academic achievement. For example, Schunk and Zimmerman indicated that ASE is positively correlated with students' learning motivation and academic performance [4].

2.2. Professional Identity (PI)

PI refers to the learners' acceptance and recognition of the major, as well as the attribution and investment of the major in terms of cognition, emotion, and behavior. Internationally, Research shows that students with high PI often exhibit greater academic engagement and a more positive learning attitude. Studies indicate that students with a high level of PI are more likely to achieve academic success and maintain a positive attitude toward future career development [5]. Chinese researcher An and others believe that PI runs through the process of individual development, which alludes to a person's affiliation with the societal significance of professional labor, and believes that they are competent [6]. Wang defines PI as learners' acceptance and recognition of their major and shows a positive attitude toward inquiry [7]. In addition, Panbo Qin believes that PI is the emotional recognition generated by learners on the basis of cognitive understanding of the subject they learn, accompanied by the migration process of positive external behavior and inner sense of appropriateness [8]. These studies provide an important contribution to professional recognition.

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2.3. Social Media (SM)

SM is a virtual community and network platform for creation, sharing, and opinion exchange [9]. The most used social networking platforms in China include WeChat, QQ, Weibo, etc., and these are considered fashionable and free spaces where college students communicate intensively. Up to June 2016, the number of instant messaging users among Chinese netizens has reached 642 million. The rate of WeChat Moments and QQ space, which occupy an absolutely dominant position, is 78.7% and 67.4% respectively [10].it is used more frequently among college students. Relevant research shows that the use of SM can increase and expand social capital [11, 12], reduce individual loneliness, and improve the level of individual life happiness and satisfaction [13, 14]. Moreover, groups with more media using online social networking show a higher degree of internet addiction [15].

3. Methodology

This paper adopts a quantitative approach to collect data using questionnaires, which include more than 200 samples from three schools with a total of 50 questions. The number of effective fill-ins of male and female accounts for 40.98% and 59.2% respectively. The analysis method used in the questionnaire in this article is SPSS analysis. The results of the questionnaire are fed back by the Cronbach coefficient. The content of the questionnaire option is adopted using the five-point scoring method, from 1 to 5 representing complete disagreement, disagreement, uncertainty, agreement, and complete agreement. After completing all the above statistics, the authors establish a database for data input and statistical analysis. This questionnaire uses the reference to three authoritative questionnaire scales, respectively, the PI survey completed by college students, and ASE questionnaires, as well as SM usage frequency scale.

3.1. Sample Description

The sampling and stratification method was adopted, and 200 college students were selected from Ningbo University, Shanghai Normal University, and Civil Aviation University of China respectively. The sampling group is characterised by both men and women. The first-year, second-year, and junior students accounted for 27.32%, 26.83%, and 29.76% respectively, and the rest are senior students for 16.09%. The proportion of arts and sciences is 62.44% and 37.56%. The grade range is from freshman to senior students, and the regions are Tianjin, Ningbo, and Shanghai.

3.2. Research Design

3.2.1. Design of PI Questionnaires for College Students

The college student's PI questionnaire uses a total of 23 questions. The PI of college students refers to the questionnaire survey in Qin Panbo's paper [8]. There are a total of 23 questions in this questionnaire, using the five-point scoring method, from 1 to 5, complete non-conformity, non-conformity, uncertainty, comparative conformity, and complete conformity. College students' personality is assessed through a questionnaire that categorizes it into four dimensions, cognition, emotionality, appropriateness, and conduct. The level of comprehension of fundamental situations within the profession is known as cognition. There are five questions in this dimension. Emotionality is expressed as the degree of preference for professional emotions, and there are seven questions in this dimension; behavior is expressed as a performance of professional behavior and there are a total of five questions in this dimension of professional behavior; appropriateness is expressed as the degree of matching between the profession and ourselves, and there are a total of eight questions in this dimension. This questionnaire refers to college students as metacognitive learners and learning

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subjects. It is a transfer of cognition, mentality, and feelings, which generates emotional acceptance and recognition, accompanied by an inner sense of appropriateness and positive external behavior. Identity is the process through which individuals emotionally and psychologically converge with others, groups, or imagined characters.

3.2.2. Design of ASE Questionnaire

In this questionnaire, there are a total of 22 question questions used in it. The study on undergraduates' attainment intent, imputation manner, and ASE by Liang in 2000 uses the survey as its basis [16]. The authors adopted the questionnaire from Pintrich et al. [17]. There are a total of 22 questions in the questionnaire, using the five-point scoring method, from 1 to 5, representing complete disagreement, disagreement, uncertainty, consent, and complete agreement. The questionnaire encompasses both learning ability self-efficacy and learning behavior self-efficacy. The former in the questionnaire refers to whether the individual can complete the study, achieve good grades, and avoid pre-estimated behaviors of academic failure. There are 11 questions in this dimension. In this questionnaire, self-efficacy of learning is measured by the students' assessment of their ability to achieve their programme of study, which is based on their own bear fruit. There are also 11 questions in this dimension. In the study of this article questionnaire, ASE is regarded as an important intermediary variable. According to the sample survey, it was found that 40% of college students believe that they possess the capability to attain commendable academic performance. 38% of college students believe that they are able to solve problems during the process of learning. The Pl of undergraduates in fully influenced by ASE, which aids the intermediary variable of SM usage.

3.2.3. SM Usage Frequency Questionnaire Design

The frequency of SM includes two questions in this questionnaire. The SM usage frequency questionnaire mainly refers to an article published by Ellison, Nicole, and Lampe in 2007 [13]. The frequency of SM is classified as using it several times a day, a few times for one week, and never used; hours of use usage time is divided into more than three hours a day, one to three hours a day, less than an hour a day, and no used at all. SM has gradually changed people's communication methods, interpersonal relationships, information acquisition, mental health, and many other aspects. The questions in the questionnaire are aimed at measuring the activity of individuals on SM. This article' research aims to improve our understanding of SM usage and the relationship between SM intermediaries in students' PI and ASE.

3.3. Date collection

This study focuses on designing suitable questionnaires that include the content studied in this article. It collects data related to research issues. This article adopts the method of quantitative research to collect data to make chart analysis. The design and execution of the data collection process can be scientific and credible when SM usage frequency serves as an intermediary role in undergraduates' perception of ASE and PI.

The number of valid questionnaires was 200, and 230 questionnaires were distributed, with 210 of them being collected. The rate of questionnaire collection was 91%. The efficiency is 97%. After the questionnaire is collected, the credibility and validity of each dimension are analyzed. The partial confidence of the self-efficacy dimension is 0.989, and the validity is 0.985; The confidence of the frequency dimension of SM use is 0.944, and the validity is 0.500; The partial confidence of the dimension of PI is 0.988, and the validity is 0.980.

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4. Results

Table 1: Descriptive statistics

	N	minimum	maximum	Mean	SD
Self-efficacy	200	1.00	5.00	3.5164	1.02139
SM usage	200	1.00	5.00	3.2775	1.44210
PI	200	1.00	4.96	3.2411	.97685
The sample size for each variable	200				

Table 1 displays the descriptive statistics for three variables: self-efficacy, SM usage, and PI.

The average value for each variable is calculated, with self-efficacy at 3.5164, SM usage at 3.2775, and PI at 3.2411. Where self-efficacy has a standard deviation of 1.02139, The standard deviations of PI and SM usage are 0.97685 and 1.44210, respectively. The average values of ASE and PI are close to each other and are at a moderately high level, indicating that students have a certain degree of confidence in their abilities and recognition of their chosen profession. The average value of SM usage is slightly lower than that of self-efficacy and PI but still at a medium level, suggesting that students use SM relatively frequently in their daily lives. The standard deviation for SM usage is the highest, indicating the greatest variability in students' behavior in this area.

Table 2 displays the Pearson correlation coefficients and their significance levels (Sig. two-tailed) among three variables: self-efficacy, SM usage, and PI. The results from Table 2 demonstrate significant relationships between ASE, and PI among university students, and the frequency of SM usage.

Table 2: Correlation coefficients

		Self-efficacy	SM usage	PI
Self-efficacy	Pearson correlation coefficients	1	.342**	.267**
	Sig. two-tailed		.000	.000
	The sample size	200	200	200
SM usage	Pearson correlation coefficients	.342**	1	.234**
	Sig. two-tailed	.000		.001
	The sample size	200	200	200
PI	Pearson correlation coefficients	.267**	.234**	1
	Sig. two-tailed	.000	.001	
	The sample size	200	200	200

Regarding the influence of ASE on PI, it is significant across all regression models (P=0.000), indicating that the baseline levels of PI and SM usage are significantly positive when other variables are not considered (see Table 3). The data about the influence of ASE on PI indicates that ASE has a significant positive impact on PI, with a medium effect size (standardized coefficient of 0.267). These results indicate that ASE has a significant positive effect on SM usage, with a relatively large effect

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size (standardized coefficient of 0.342). The data also suggests that SM usage positively influences PI, although the effect size is smaller (standardized coefficient of 0.162).

Table 3: Analysis results of intermediary effect

	PI					SM usage					PI				
	Coefficient	SE	t	P	SC	Coefficient	SE	t	P	SC	Coefficient	SE	t	P	SC
constant	2.344	0.24	9.774	0.000***	-	1.579	0.345	4.575	0.000***	-	2.171	0.25	8.695	0.000***	-
self-efficacy	0.255	0.066	3.895	0.000***	0.267	0.483	0.094	5.123	0.000***	0.342	0.202	0.069	2.929	0.004***	0.211
SM usage											0.11	0.049	2.246	0.026**	0.162
R^2	0.071					0.117					0.094				
adjustR^2	0.066					0.108					0.081				
F	F(1，198)=15.171，P=0.000***					F(1，198)=26.243，P=0.000***					F(2，197)=10.264，P=0.000***				

Note: ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively.

The tables presented illustrate the statistical relationships among self-efficacy, SM usage, and PI, encompassing descriptive statistics, correlation analysis, analysis of variance, and regression analysis, as well as an exploration of mediation effects. Both self-efficacy and SM usage significantly influence PI, with notable correlations between them. Self-efficacy exerts a significant positive impact on both PI and SM usage, with a stronger effect on the latter. SM usage also positively affects PI, though the impact is relatively smaller. Self-efficacy may serve as a mediator between SM usage and PI, but further testing is required to verify the specific mediation effects.

5. Discussion

This study examines the mediating effect of SM usage frequency and looks into how ASE affects college students' PI. The results show a strong positive correlation between PI and ASE, with the frequency of SM use acting as a partial mediating factor in this relationship.

Firstly, the study discovers that college students' PI is substantially positively influenced by their ASE (coefficient = 0.255, p-value = 0.000). Higher self-efficacy students typically have more faith in their academic skills, which translates into a stronger sense of identity with their major. This outcome is in line with earlier studies, which indicate that people's self-perceptions regarding their academic aptitude contribute to their sense of belonging and excitement for their subject of study. Secondly, the research demonstrates that ASE also significantly influences the frequency of SM usage (coefficient = 0.483, p-value = 0.000). Higher self-efficacy students are more likely to use SM platforms wisely in order to learn new things, exchange experiences, and participate in class discussions. This might be a result of their increased ability to use SM to further their academic goals. This research suggests that self-efficacy affects not only students' academic performance but also their SM behaviors. Additionally, the study confirms that SM usage frequency impacts major identity (coefficient = 0.110, p-value = 0.026). The effect size is nonetheless considerable despite being rather tiny. This shows that using SM can, at least in part, improve students' sense of affiliation with their major. It's possible that students can use the internet to obtain professional resources and knowledge that aren't included in textbooks. By learning about other people's careers, they can develop a deeper understanding of and interest in their major. Lastly, the association between ASE and major identification is partially mediated by the frequency of SM usage, according to mediation analysis. This suggests that self-efficacy affects major identity both directly and indirectly through its effect on the use of SM. The significance of SM in the academic lives of contemporary college students is highlighted by this research.

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This study has significant theoretical and practical implications. Theoretically, by emphasizing the mediating function of SM usage and offering a resource for further research, it enhances the literature on the links among ASE, SM usage, and major identity. Practically, the findings offer valuable insights for educators, students, and parents.

6. Conclusion

Learners' acceptance and recognition of their chosen field of study, along with their cognitive, emotional, and behavioral commitment to it, are referred to as their PI. The determinants of PI have been the subject of intensive research from a variety of angles, as they are a crucial factor influencing university students' academic achievement. The purpose of this study is to look at how ASE affects college students' professional identities and how frequently they use SM as a mediating factor. The study's conclusions show that students' professional identities are highly influenced by their SM usage frequency and ASE, with a substantial association between the two. In particular, PI and frequency of SM use are positively impacted by ASE, with the latter benefiting more than the former. Although its influence is somewhat smaller, SM usage also has a favorable impact on PI. Furthermore, there may be a mediating role between the frequency of SM use and PI played by ASE. These results imply that maintaining a high level of ASE emphasizes the dual focus on improving academic performance and fostering a strong sense of personal identity. The use of SM by college students has increased significantly since the internet's inception, and this has had a significant impact on students' professional identities. These results support the initial theory and offer fresh perspectives on the subject of education. However, this study has several limitations. Although the mediation model looked at the relationship between PI, SM usage frequency, and ASE, more research is needed to determine the precise mediating effect. Additionally, researchers' expectations and preconceptions may gently impact participants' responses. Future research should broaden the survey coverage and further evaluate the mediating effects. In summary, this study offers educators, students, and parents a fresh viewpoint and establishes a strong basis for further research.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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