

The influence of psychological capital on academic engagement among Chinese college students

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ABSTRACT

The COVID-19 pandemic disrupted education in China, creating uncertainties in students' academic pursuits. This underscores the urgent need for psychological support to address the ongoing impact on college students. This study delves the relationship between psychological capital and academic engagement among Chinese college students, focusing on four components: efficacy, hope, resilience, and optimism. Through proportional stratified sampling and random selection methods, a sample of 270 students from Liupanshui Normal University were selected. The study employed the positive psychological capital questionnaire (PPQ) and a modified version of Schaufeli's Utrecht work engagement scale-student to quantitatively measure psychological capital and academic engagement, analyzed via correlation and regression techniques. Results revealed a significant positive correlation between psychological capital and academic engagement. Among the components, hope was the strongest predictor of academic engagement, followed by efficacy as the second most influential factor. Resilience and optimism did not significantly predict academic engagement. These findings highlight the importance of hope and efficacy in enhancing students' academic involvement, suggesting targeted psychological support could improve engagement. The study contributes to understanding the specific roles of psychological capital components in academic contexts, offering practical insights for educators.

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1. INTRODUCTION

The COVID-19 pandemic disrupted education, affecting students' psychological well-being and academic choices. The abrupt shift to online learning caused anxiety, impacting both psychological well-being and academic engagement [1], [2]. Economic challenges worsened uncertainties, leading students to prioritize major subjects over non-major ones to manage career uncertainties [3]. These challenges highlight the need for psychological support due to the pandemic's ongoing effects on college students.

Academic engagement is crucial for academic success and personal development. It involves more than just completing academic tasks. Newmann [4] defines it as the psychological effort and investment individuals make during school tasks to enhance their skills, knowledge, or crafts, emphasizing students' psychological and emotional experiences during the learning process. Schaufeli [5] compares students' engagement with class assignments to workers' engagement with their jobs. Similar to employees, students' participant in structured tasks and activities (e.g., finishing assignments) to achieve specific goals

(e.g., passing exams). Therefore, the concept of engagement can be broadened to include the learning environment [6]. Students' engagement with school and class assignments includes three components: vigor (emotional), dedication (cognitive) and absorption (behavioral) [7], [8]. "Vigor" refers to being energetic while studying; "dedication" means applying oneself to classes motivationally and finding the work meaningful; "absorption" describes being so focused on studies that time seems to pass unnoticed [9]. Academic engagement represents the degree of students' involvement in their academic tasks and has a substantial influence on both learning motivation and performance [10].

From the perspective of psychological capital, it includes positive emotions, confidence, resilience, optimism, and hope, which are essential resources for engagement, collectively influencing individuals' attitudes, behaviors, performance, and well-being [11]. The concept of psychological capital has its roots in positive psychology and organizational behavior. In the late 1990s, psychological capital emerged as part of positive psychology [12], [13]. It explores how positive human functioning impacts organizational performance and well-being. Luthans [14] delves psychological capital into individuals' beliefs, attitudes, and emotional resilience, portraying "who you are" and "who you are becoming." A distinct feature of psychological capital is its "state-like" quality, implying its malleable and dynamic nature. It is a higher-level, core construct that consists of four fundamental characteristics: efficacy, hope, resilience and optimism. These elements interact synergistically, influencing various manifestations over time and in different contexts [15].

In education, psychological capital is regarded as an important role in assisting students handle academic challenges and adversity, enhancing their resilience and positively impacting their learning and life. In contemporary higher education, the relationship between college students' academic engagement and psychological capital is a focal point for research and education. Studies show that psychological capital could predict academic engagement and outcomes effectively [16]. Students with higher levels of psychological capital tend to feel empowered in their learning, which in turn fosters greater engagement [17]. Additionally, psychological capital has been found to mediate the link between engagement and academic performance, contributing to students' overall success [18]. Positive emotions have also been shown to significantly impact students' psychological capital, further strengthening their academic engagement [19]. These findings underline the importance of psychological capital in promoting student engagement and suggest that it could serve as an effective focus for interventions designed to improve academic outcomes.

Despite existing research, several questions remain unanswered. Most studies focus on the overall impact of psychological capital on engagement, but the individual effects of its components have not been fully explored. This research aims to fill this gap by examining the specific relationship between academic engagement and these components. Theoretically, it contributes to the understanding of how psychological factors influence students' academic behavior and outcomes. By exploring these factors, educators can practically develop more effective strategies for providing psychological support to students, thereby promoting their well-being and academic performance.

The central research question is: which psychological capital variables significantly influence the academic engagement of Chinese college students? Formulated within this research framework are 2 primary hypotheses.

- H1: at least one component of psychological capital (efficacy, hope, resilience, and optimism) will be positively correlated with academic engagement.
- H2: among the psychological capital components, one specific factor will demonstrate a stronger predictive influence on academic engagement.

2. METHOD

2.1. Research design

This study employed a quantitative approach to examine the relationship between psychological capital variables and academic engagement among Chinese college students. A sample of 270 individuals was selected using proportional stratified sampling and random selection, ensuring accurate representation of the target population. Participants completed an online questionnaire designed to assess psychological capital and academic engagement. Validated scales were adopted to measure each component. The data was analyzed using SPSS for correlation and regression analyses, which helped identify significant predictors and draw conclusions from the data.

2.2. Research population and sample

The study population included 830 first- and second-year humanities students from the Colleges of Education, Literature, and Arts at Liupanshui Normal University. A sample of 270 students was selected using the Taro Yamane in (1), and the margin of error (e) was 0.05.

$$n = N/(1 + N(e^2)) \quad (1)$$

The calculated sample size was 269.11, which was rounded up to 270. Proportional stratified sampling maintained the ratio of first-year (44.58%) and second-year (55.42%) students. About 120 first-year and 150 second-year students were sampled. The final sample sizes for each college within each academic year were determined proportionally: 26 from the college of education, 36 from the college of literature, and 58 from the college of arts for first-year students; and 29 from the college of education, 62 from the college of literature, and 59 from the college of arts for second-year students. For clarity, the characteristics of participants are shown as Table 1. Random selection was employed within each college, and students were invited to complete an online questionnaire by scanning a QR code, ensuring voluntary participation.

Table 1. Characteristics of participants (n=270)

Student	College	Population	Sample	Ratio (%)
First-year	Education	80	26	44.58
	Literature	110	36	
	Art	180	58	
Sub-total		370	120	
Second-year	Education	90	29	55.42
	Literature	190	62	
	Art	180	59	
Sub-total		460	150	
Total		830	270	100

2.3. Research instrument

To measure the level of psychological capital, this study employed the positive psychological capital questionnaire (PPQ) [20], an adapted version of the PPQ-24 scales by Luthans *et al.* [21], tailored to suit the Chinese context. It assessed psychological capital through 4 key components: efficacy (7 items), hope (6 items), resilience (7 items) and optimism (6 items), with 26 items total. Each item is rated on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scores for each dimension were calculated, with a higher total score indicating a stronger positive psychological capital. Scores below 3 indicated a negative state, scores between 3 and 5 were neutral, and scores above 5 indicated a positive state [22].

To measure academic engagement, this study modified the Utrecht Academic Engagement Scale-Student Version (UWES-S) [23], adapted to specifically emphasize engagement in college learning. The Chinese version was used to ensure cultural relevance and linguistic appropriateness for Chinese students [24]. The scale consists of 17 items, where participants rate the frequency of their study-related experiences from 1 (no experience) to 7 (everyday experience).

2.4. Research procedure

Upon receiving ethical approval for human subjects, the researcher at Liupanshui Normal University in Guizhou, China, provided clear guidelines to freshmen and sophomores. These outlined the questionnaire procedures, data collection time frame, and potential challenges. With permission granted, the researcher personally conducted the data collection using proportional stratified sampling and random selection. To ensure data completeness, each questionnaire was reviewed for accuracy, with any incomplete submissions addressed promptly. Data were then coded according to predetermined criteria, and scores were checked for accuracy. The collected data was statistically analyzed comprehensively.

The analysis included correlation and multiple regression techniques to examine the relationships between distinct psychological capital factors and academic engagement. Pearson's correlation coefficient was utilized to quantify linear associations, exploring pairwise relationships between each psychological capital factors and academic engagement. Subsequently, multiple regression analysis was deployed to examine the collective impact of psychological capital factors on academic engagement. This involved clearly identifying psychological capital factors as predictors and academic engagement as the criterion, with a rationale provided for predictor selection. Integration of findings from both correlation and multiple regression analyses offered a comprehensive understanding of how psychological capital influences academic engagement. This holistic approach ensured a nuanced exploration of research objectives, contributing meaningfully to scholarly discourse on the interplay between psychological capital and academic engagement.

3. RESULTS AND DISCUSSION

This study aims to investigate the effects of psychological capital on academic engagement among Chinese college students. While previous research has examined psychological capital broadly and treated

psychological capital as a single construct, little attention has been given to its four components: hope, efficacy, optimism, and resilience. This lack of focus creates a gap in understanding how each part individually contributes to students' academic behaviors. To address this gap, the study analyzes the unique effects of each component on academic engagement.

3.1. Descriptive analysis

As presented in Table 2, among all 270 students, 227 (84.07%) were female, and 43 (15.93%) were male. The average age of the participants was years 20.21 (SD=1.29). Overall, the psychological capital of the students was relatively high, with a mean score of 4.51 (SD=0.69). Among these components, resilience scored the highest mean 4.49 (SD=0.67), indicating that students generally displayed strong coping abilities in the face of challenges. Efficacy also scored relatively high mean 4.16 (SD=0.90), suggesting confidence in their ability to achieve academic goals. The mean of hope 4.08 (SD=0.81) and optimism 4.00 (SD=0.81) were similarly positive but slightly lower. Academic engagement, with a mean score of 4.00 (SD=1.06), suggests moderate to high levels of student involvement and dedication to their academic tasks. Overall, the data show a positive psychological outlook among students, with varying strengths in different psychological capital components.

The average value of resilience is notable high, which can be attributed to the fact that Chinese students undergo rigorous schooling from as early as elementary or middle school. Constant competition and pressure cultivate and enhance students' resilience from a young age [25]. The large population in China intensifies academic competition, and those with low levels of resilience cannot survive in the fierce competition and enter college. After enduring the highly competitive college entrance examination, these participants, as freshmen and sophomores, already exhibit strong resilience.

Table 2. Descriptive statistics

Variable	n	%	Minimum	Maximum	Mean	SD
Gender						
Female	227	84.07				
Male	43	15.93				
Age	17-23				20.21	1.29
Psychological capital			1.81	6.27	4.51	0.69
Efficacy			1.00	6.86	4.16	0.90
Resilience			2.71	6.86	4.49	0.67
Hope			1.43	6.00	4.08	0.81
Optimism			0.86	6.00	4.00	0.81
Academic engagement			1.00	7.00	4.00	1.06

3.2. The relationship between psychological capital and academic engagement

This study found significant correlations between psychological capital and academic engagement ($r=0.434$, $p<0.01$), as well as between the four components of psychological capital and academic engagement, as shown in Table 3. Specifically, academic engagement was positively correlated with efficacy ($r=0.369$, $p<0.01$), resilience ($r=0.299$, $p<0.01$), hope ($r=0.413$, $p<0.01$), and optimism ($r=0.300$, $p<0.01$). These findings suggest that higher levels of efficacy, resilience, hope, and optimism in college students are associated with higher levels of academic engagement. So, the hypothesis 1 is proved.

The correlation analysis in this study revealed significant associations between academic engagement and efficacy, hope, resilience, and optimism, suggesting that these dimensions of psychological capital work through various mechanisms to collectively boost students' academic engagement. Psychological capital significantly enhances students' motivation and academic performance [26], [27]. Positive psychology theory suggests that enhancing positive emotions and psychological strengths enables individuals to better cope with challenges and achieve their goals. These psychological resources not only improve emotional well-being but also increase intrinsic motivation, fostering greater initiative and sustained engagement in academic tasks [28]. In line with previous research, this study underscores psychological capital, which in turn increases academic engagement. Therefore, educational institutions can help students build stronger psychological capital, thereby enhancing their motivation, engagement, and overall academic performance.

To further explore this relationship, a regression analysis using overall psychological capital as the predictor was conducted. The model demonstrated that psychological capital accounted for approximately 18.8% of the variance in academic engagement. With an R value of 0.434 ($p<0.001$), psychological capital was a predictor of academic engagement, as detailed in Table 4. This indicates that psychological capital has a notable impact on students' learning behaviors. The results show psychological capital is important in shaping academic behaviors and suggest that interventions designed to enhance psychological capital could effectively boost student engagement in academic settings.

Table 3. Correlation between components of psychological capital and academic engagement

Pearson correlation coefficient(r)	1	2	3	4	5	6
1. Academic engagement	1.000					
2. Psychological capital	0.434**	1.000				
3. Efficacy	0.369**	0.849**	1.000			
4. Resilience	0.299**	0.760**	0.609**	1.000		
5. Hope	0.413**	0.781**	0.489**	0.459**	1.000	
6. Optimism	0.300**	0.808**	0.582**	0.438**	0.546**	1.000

Note: **Correlation is significant at the 0.01 level (2-tailed); n=270

Table 4. Regression coefficients analysis for predicting academic engagement

Table 4: Regression coefficients analysis for predicting academic engagement						
Model	Unstandardized coefficients		Standardized coefficients		t	Sig (p)
	B	Std error	Beta			
(Constant)	17.083	6.551			2.608	0.010
Psychological capital	0.435	0.055	0.434		7.876	0.000

Dependent variable: academic engagement

3.3. The influence of psychological capital components on academic engagement

A multiple regression analysis was conducted to assess how different components of psychological capital affect academic engagement. Table 5 shows that efficacy, resilience, hope, and optimism have varying effects on engagement, confirming hypothesis 2. This divergence in outcomes suggests that, in the context of academic engagement, hope and efficacy are more immediately relevant than resilience and optimism.

Table 5. Regression analysis of psychological capital components predicting academic engagement

Model	Unstandardized coefficients		Standardized coefficients		t	Sig (p)
	B	Std error	Beta			
(Constant)	19.460	7.148			2.722	0.007
Efficacy	0.560	0.222		0.196	2.527	0.012
Resilience	0.161	0.271		0.042	0.593	0.554
Hope	0.933	0.218		0.294	4.276	0.000
Optimism	0.021	0.230		0.007	0.093	0.926

Dependent variable: academic engagement

Predictors: (constant), efficacy, resilience, hope, and optimism

Among these factors, hope emerges as a strong predictor of academic engagement, with a statistically significant positive impact ($\beta=0.294$, $p<0.001$). This finding suggests that students with a more hopeful outlook tend to be more engaged in their studies. Our findings align with previous research on the importance of hope in academic engagement [29], [30]. According to Snyder's theory, hope provides students with clear goals and encourages them to stay actively involved and motivated through flexible planning and pathway development [31]. Strong hope helps students better manage academic setbacks and demonstrates higher levels of engagement. In this study, hope's significant impact may be particularly pronounced among students at normal universities, where clear career goals, such as becoming teachers, are prevalent. The clarity of career aspirations enhance hope, which in turn strengthens academic engagement [32]. Students who perceive a direct link between academic success and their future careers tend to develop a deeper sense of commitment to their academic work. This strong vocational identity not only strengthens their hope but also encourages them to adopt effective learning strategies, which are critical for long-term academic success. To harness hope in boosting academic engagement, educational institutions should enhance career counseling and goal-setting services to help students define their career aspirations. Additionally, programs that build vocational identity can strengthen students' commitment to their studies. Training on effective learning strategies can further boost engagement.

Efficacy also shows a positive relationship with academic engagement ($\beta=0.196$, $p=0.012$). According to Bandura's theory, high efficacy fosters persistence and a sense of achievement, leading students to engage more actively in learning activities [33]. Constructive feedback from peers and teachers further enhances this effect by building students' confidence and motivation [34]–[36]. Additionally, autonomous motivation supports efficacy and predicts higher engagement [37]. These findings are particularly relevant in the context of Chinese universities, where formative and summative assessments, combined with peer and teacher evaluations, play an integral role in shaping students' efficacy. The continuous feedback from multiple sources helps students feel a sense of progress and accomplishment, reinforcing their confidence. Overall, when students believe in their abilities, they are more likely to invest effort into their academic work. This finding underscores the motivational impact of self-belief. To boost student engagement through efficacy, institutions should provide regular, constructive feedback from peers and teachers to build

confidence. Allowing students to set their own goals can further support their efficacy. These measures enhance students' sense of accomplishment, reinforcing their belief in their capabilities and resulting in greater academic engagement.

However, the study found that resilience ($\beta=0.042$, $p=0.554$) was not significant predictors of academic engagement. This suggests that while resilience contribute positively to overall well-being, it did not show a strong direct influence on academic engagement among college students. This result of resilience contradicts some previous research [38], [39]. The discrepancy in findings may be attributed to differences in study populations and the specific dimensions of resilience and engagement assessed. The effects of resilience and engagement predictors can vary significantly depending on the specific dimensions being studied [40]. Resilience encompasses a network of interrelated resources, and these relationships can differ across different contexts and countries [41]. This study, focused on Chinese students, contrasts with previous research on African and European populations. These regional and demographic differences suggest that the relationship between resilience and engagement is context-dependent, underscoring the importance of considering the specific characteristics of the participants when examining these factors.

Moreover, the direct impact of resilience can be overshadowed by the influence of motivation and enthusiasm [42]. Individuals with high levels of engagement may not focus extensively on their goals because their high levels of motivation and enthusiasm already provide a sense of empowerment. Resilience, though crucial for managing adversity, may not have a direct impact on everyday academic engagement compared to factors like hope or efficacy. Students who are highly motivated and hopeful may rely less on resilience in their routine academic activities, as their intrinsic goals and aspirations drive their engagement. Since motivation is closely related to hope, this also helps explain why hope has a more significant influence on engagement compared to other factors.

In this study, optimism ($\beta=0.007$, $p=0.926$) did not significantly predict academic engagement. This aligns with previous research showing that optimism and engagement are not always positively correlated. Excessive optimism can lead to overconfidence, where students overestimate their abilities and underprepare, reducing engagement [43]. Optimism may lower anxiety, but if it does not drive action, it can negatively affect performance and engagement. The link between dispositional optimism and engagement is often contingent on the importance of goal-setting [44]. Optimism may have a limited effect on engagement for students who have not prioritized long-term academic goals. Behavioral intentions serve as a limiting factor here. For students who have not yet set long-term academic goals, optimism may not significantly boost engagement. In the case of freshmen and sophomores in this study, who are mainly focused on short-term tasks and social integration, lower levels of optimism were observed. Without clear long-term objectives, their optimism did not translate into increased engagement or goal attainment. This focus on immediate concerns likely explains the weaker connection between optimism and engagement in this context. Thus, the effect of optimism on engagement is context-dependent. When unaccompanied by resilience or clear goals, it may fail to promote engagement and, in some cases, could even hinder it.

3.4. Limitations and implications

The sample, primarily freshmen and sophomores from a second-tier university in an economically underdeveloped region of China, may limit the generalizability of the findings. Self-reported data could introduce potential bias, such as over- or underestimation of psychological capital. Additionally, the cultural context in China, where academic success is strongly influenced by external pressures like competitive exams, may have shaped students' levels of psychological capital differently compared to other contexts. Given these limitations, further research should confirm and expand upon the findings with broader samples and alternative data sources to minimize bias. Longitudinal studies would also be valuable in capturing the dynamic nature of psychological capital and its impact on academic engagement over time. Moreover, researchers could investigate the role of cultural factors in shaping the relationship between psychological capital and engagement in various academic settings.

4. CONCLUSION

This study highlights the significant positive correlation between psychological capital and academic engagement among Chinese college students. Among the four components, hope emerged as the strongest predictor of academic engagement, followed by efficacy, while resilience and optimism showed weaker associations. These findings suggest fostering hope and efficacy can be particularly effective in enhancing students' academic engagement. Based on these results, educators should prioritize interventions that enhance students' hope and efficacy. Programs that help students set clearer academic and career goals can be helpful. Additionally, providing regular feedback from peers and teachers, along with fostering motivation, is essential to supporting students' success. Given the various cultural context, the role of

psychological capital may differ from other settings. Future research should explore the impact of psychological capital across more diverse settings as well as longitudinal studies to better understand the effects of these psychological factors on academic outcomes.

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C : **C**onceptualization

M : **M**ethodology

So : **S**oftware

Va : **V**alidation

Fo : **F**ormal analysis

I : **I**nterpretation

R : **R**esources

D : **D**ata Curation

O : **O**rganizing - **O**rganizing

E : **E**diting

Vi : **V**isualization

Su : **S**upervision

P : **P**roject administration

Fu : **F**unding acquisition

CONFLICT OF INTEREST STATEMENT

The authors confirm that there are no conflicts of interest related to financial matters or personal connections that might have influenced the research findings presented in this paper.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study. All participants were fully informed about the purpose of the research, and their participation was voluntary. Their responses were anonymized and used solely for the purpose of this study.

ETHICAL APPROVAL

The study adhered to all relevant national regulations and institutional policies in accordance with the principles of the Helsinki Declaration, and has been approved by the Ethics Committee of Srinakharinwirot University (Approval No. SWUEC-672414).

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [XF], upon reasonable request. The data set is not publicly accessible due to privacy and ethical considerations, as it contains information that could potentially compromise participant confidentiality.

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