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Perceived Teachers' Positive Leadership and Study Engagement Among College Students: The Mediating Role of Psychological Capital in Guizhou, China

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Abstract: In under-resourced higher education contexts marked by socioeconomic disadvantage, uneven educational support, and heightened developmental vulnerability, the mechanisms through which teacher-related contextual resources foster sustained student engagement via developable psychological resources remain insufficiently understood. This study examines the relationship between perceived teachers' positive leadership and study engagement and tests the mediating role of psychological capital among college students in Guizhou Province, China. Survey data were collected from 450 students across three public universities and analysed using correlation analysis and bootstrap-based mediation analysis, with group comparisons included as supplementary evidence. The results indicate that perceived teachers' positive leadership positively predicts both study engagement and psychological capital, while psychological capital positively predicts study engagement. Psychological capital further exerts a significant partial mediating effect on the relationship between perceived teachers' positive leadership and study engagement, suggesting that teachers' positive leadership promotes engagement both directly and indirectly through students' psychological resources. Supplementary analyses additionally show that disadvantaged students report lower levels of perceived teachers' positive leadership, psychological capital, and study engagement than their non-disadvantaged peers. By focusing on an under-resourced higher education context in western China, this study extends current understanding of teacher-related influences on student engagement and highlights the practical importance of strengthening positive classroom leadership and students' psychological capital, particularly for disadvantaged groups.

Keywords: perceived teachers' positive leadership, psychological capital, study engagement, disadvantaged students

1. Introduction

Study engagement is widely regarded as an important indicator of process quality in higher education because it reflects students' sustained behavioural effort, emotional involvement, and cognitive investment in academic activities, and is closely associated with academic achievement, learning adjustment, and dropout risk (Fredricks et al., 2004; Kuh et al., 2008; Tam, 2002). However, the expansion of higher education does not automatically lead to stronger engagement. In China, massification has not eliminated problems such as learning burnout, weakened motivation, and insufficient participation in the learning process (Long & Ni, 2020; Sun et al., 2023; Wang et al., 2025). These challenges may be especially salient in under-resourced regional contexts, where socioeconomic disadvantage and uneven developmental support constrain students' capacity to sustain engagement. This concern is particularly relevant in Guizhou Province, a western Chinese context characterised by comparatively limited educational resources and a relatively high proportion of disadvantaged students. Existing evidence from Guizhou suggests lower levels of collaborative learning, weaker classroom participation, and reduced educational gains relative to broader benchmarks (Li, 2023; Guizhou University, 2024; Lin et al., 2021).

Among the factors that may shape study engagement, teacher-related classroom conditions are especially important because they are proximal to students' everyday learning experiences and potentially amenable to intervention. Previous research has shown that teacher support, teacher–student relationship quality, and emotionally supportive classroom environments are positively associated with student engagement (Quin, 2017; Roorda et al., 2011; Tao et al., 2022). However, these constructs are often broad and partly overlapping, making it difficult to identify what specific forms of teacher behaviour are most relevant for improving engagement in resource-constrained settings. In this regard, Perceived Teachers' Positive Leadership (PTPL) provides a more structured and action-oriented framework for understanding how teachers shape supportive learning environments and students' academic functioning (Cherkowski, 2018; Xie et al., 2015; Liu, W.-Y., 2020; Zhong, 2021). By emphasising positive climate, supportive relationships, affirmative communication, and meaning-making, PTPL offers a more precise explanation than generic teacher support for how teachers may actively influence students' learning experiences. In under-resourced contexts such as Guizhou, where students may rely more heavily on classroom-based support, PTPL is therefore likely to function as an important contextual antecedent of study engagement.At the same time, the effects of teacher-related contextual resources are unlikely to be translated into student engagement automatically. From the perspective of Social Cognitive Theory, environmental influences operate partly through individuals' internal cognitive and affective processes (Bandura, 1986), while Positive Organizational Behavior theory emphasises that positive psychological resources are developable rather than fixed (Luthans et al., 2007; Luthans et al., 2015). Psychological Capital (PC), comprising self-efficacy, hope, optimism, and resilience, is particularly relevant because it represents a set of positive internal resources that help students sustain effort, regulate emotions, and persist under academic challenge. Prior work has consistently linked psychological capital to engagement and other positive academic outcomes, while also noting that its environmental antecedents remain less fully specified in higher education research (Li et al., 2023; Newman et al., 2014; Vîrgă et al., 2022). This gap is especially important in under-resourced settings such as Guizhou, where structural pressure and uneven support may make students' psychological resources particularly consequential for sustained engagement.

Empirical evidence further suggests that PTPL may be relevant to study engagement not only directly but also through students' internal psychological resources. Research in educational settings indicates that teachers' positive leadership and related positive teaching behaviours are associated with learning engagement and learning-related outcomes, suggesting that teachers' constructive influence may extend beyond general support to more proactive forms of classroom guidance and empowerment (Liu, W.-Y., 2020; Yang, 2023). These findings support the expectation that PTPL may positively predict Study Engagement.

There is also growing evidence that supportive educational environments contribute to the development of students' psychological capital. Studies have shown that teacher support, supportive study climate, and positive teacher–student relationships can strengthen students' confidence, hope, optimism, and resilience (Paloș et al., 2020; Slåtten et al., 2021; Carmona-Halty et al., 2024). These findings suggest that PTPL, as a more structured teacher-related contextual resource, may positively predict Psychological Capital.Psychological Capital has, in turn, been consistently associated with students' engagement and adaptive learning outcomes. Studies in higher education indicate that students with stronger psychological capital are more likely to sustain effort, remain emotionally involved, and persist in academic tasks (Gong et al., 2018), while more recent evidence further links psychological capital to study engagement within broader process models of student support, mindfulness, and student outcomes (Ali et al., 2022; Siu et al., 2023). More recent evidence further suggests that psychological capital may serve as a mechanism through which supportive educational contexts influence engagement (Zheng & Pan, 2025; Gebregergis & Csukonyi, 2024; Slåtten et al., 2021). Taken together, these findings support the plausibility of a mediating pathway from PTPL to Study Engagement through Psychological Capital.

Against this background, the present study examines the relationship between PTPL and Study Engagement among college students in Guizhou Province, China, and tests the mediating role of Psychological Capital. In addition to the hypothesised mediation model, the study further compares disadvantaged and non-disadvantaged students on the three core variables to provide supplementary contextual evidence. These group comparisons are not treated as part of the main hypothesised model, but as additional evidence to contextualise the principal findings. Accordingly, the study proposes the following hypotheses:

H1. Perceived Teachers' Positive Leadership positively predicts Study Engagement among college students in Guizhou Province.
H2. Perceived Teachers' Positive Leadership positively predicts students' Psychological Capital.
H3. Psychological Capital positively predicts Study Engagement.
H4. Psychological Capital mediates the relationship between Perceived Teachers' Positive Leadership and Study Engagement.

2. Method

2.1 Participants and Procedure

A stratified random sampling strategy was adopted in this study. First, three public undergraduate universities in Guizhou Province, China, were selected. Student rosters were then used as sampling frames, and questionnaires were distributed to second- and third-year college students according to predefined sampling quotas. To ensure adequate representation of students from different backgrounds, the sampling process took institutional financial aid records into account.

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A total of 500 questionnaires were distributed, and 482 were returned, yielding a response rate of 96.4%. After excluding 32 questionnaires with substantial missing data or evidently invalid responses, 450 valid cases were retained for the final analyses. All responses were collected anonymously, and participants were informed that there were no right or wrong answers.

2.2 Measures: All variables were measured using five-point Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Composite scores were computed by averaging item responses, with higher scores indicating higher levels of the corresponding construct.

2.2.1 Perceived Teachers' Positive Leadership: PTPL was measured using the scale developed by Yang (2023), which assesses students' perceptions of teachers' positive leadership behaviours in classroom contexts. The scale comprises four dimensions: positive meaning, positive climate, positive relationships, and positive communication. In the present sample, the scale showed high internal consistency (Cronbach's α = .923).

2.2.2 Psychological Capital: PC was assessed using the Chinese version of the Psychological Capital Questionnaire originally developed by Luthans et al. (2005, 2007), translated by Li and revised by Shi (2014). The scale includes four dimensions: self-efficacy, hope, optimism, and resilience. The internal consistency of the scale in this study was satisfactory (Cronbach's α = .925).

2.2.3 Study Engagement: SE was measured based on the three-dimensional framework proposed by Fredricks et al. (2004), including behavioral, emotional, and cognitive engagement. The instrument used in this study was adapted by Chi (2017) from the scales developed by Lam et al. (2014) and Skinner et al. (2008). In the present sample, the scale demonstrated high internal consistency (Cronbach's α = .933).

2.3 Supplementary Grouping Variable: To provide supplementary contextual evidence, students were additionally classified into disadvantaged and non-disadvantaged groups. Students were coded as disadvantaged if they met at least one of the following criteria: (a) ethnic minority status, (b) officially identified financial hardship status according to institutional financial aid policies, or (c) left-behind experience during early schooling due to parental labour migration. Students who did not meet any of these criteria were classified as non-disadvantaged. This grouping variable was used only for supplementary group comparison analyses and was not included in the hypothesised mediation model.

2.4 Data Analysis: Data were analysed using SPSS 26.0. Prior to the main analyses, the data were screened for missing values, invalid responses, and outliers. Descriptive statistics were then calculated to summarise the central tendencies and dispersion of the main variables. Pearson correlation analysis was conducted to examine bivariate associations among PTPL, PC, and SE. Supplementary group comparisons between disadvantaged and non-disadvantaged students were examined using independent-samples *t* tests.The hypothesised mediation model was tested using Hayes' (2018) PROCESS macro for SPSS (Model 4) with 5,000 bootstrap resamples and 95% confidence intervals. Bootstrap estimation was employed because it provides a robust approach to testing indirect effects (Preacher & Hayes, 2008). An indirect effect was considered significant when the corresponding confidence interval did not include zero. All analyses were two-tailed, with statistical significance set at $p < .05$.

3. Results

3.1 Preliminary Analyses

3.1.1 Common Method Bias:Because the data were collected using self-report questionnaires, common method bias was examined before hypothesis testing. Harman's single-factor test was conducted using principal component analysis. The results showed that three factors with eigenvalues greater than 1 were extracted, and the first factor accounted for 31.07% of the total variance, which was below the conventional 40% threshold. These findings suggest that common method bias was unlikely to pose a serious threat to the interpretation of the results.

3.1.2 Descriptive Statistics and Correlations: Table 1 presents the means, standard deviations, and correlations among the main variables. The mean scores ranged from 3.29 to 3.38, indicating moderately high levels of PTPL, PC, and SE in the sample. PTPL was significantly and positively correlated with PC ($r = .349$, $p < .001$) and SE ($r = .393$, $p < .001$). PC was also significantly and positively correlated with SE ($r = .293$, $p < .001$). These results provided preliminary support for the hypothesised relationships and justified proceeding with mediation analysis.

Table 1. Means, Standard Deviations, and Correlations Among the Main Variables (N = 450)

Variable	M	SD	1	2	3
1.PTPL	3.368	0.853	—		
2.PC	3.288	0.876	0.349***	—	
3.SE	3.379	0.845	0.393***	0.293***	—

Note. PTPL = perceived teachers' positive leadership; PC = psychological capital; SE = study engagement. $p < .05$, **p** < .01, **p** < .001.

3.2 Hypothesis Testing: The hypothesised mediation model was tested using PROCESS Model 4 with 5,000 bootstrap resamples and 95% confidence intervals. Table 2 summarises the direct, indirect, and total effects. PTPL significantly and positively predicted SE, supporting **H1**. It also significantly and positively predicted PC (a = 0.359, SE = 0.046, $t = 7.90$, $p < .001$, 95% CI [0.270, 0.448]), supporting **H2**. When both PTPL and PC were entered simultaneously, PC remained a significant positive predictor of SE (b = 0.171, SE = 0.044, $t = 3.887$, $p < .001$, 95% CI [0.085, 0.258]), supporting **H3**. The direct effect of PTPL on SE remained significant after PC was included in the model ($c' = 0.328$, SE = 0.045, $t = 7.252$, $p < .001$, 95% CI [0.239, 0.417]). The indirect effect through PC was also significant (ab = 0.061, BootSE = 0.019, 95% CI [0.025, 0.102]), indicating that PC partially mediated the relationship between PTPL and SE. Accordingly, **H4** was supported. The indirect effect accounted for 15.77% of the total effect, whereas the direct effect accounted for 84.23%.

Table 2. Mediation Analysis Results for the Relationship Between PTPL and SE (N = 450)

Effect type	Path	Effect (B)	SE / BootSE	t	p	95% CI	Proportion of effect
Direct effect (c′)	PTPL → SE	0.328	0.045	7.252	<.001	[0.239, 0.417]	84.23%
Indirect effect (ab)	PTPL → PC → SE	0.061	0.019	—	—	[0.025, 0.102]	15.77%
Total effect (c)	PTPL → SE	0.389	0.043	9.049	<.001	[0.305, 0.474]	100.00%

Note. PTPL = perceived teachers' positive leadership; PC = psychological capital; SE = study engagement. Bootstrap = 5,000 resamples. Indirect effects are significant when the 95% confidence interval does not include zero.

3.3 Supplementary Group Comparisons: To provide supplementary contextual evidence, independent-samples *t* tests were conducted to compare disadvantaged and non-disadvantaged students on PTPL, PC, and SE. As shown in Table 3, disadvantaged students reported significantly lower levels of all three variables than their non-disadvantaged peers. Specifically, disadvantaged students scored lower on PTPL (Welch's $t(365.79) = 2.953$, $p = .003$, $d = 0.29$), PC ($t(448) = 4.760$, $p < .001$, $d = 0.45$), and SE ($t(448) = 3.839$, $p < .001$, $d = 0.36$). The effect sizes ranged from small to small-to-moderate, with the largest group difference observed for psychological capital. These comparisons were supplementary and were not included in the hypothesised mediation model.

Table 3. Supplementary Group Comparisons Between Disadvantaged and Non-Disadvantaged Students

Variable	Non-disadvantaged (n = 251) M ± SD	Disadvantaged (n = 199) M ± SD	t(df)	p	Cohen's d
PTPL	3.475 ± 0.743	3.232 ± 0.959	2.953 (365.78)	0.003	0.29
PC	3.459 ± 0.803	3.072 ± 0.918	4.760 (448)	< .001	0.45
SE	3.513 ± 0.783	3.210 ± 0.890	3.839(448)	< .001	0.36

Note. Welch's *t* was reported for PTPL because the assumption of equal variances was violated. Cohen's *d* values of 0.20, 0.50, and 0.80 indicate small, medium, and large effect sizes, respectively.

4. Discussion

This study examined the relationship between perceived teachers' positive leadership and study engagement among college students in Guizhou Province, China, and tested the mediating role of psychological capital. The findings indicate that perceived teachers' positive leadership positively predicts study engagement, that psychological capital partially mediates this relationship, and that disadvantaged students report lower levels of perceived teachers' positive leadership, psychological capital, and study engagement than their non-disadvantaged peers. Together, these results suggest that teacher-related classroom resources matter for student engagement in under-resourced higher education settings, and that part of this influence operates through students' positive psychological resources.

The positive association between perceived teachers' positive leadership and study engagement is consistent with earlier evidence showing that supportive teacher-related environments contribute to stronger student engagement (Quin, 2017; Roorda et al., 2011; Tao et al., 2022). The present study extends this literature by showing that a more structured teacher construct emphasizing positive climate, supportive relationships, affirmative communication, and meaning-making also

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has explanatory value in a resource-constrained higher education context, which is broadly consistent with prior education-based work on teachers' positive leadership and students' engagement-related outcomes (Liu, W.-Y., 2020). This suggests that teacher influence depends not only on general support, but also on how proactively teachers shape classroom conditions that make learning meaningful and manageable.The mediation results further indicate that psychological capital is an important, though not exclusive, mechanism linking perceived teachers' positive leadership to study engagement. This finding is consistent with Social Cognitive Theory (Bandura, 1986) and Positive Organizational Behavior theory (Luthans et al., 2007; Luthans et al., 2015), both of which suggest that contextual influences are partly translated into behavior through developable psychological resources. When students perceive their teachers as encouraging, supportive, and meaning-oriented, they may be more likely to develop confidence, hope, optimism, and resilience, which in turn support sustained academic involvement. This interpretation is also consistent with studies linking psychological capital to academic engagement and related adjustment outcomes (Huang & Meng, 2017; Gong et al., 2018; Gebregergis & Csukonyi, 2024). At the same time, the partial rather than full mediation found here suggests that the effect of perceived teachers' positive leadership is not exhausted by psychological capital alone.The supplementary group comparisons provide additional contextual insight into the Guizhou setting. Disadvantaged students reported lower levels of perceived teachers' positive leadership, psychological capital, and study engagement, with the largest gap observed for psychological capital. Although these differences are not part of the main causal model, they suggest that engagement in under-resourced higher education contexts may be shaped not only by classroom processes, but also by broader inequalities in students' access to support and psychological resources (Liang et al., 2018; Lin et al., 2021; Wu et al., 2021). Practically, the findings highlight the value of strengthening positive classroom leadership and building students' psychological capital, particularly for disadvantaged groups.The findings also carry practical implications for higher education institutions in under-resourced settings. Because perceived teachers' positive leadership was directly associated with study engagement and indirectly linked to it through psychological capital, efforts to enhance student engagement should focus not only on students' individual dispositions but also on classroom practices that strengthen supportive communication, positive climate, constructive feedback, and meaning-oriented interaction. At the same time, student support arrangements should pay greater attention to the development of psychological capital, particularly students' confidence, hope, optimism, and resilience, as these resources appear to play an important role in sustaining engagement. Such efforts may be especially important for disadvantaged students, who reported lower levels of perceived teachers' positive leadership, psychological capital, and study engagement. In this sense, engagement enhancement is likely to be more effective when teacher development and student support are considered together rather than treated as separate institutional concerns.

5. Limitations and Future Directions: Several limitations should be noted. First, this study relied on cross-sectional self-report data, which limits causal inference and leaves open the possibility of reverse causality. Although common method bias did not appear to be a serious concern, future research could employ longitudinal, multi-source, or classroom-observational designs to strengthen causal interpretation. Second, the study was conducted in a specific regional context in western China, so the findings should be generalised to other higher education settings with caution. Replication across regions and institutional types would help clarify the broader applicability of the model. Third, disadvantaged background was operationalised as a composite grouping variable. Future studies could differentiate more explicitly among forms of disadvantage, such as financial hardship, ethnic minority status, and left-behind experience, to examine whether these conditions shape teacher-related support, psychological capital, and study engagement in distinct ways.

6. Conclusion: This study provides evidence that perceived teachers' positive leadership is positively associated with study engagement among college students in Guizhou Province, China, and that this relationship is partly explained by psychological capital. Supplementary analyses further showed that disadvantaged students reported lower levels of perceived teachers' positive leadership, psychological capital, and study engagement than their non-disadvantaged peers. By focusing on an under-resourced higher education context in western China, the study clarifies a teacher-related mechanism underlying student engagement and underscores the importance of strengthening both positive classroom leadership and students' psychological capital, particularly for disadvantaged groups.

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