

RESEARCH ARTICLE

Perceived positive teacher leadership and academic performance among university students in Zhejiang Province: The chain mediation of gratitude and subjective well-being

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ABSTRACT

This study investigates the relationship between perceived positive teacher leadership and academic performance among university students in Zhejiang Province, focusing on the mediating roles of gratitude and subjective well-being. A survey of 678 university students was conducted using the Positive Teacher Leadership Scale, Gratitude Scale, Subjective Well-Being Scale, and Academic Performance Scale. Results revealed that perceived positive teacher leadership positively correlates with gratitude, subjective well-being, and academic performance. Additionally, gratitude and subjective well-being mediate the relationship between teacher leadership and academic performance. The findings suggest that positive teacher leadership influences academic performance both directly and indirectly through gratitude and subjective well-being.

Keywords: perceived positive teacher leadership; gratitude; subjective well-being; academic performance; university students

1. Introduction

Academic performance among university students encompasses the learning outcomes, behaviors, and attitudes developed through their engagement in academic activities during their university years^[1]. As a comprehensive indicator of students' overall competencies and capabilities within the university setting, academic achievement has emerged as a primary measure of higher education quality, attracting considerable attention from various societal sectors^[2]. While Zhejiang Province is economically robust, it lags behind as a leader in higher education. To advance its strategy of becoming a higher education hub, it is imperative to enhance the academic performance of students in local universities. This necessitates a thorough exploration of the mechanisms that influence academic performance, particularly the roles of perceived positive teacher leadership, gratitude, and subjective well-being, in elevating the quality of higher education^[3]. Consequently, investigating these mechanisms and identifying avenues to bolster academic performance is of significant practical importance.

There exists a significant relationship between university students' perceptions of positive leadership

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from teachers and their academic performance. Positive teacher leadership is characterized by the possession of emotional intelligence and a positive mindset, enabling educators to cultivate a constructive atmosphere, foster strong relationships with students, and engage in meaningful communication that enhances students' academic outcomes. Goldman and Senge^[4] have argued that teachers' cognitive and emotional capacities are crucial in creating an environment conducive to learning, thereby promoting students' learning effectiveness and academic performance. Lv Xiuqing^[5] found that positive reinforcement and encouragement from teachers serve as powerful motivators, increasing students' interest in learning, boosting their confidence, improving their attitudes toward learning, and ultimately enhancing their motivation and academic performance. Su Xiaoting^[6] described positive leadership as the practice of guiding students' learning and development through positive behaviors, while Xie Chuanchong et al.^[7] emphasized that positive leadership involves not only positive thinking but also the creation of a supportive atmosphere and the effective use of communication and care to steer students toward improved performance. Benito et al.^[8] further established that positive leadership in higher education enhances students' motivation and learning abilities and is strongly associated with students' perceptions of teacher guidance, credibility, and overall satisfaction. Blanch^[9] also observed that students value positive leadership, which significantly impacts their engagement and learning efficiency. Based on these findings, this study proposes Hypothesis 1: Perceived positive teacher leadership significantly influences the academic performance of university students in Zhejiang Province, China.

Gratitude, a traditional virtue deeply rooted in Chinese culture, plays a pivotal role in the development and growth of adolescents^[10]. As a personality trait, gratitude reflects university students' emotional responses to the kindness and positive actions of others, prompting behaviors that are beneficial to both themselves and others^[11]. Teachers, as key benefactors in the lives of university students, are instrumental in cultivating a sense of gratitude and fostering a grateful disposition^[12]. The level of gratitude among university students is evidently linked to their perception of positive leadership from teachers. Social cognitive theory suggests that perceived positive leadership from teachers can positively predict the level of gratitude in students^[13]. Moreover, research has established a connection between gratitude and academic performance, demonstrating that higher levels of gratitude significantly predict improved academic outcomes in university students^[14]. Positive leadership behaviors exhibited by teachers can enhance students' cognitive and behavioral adaptability, thereby improving their ability to navigate challenges and cultivating a strong sense of gratitude^[15]. In Chinese cultural contexts, adolescents often manifest their gratitude toward significant others by striving for academic excellence^[16]. Based on these insights, Hypothesis 2 of this study is proposed: Gratitude mediates the relationship between perceived positive teacher leadership and academic performance among university students in Zhejiang Province, China.

Subjective well-being and academic performance are fundamental constructs within positive psychology and are central to adolescent psychological research^[17]. Subjective well-being is defined as university students' cognitive assessment of their overall life satisfaction, characterized by the presence of positive emotions and the absence of negative emotions^[18]. This construct is influenced by a variety of factors, including positive leadership from teachers, which can foster a supportive learning environment^[19] and strengthen students' identification with their school and teachers^[20], thereby enhancing their subjective well-being. Empirical evidence indicates that perceived positive leadership from teachers is a significant predictor of subjective well-being among university students^[21]. Furthermore, the level of subjective well-being has been shown to significantly predict students' academic performance^[22]. Consequently, subjective well-being may serve as a critical mediating variable in the relationship between perceived positive leadership from teachers and academic performance among university students. Based on these considerations, Hypothesis 3

of this study is proposed: Subjective well-being mediates the relationship between perceived positive teacher leadership and academic performance among university students in Zhejiang Province, China.

Gratitude and subjective well-being may function as both independent mediators and as components of a chain mediation effect in the relationship between perceived positive teacher leadership and university students' academic performance. Gratitude is a fundamental aspect of an individual's life orientation, characterized by an appreciation of the positive aspects of life and a tendency toward positive thinking. Research has established a positive correlation between gratitude and subjective well-being at the individual level, suggesting that higher levels of gratitude are associated with enhanced personal well-being^[23]. Furthermore, studies have shown that gratitude not only positively impacts overall subjective well-being among adolescents but also influences specific areas, such as school-related well-being^[24]. Gratitude has been found to enhance university students' subjective well-being, and subjective well-being is a well-documented predictor of academic performance^[25]. In light of these findings, Hypothesis 4 of this study is proposed: Gratitude and subjective well-being exert a chain mediation effect in the relationship between perceived positive teacher leadership and academic performance among university students in Zhejiang Province, China.

This study seeks to examine the relationship between perceived positive teacher leadership and academic performance among university students in Zhejiang Province. In this investigation, perceived positive leadership will be treated as the independent variable, academic performance as the dependent variable, and gratitude and subjective well-being as mediating variables. The research aims to explore both the individual mediating effects of gratitude and subjective well-being, as well as the chain mediation effect involving these variables in the relationship between perceived positive leadership and academic performance. The overarching objective is to elucidate the mechanisms that enhance academic performance, thereby offering insights for improving academic outcomes among university students in Zhejiang Province.

2. Methods

2.1. Participants

This study utilized a convenience sampling approach, distributing 700 questionnaires across five universities in Zhejiang Province. A total of 678 valid responses were obtained, resulting in an effective response rate of 96.9%. The sample comprised 371 female participants (54.7%) and 307 male participants (45.3%). The distribution of students by academic year included 107 fourth-year students (15.8%), 244 third-year students (36.0%), 168 second-year students (24.8%), and 159 first-year students (23.4%).

2.2. Research instruments

2.2.1. Perceived positive leadership scale for teachers.

This study employed the Perceived Positive Leadership Scale for Teachers, developed by Su Xiaoting^[6]. The scale comprises 24 items, organized into five dimensions: Vision Introduction, Harmonious Relationships, Communication Atmosphere, Execution Perseverance, and Educational Reflection. Participants' responses were recorded using a 5-point Likert scale, with higher scores reflecting a greater perceived level of positive leadership from teachers. In this study, the scale demonstrated excellent internal consistency, with a Cronbach's Alpha coefficient of 0.989.

2.2.2. Gratitude scale

The study employed the Gratitude Scale, developed by Li Xinmin^[26], which consists of 10 items. This scale utilizes a 5-point Likert scoring system, where higher scores indicate greater levels of gratitude among

university students. In the current study, the scale demonstrated strong internal consistency, with a Cronbach’s Alpha coefficient of 0.940.

2.2.3. Subjective well-being scale

In this study, we utilized the Multidimensional Subjective Well-Being Scale (SWB) as developed by Diener^[27]. The Chinese adaptation of the scale, as presented by Chien et al.^[28], comprises 15 items distributed across three dimensions: Life Satisfaction, Positive Affect, and Negative Affect. The scale employs a 7-point Likert scale, where higher scores signify elevated levels of subjective well-being. The Cronbach’s Alpha coefficient for this scale in the present study was 0.840, indicating strong internal consistency.

2.2.4. Academic performance scale

The Academic Performance Scale, developed by Wang Yanfei^[1], was utilized in this study. This instrument comprises 10 items and employs a 5-point Likert scale, with higher scores reflecting superior levels of academic performance. The Cronbach’s Alpha coefficient for this scale in the current study was 0.930, demonstrating excellent internal consistency.

3. Results

3.1. Common method bias test

A common method bias test was conducted using Harman’s single-factor test. The results (**Table 1**) indicated that 10 factors had eigenvalues greater than 1, with the first factor accounting for 42.47% of the variance, which is below the critical threshold of 50%. This suggests that common method bias is not a significant concern in this study.

Table 1. Common method bias test results.

Factor	Eigenvalue (≥)	Variance Explained	Cumulative Variance Explained
1	25.057	42.469	42.469
2	2.844	4.821	47.290
3	2.596	4.399	51.690
4	2.240	3.796	55.486
5	2.087	3.538	59.024
6	1.733	2.936	61.960
7	1.451	2.460	64.420
8	1.352	2.292	66.712
9	1.225	2.077	68.789
10	1.168	1.980	70.769

3.2. Descriptive statistics and correlation analysis

Table 2 presents the means, standard deviations, and the correlation matrix of the study variables. The correlation matrix reveals that there are significant correlations between university students’ perceived positive leadership from teachers, gratitude, subjective well-being, and academic performance ($P < 0.01$).

Table 2. Descriptive statistics and correlation coefficients of study variables.

Factor	M	SD	1	2	3	4
PPL	3.124	0.930	1			
GR	3.200	1.127	.684***	1		
SWB	4.364	1.195	.717***	.656***	1	
AP	3.095	1.158	.697***	.670***	.682***	1

Note: *** indicates $p < 0.001$

3.3. Test of chain mediation effects

This study employed AMOS software to estimate a structural equation model (SEM) using the maximum likelihood method. In the model, perceived positive leadership from teachers served as the independent variable, academic performance was the dependent variable, and gratitude and subjective well-being functioned as mediating variables. The analysis yielded the overall model fit and path coefficients among the four variables.

The SEM analysis results (see **Figure 1**) reveal the following: Perceived positive leadership from teachers significantly and positively predicts academic performance ($r = 0.367$, $p < 0.001$); it also significantly and positively predicts gratitude ($r = 0.768$, $p < 0.001$); gratitude significantly and positively predicts academic performance ($r = 0.208$, $p < 0.001$); perceived positive leadership from teachers significantly and positively predicts subjective well-being ($r = 0.711$, $p < 0.001$); and subjective well-being significantly and positively predicts academic performance ($r = 0.295$, $p < 0.001$).

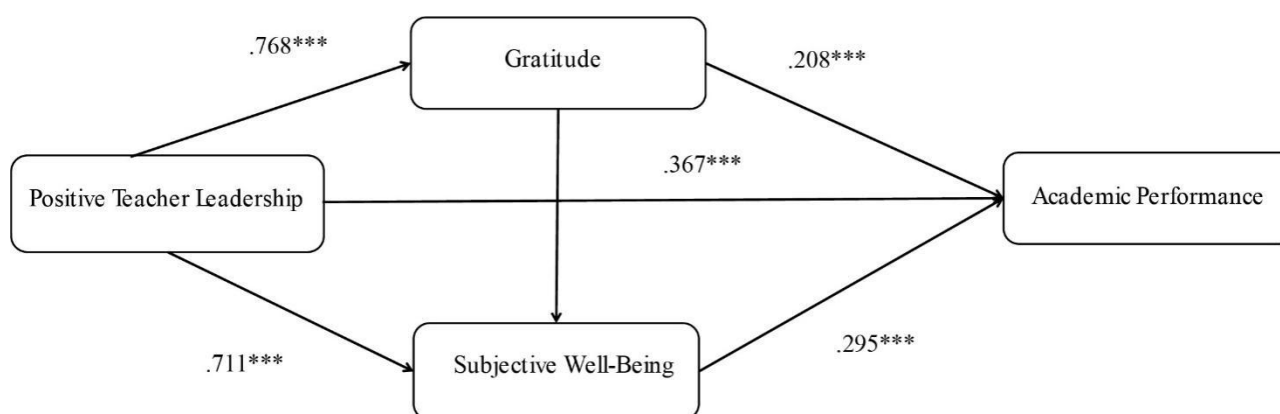


Figure 1. Structural equation model.

Building on the aforementioned results, additional analyses were performed to assess the mediating effects of gratitude and subjective well-being in the relationship between perceived positive leadership from teachers and academic performance. The Bootstrap resampling method, utilizing 2000 iterations, was employed to estimate the 95% confidence intervals for the mediating effects of gratitude and subjective well-being.

The results of the mediation effect analysis (**Table 3**) indicate that the total effect is 0.779, with a 95% confidence interval excluding zero, thereby confirming a significant total effect. The direct effect is 0.336, with a 95% confidence interval that also excludes zero, indicating a significant direct impact of perceived positive leadership from teachers on academic performance. Additionally, the total indirect effect is 0.413, with a 95% confidence interval that does not include zero, thereby demonstrating a significant mediating role

of gratitude and subjective well-being in the relationship between perceived positive leadership from teachers and academic performance.

The mediation effects involving gratitude and subjective well-being as mediating variables are composed of the following three paths:

The indirect effect through the path of perceived positive leadership from teachers → gratitude → academic performance (Effect value = 0.159);

The indirect effect through the path of perceived positive leadership from teachers → subjective well-being → academic performance (Effect value = 0.211);

The indirect effect through the path of perceived positive leadership from teachers → gratitude → subjective well-being → academic performance (Effect value = 0.043).

The 95% confidence intervals (lower and upper bounds) for all direct and indirect effects do not include zero, indicating that the indirect effects in this study are significant.

Table 3. Mediation effect analysis of gratitude and subjective well-being.

Effect	Effect Value	95% Confidence Interval	P
Total Effect	0.779	[0.642, 0.755]	***
Direct Effect	0.366	[0.150, 0.370]	***
Total Indirect Effect	0.413	[0.351, 0.535]	***
Indirect Effect 1	0.159	[0.108, 0.315]	***
Indirect Effect 2	0.211	[0.120, 0.484]	***
Indirect Effect 3	0.043	[0.011, 0.123]	***

Note: *** indicates $p < .001$

4. Conclusion

The research findings demonstrate that perceived positive leadership from teachers directly and positively predicts university students' academic performance, thereby validating Hypothesis 1. This finding is consistent with prior research^[7]. Teachers exhibiting higher leadership qualities show greater responsibility and commitment^[29]. Positive reinforcement and encouragement from teachers during the learning process act as motivational factors for students, which, in turn, increases their interest in learning, enhances their confidence, improves their learning attitudes, and ultimately boosts both their motivation and academic performance^[30]. Furthermore, the study identified that perceived positive leadership from teachers not only has a direct positive effect on academic performance but also exerts three distinct types of indirect effects: the individual mediating effects of gratitude and subjective well-being, as well as the chain mediating effect of gratitude and subjective well-being. These findings contribute to a deeper understanding of the relationship between perceived positive leadership from teachers and academic performance and offer empirical support for the conceptual model of academic performance. Additionally, the study also reveals that gratitude and subjective well-being function as chain mediators in the relationship between perceived positive teacher leadership and academic performance, thereby confirming Hypothesis 4. Students with higher levels of gratitude are more likely to perceive their teachers' leadership positively, which, in turn, enhances their subjective well-being. This increase in well-being fosters greater motivation and creates more favorable learning conditions, ultimately leading to improved academic performance. This finding is consistent with previous research^[35]. These results underscore the importance for higher education leaders to

prioritize the enhancement of teachers' positive leadership through targeted training initiatives. Such training programs should be systematic, phased, and tailored to individual needs, leveraging digital technologies—such as big data for content selection and AI for progress tracking. Furthermore, institutions should incorporate gratitude education into their curricula, integrating international best practices with insights drawn from Chinese culture to optimize academic performance.

Conflict of interest

The authors declare no conflict of interest.

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