

The Impact of Teaching Quality on Student Academic Performance: Student Engagement as a Mediator

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Abstract. Academic performance among students in higher education institutions has garnered considerable attention, particularly regarding the role of teaching quality. Despite the paramount importance of this topic, there remains a scarcity of research examining the associations between teaching quality, student engagement, and academic performance. The present study endeavors to explore the impact of teaching quality on student academic performance, with a specific emphasis on the mediating role of student engagement. A sample of 242 undergraduate students from a Chinese university participated in this investigation. The results of the structural equation modeling indicate that teaching quality exhibits both direct and indirect associations with student academic performance, and student engagement functions as a mediator in the teaching quality-academic performance link. These findings underscore the significance of teaching quality in fostering student success and highlight the pivotal role of student engagement in this process.

1 Introduction

The field of educational research has consistently emphasized the pivotal role of teaching quality in shaping student outcomes. The quality of education exerts a substantial influence on student academic performance, prompting numerous studies to delve into the various factors contributing to this relationship. Among these factors, student engagement, defined as the proactive and purposeful dedication that students exhibit towards educational pursuits, has garnered considerable attention [1]. This engagement spans both formal and informal educational activities and is thought to positively influence students' overall academic performance and well-being [2].

An increasing amount of research is examining the interconnections among teaching quality, student engagement, and academic performance. Blömeke et al. discovered a positive relationship between instructional quality and academic performance [3]. Similarly, Wang et al. and Zhao and Ko observed a positive link of the quality of teaching to student engagement [4] [5]. Furthermore, research carried out by Lei and colleagues, as well as Wong and their team, has shown a positive link between students' engagement and their academic achievement. [6] [7].

Despite these advancements, limited studies have focused on the influence of teaching quality on student academic performance, with student engagement serving as an intermediary factor. Previous studies have examined the individual relationships among these variables, but there is a notable absence of comprehensive research integrating them into a cohesive

model. This gap in the literature presents a significant opportunity for future study.

The objective of this paper is to address this gap by investigating the impact of teaching quality on student academic performance, particularly highlighting the intermediary effect of student engagement. Utilizing a quantitative research design and collecting data from a sample of university students, this study seeks to provide a more profound insight into how teaching quality influences student outcomes through engagement. Specifically, the study hypothesizes that teaching quality not only has a direct positive influence on student academic performance but also exerts an indirect influence mediated by student engagement. A depiction of the research model is presented in Figure 1.

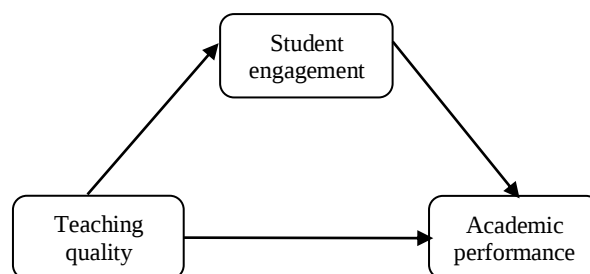


Fig. 1. Research Model.

The importance of this study stems from its ability to offer insights that can shape educational policies and practices, placing an emphasis on both teaching quality and student engagement. Through explaining how these factors impact student outcomes, educators and

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policymakers can devise strategies to enhance academic performance among students. Furthermore, the paper make a contribution to educational research by augmenting the existing knowledge base on the relationships among teaching quality, student engagement, and academic performance.

2 Method

2.1 Procedure

The study involved the collection of data from university students enrolled at an institution located in South China. Permission was sought and obtained from the respective classroom instructors prior to initiating the data collection process. The questionnaires were distributed and collected by the instructors themselves. Prior to administering the formal questionnaire, informed consent was obtained from the participants by presenting them with a consent form. Only after signing the consent form were the students given access to the official questionnaire. Following this, with the consent of the students, two research assistants utilized the duration of an activity class to facilitate the collective completion of the questionnaire. Assurance was provided to the participants that their answers were kept confidential and could only be accessed by them personally. All participating students completed the questionnaire in less than twenty minutes. To show gratitude, participants received a small gift upon completion of the task.

2.2 Participants

316 questionnaires were sent out, with 242 valid responses received, yielding a response rate of 76.58%. Among the valid respondents, 43.39% were male, while 56.61% were female, ranging between 19 and 23 years. The table 1 outlines the demographic details.

Table 1. Demographics Profile.

		N	Mean	Standard deviation
Gender	Male	105		
	Female	137		
Age			20.38	1.05
School year	First year	75		
	Second year	82		
	Third year	85		
Major	Business	67		
	Arts	32		
	Engineering	81		
	Humanities	62		

Students in their fourth year who were involved in externships during the survey were not included in the research.

2.3 Measures

The study employed existing measures drawn from previous research. A Likert scale with five points (1 = strongly disagree to 5 = strongly agree), was utilized. A five-item scale from Lizzio et al. was adopted to assess teaching quality [8]. Additionally, Maroco et al.'s 15-item scale was employed to measure student engagement [9]. Academic achievement was evaluated based on the subjective assessments of the students [10] [11].

3 Results

3.1 Descriptive statistics and correlations

Table 2 presents the descriptive statistics and Pearson correlation coefficients for the study variables. The results revealed significant positive associations among teaching quality, student engagement, and academic performance.

Table 2. Descriptive statistics and correlations.

	1	2	3
1.Teaching quality	1		
2.Student engagement	0.46**	1	
3.Academic performance	0.38**	0.41**	1
Mean	3.39	3.45	3.37
Standard deviation	0.76	0.59	0.62

Note. ** $p < 0.01$

3.2 Measurement model

Cronbach's alpha was utilized to evaluate the measurement model's reliability, establishing a benchmark of 0.70 for satisfactory internal consistency. Additionally, composite reliability (CR) was calculated, and values of 0.60 or higher were considered indicative of strong reliability. Both Cronbach's alpha coefficients and CR values exceeded the established benchmarks, providing evidence of construct reliability. The assessment of convergent validity involved testing the standardized factor loadings along with the average variance extracted (AVE). The results showed that all factor loadings exceeded 0.60, and AVEs surpassed 0.50, offering substantial support for convergent validity. Furthermore, the square root of the AVE consistently exceeded the correlations between constructs, confirming discriminant validity of the measures. Taken

together, these findings offer robust support for the validity and reliability of the constructs investigated.

3.3 Structural model

A structural equation model (SEM) using Amos 21 was utilized to test the research model. As shown in Table 3, the model revealed a good fit.

Table 3. Model Fit Indexes.

	IFI	TLI	CFI	RMSEA
Threshold	> 0.9	> 0.9	> 0.9	< 0.08
Value	0.95	0.96	0.96	0.07

Note. IFI = incremental fit index, TLI = Tucker-Lewis fit index, CFI = comparative fit index, RMSEA = root mean square error of approximation.

The results of SEM indicated a significant path coefficient linking teaching quality to academic performance ($\beta = 0.30$, $p < 0.01$). Similarly, significant path coefficients were found for the relationships between teaching quality and student engagement ($\beta = 0.32$, $p < 0.01$) and between student engagement and academic performance ($\beta = 0.35$, $p < 0.01$). Employing bias-corrected bootstrap techniques, the indirect impact of student engagement in the link between teaching quality and academic performance was found to have a 95% confidence interval ranging from 0.04 to 0.18,, supporting its role as a mediator. Table 4 shows the findings obtained from the SEM estimation.

Table 4. Standardized Path Coefficients.

Paths	SE	β	95% CI
TQ→AP	0.07	0.30**	[0.18, 0.41]
TQ→SE	0.06	0.32**	[0.22, 0.42]
SE→AP	0.07	0.35**	[0.23, 0.47]
TQ→SE→AP	0.05	0.11**	[0.04, 0.18]

Note. TQ = teaching quality; SE = student engagement; AP = academic performance; CI = confidence interval.

** $p < .01$.

4 Discussion and conclusion

The study investigated how teaching quality influences academic performance, emphasizing an intermediary role played by student engagement. The results provide a deep and nuanced understanding of the relationships among these variables, revealing some theoretical and practical implications.

4.1 Theoretical implications

Firstly, the findings underscore that teaching quality exerts a direct and positive influence on student academic performance. This indicates that when educators deliver high-quality instruction, students are inclined to attain superior academic results. This outcome is consonant with prior research that underscores the significance of teaching quality in shaping student outcomes.

Secondly, student engagement emerges as a pivotal factor in the nexus between teaching quality and academic performance. High-level instructional quality is likely to evoke student engagement, which subsequently leads to enhanced academic outcomes. High-standard teaching cultivates a conducive learning environment characterized by clear communication, pertinent and captivating content, and effective teaching strategies. These elements are instrumental in fostering student engagement by kindling students' motivation and interest in their learning.

In turn, engaged students are more inclined to dedicate time and effort to their studies, ultimately resulting in improved academic performance. Engaged students are more apt to attend classes, participate in discussions, and seek additional assistance as needed. They also develop positive attitudes and beliefs about their abilities, which can further bolster their academic success. This finding underscores the importance of not only teaching quality but also student engagement in determining academic achievement. The fact that student engagement plays an intermediary role suggests that the linkage between teaching quality and academic performance is not a direct relationship. Instead, it is mediated by students' proactive involvement and dedication to their studies. This underscores the necessity for educators to cultivate an engaging learning environment that encourages student participation and engagement.

4.2 Practical implications

The study's findings have crucial implications for education policy and practice. By elucidating how teaching quality and student engagement influence academic performance, educators and policymakers can devise strategies to augment student outcomes. For instance, they can provide training and support for teachers to elevate instructional proficiency and create learning environments that promote student engagement.

Furthermore, the findings recommend that educational policies should prioritize teaching quality and student engagement as pivotal factors in determining academic success. This can be accomplished by integrating these factors into teacher evaluation and accountability systems and by advocating practices that foster student engagement and motivation.

4.3 Limitation and future directions

In acknowledging the contributions of the study, it is imperative to recognize several inherent limitations.

Firstly, the utilization of a sample comprising 242 students from a solitary Chinese university may undermine the results' ability to be generalized to other group or educational frameworks. Therefore, future endeavors should endeavor to employ larger and more demographically diverse samples to corroborate the findings. Secondly, the adoption of cross-sectional study limits the ability to determine causal links. Instead, longitudinal studies, which track students' progress over an extended period, would be more apt for elucidating the causal relationship among teaching quality, student engagement, and academic performance. Thirdly, the reliance on students' subjective assessments for measuring academic performance could introduce potential biases. Consequently, future research should consider the incorporation of objective indicators of academic achievement, such as grades or standardized test scores, to provide a more precise evaluation. Lastly, while the study focused on the intermediary role of student engagement, it neglected to consider other potential variables that might influence the link between teaching quality and academic performance. Thus, future investigations could delve into the roles of supplementary factors, including student motivation, teacher attributes, or school-level dynamics.

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