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The Influence of Teaching Effectiveness on Student Academic Performance in Higher Education

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ABSTRACT

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Teaching effectiveness is a key determinant of educational quality and student achievement in higher education. This study examined the influence of teaching effectiveness on student academic performance in higher education institutions. Teaching effectiveness was evaluated based on instructional clarity, teaching methods, classroom interaction, assessment practices, and constructive feedback. A quantitative, cross-sectional research design was utilized. Data were obtained from 250 undergraduate and postgraduate students enrolled in selected public and private higher education institutions through a structured questionnaire. Participants were chosen using convenience sampling. The data were analyzed using descriptive statistics, Pearson correlation, and simple linear regression. Results indicated relatively high levels of perceived teaching effectiveness ($M = 3.89$, $SD = 0.67$) and student academic performance ($M = 3.81$, $SD = 0.64$). Pearson correlation analysis revealed a significant positive relationship between teaching effectiveness and student academic performance ($r = .610$, $p < .001$). Simple linear regression further demonstrated that teaching effectiveness was a positive and statistically significant predictor of student academic performance ($\beta = .610$, $t = 10.72$, $p < .001$), explaining 37.2% of the variance in academic performance ($R^2 = .372$). These findings indicate that greater perceived teaching effectiveness is associated with stronger student academic outcomes. The study concludes that strengthening instructional clarity, appropriate teaching strategies, classroom interaction, assessment practices, and constructive feedback may contribute to improved student learning outcomes in higher education.

Introduction

Higher education is essential for developing human capital, professional competence, and the intellectual capabilities necessary for social and economic advancement. The effectiveness of classroom instruction largely determines the quality of students' learning experiences within higher education institutions. Teaching effectiveness encompasses not only the delivery of subject knowledge but also instructional clarity, the use of appropriate pedagogical strategies, meaningful interaction, assessment practices, constructive feedback, and responsiveness to students' learning needs. These factors influence students' comprehension of course content, participation in academic activities, and ability to translate learning experiences into measurable academic outcomes. Therefore, enhancing teaching effectiveness remains a central concern for universities aiming to improve educational quality and student achievement (Hénard, 2010).

Teaching effectiveness is particularly significant because university students vary widely in academic preparation, motivation, learning preferences, and capacity to engage with complex material. Effective instructors address this diversity by employing suitable instructional strategies and fostering learning environments that promote active participation. Empirical evidence demonstrates that active and student-centered teaching approaches yield stronger learning outcomes than predominantly passive instructional practices. For instance, Freeman et al. (2014) conducted a large meta-analysis showing that active learning improved student performance and reduced failure rates in undergraduate science, technology, engineering, and mathematics courses. Similarly, Ling et al. (2018) reported that implementing active teaching-learning methods significantly enhanced undergraduate students' academic performance. Collectively, these findings indicate that the organization and delivery of instruction have substantial implications for student achievement.

The impact of effective teaching is also evident in the quality of teacher-student interaction and the academic support provided by instructors. Teaching involves more than information transmission; it requires creating conditions that enable students to participate actively, clarify misconceptions, build confidence, and maintain engagement with academic tasks. Tao et al. (2022), through a meta-analysis, identified a positive relationship between perceived teacher support and academic achievement, further demonstrating that student engagement partially mediates this association. Recent studies involving university students similarly show that supportive teaching environments enhance academic achievement through psychological and behavioral mechanisms, such as academic self-efficacy, positive academic emotions, and engagement (Xu, 2024). Thus, teacher support is a critical component of effective instruction, as it enables students to respond successfully to academic demands.

Student engagement is another key factor explaining the relationship between teaching effectiveness and academic performance. Effective instructional practices foster cognitive, behavioral, and emotional involvement in learning. Lei et al. (2018), in a meta-analysis, established a positive association between student engagement and academic achievement across a substantial body of empirical evidence. Additionally, research on university students has shown that teacher support enhances academic achievement through both academic self-efficacy and student engagement (Tao et al., 2023). These findings support the view that effective teaching improves performance not only by transmitting knowledge but also by creating conditions that promote active student engagement.

Recent research continues to highlight the significance of teacher-related factors in university academic success. Li et al. (2023) found that perceived teacher support predicted academic achievement and identified psychological mechanisms linking instructional support to learning outcomes. Similarly, Cai and Meng (2025) observed positive associations among teacher support, academic resilience, and university students' academic performance. A systematic review by Ouyang and Wong (2025) concluded that perceived teacher support is a meaningful contributor to academic achievement in higher education, although the strength and mechanisms of this relationship differ across educational contexts. Evidence from Pakistani universities further demonstrates that interactive and student-centered teaching methodologies positively affect students' academic achievement (Musa et al., 2026).

Despite substantial international evidence on instructional practices and student achievement, comparatively limited empirical attention has been directed toward examining teaching effectiveness as an integrated construct in relation to student academic performance within the higher education context of Pakistan, particularly in Karachi. Differences in institutional environments, instructional practices, faculty competencies, and student characteristics may influence how teaching effectiveness relates to academic outcomes. Addressing this contextual gap, the present study examines the influence of teaching effectiveness on student academic performance among undergraduate and postgraduate students enrolled in public and private higher education institutions in Karachi, Pakistan.

Literature Review

Teaching effectiveness is a multidimensional construct that reflects an instructor's capacity to facilitate meaningful learning and promote desirable academic outcomes. In higher education, effective teaching extends beyond subject-matter expertise to include instructional clarity, the use of appropriate pedagogical methods, classroom interaction, assessment, feedback, and responsiveness to students' learning needs. These elements collectively influence how effectively students acquire, process, and apply knowledge. Schneider and Preckel (2017), through a systematic review of 38 meta-analyses involving almost two million higher education students, demonstrated that instructional characteristics are significant determinants of academic achievement. Their findings indicate that teaching practices which stimulate meaningful cognitive engagement are particularly important for university students' academic success.

An essential dimension of teaching effectiveness is the selection of appropriate instructional strategies. Traditional teacher-centered instruction can efficiently transmit information but often provides limited opportunities for students to actively process and apply knowledge. In contrast, active learning engages students directly in the learning process through discussion, problem-solving, collaborative activities, and practical application. Freeman et al. (2014), in a meta-analysis of 225 studies, found that active learning significantly improved examination performance and reduced failure rates compared to conventional lecturing. Deslauriers et al. (2019) also demonstrated that students exposed to active instruction achieved greater actual learning, despite sometimes perceiving traditional lectures as more effective. This distinction underscores that perceived instructional satisfaction does not necessarily align with objective academic achievement.

The effectiveness of active teaching approaches is influenced by their design and implementation. O'Flaherty and Phillips (2015), in their review of flipped classroom practices in higher education, concluded that these approaches have considerable potential to enhance student engagement and educational outcomes, while also noting substantial variation in implementation and evaluation. Theobald et al. (2020) provided more robust evidence through a meta-analysis, demonstrating that active learning not only improved academic performance but also reduced achievement gaps among underrepresented students in undergraduate STEM education. These findings suggest that teaching effectiveness encompasses both improving average performance and promoting more equitable learning. Teacher-student interaction constitutes a central component of effective teaching. Furthermore, teacher support may strengthen academic achievement by promoting students' behavioral, cognitive, and emotional engagement in learning (Tao et al., 2022). Through meta-analysis, found that perceived teacher support was positively associated with academic achievement, with student engagement partially mediating this relationship. More recently, Ouyang and Wong (2025), in a systematic review of higher education studies, concluded that perceived teacher support generally contributes positively to academic achievement, although the strength of this association varies across contexts. This variation indicates that teaching effectiveness should be understood as a contextual, rather than universally uniform, influence on student performance.

Student engagement serves as a key theoretical mechanism linking effective instruction to academic performance. Engagement encompasses students' behavioral participation, emotional involvement, and cognitive investment in learning activities. Kahu and Nelson (2018) conceptualized engagement as arising from the interaction between institutional conditions and individual student characteristics. Within this framework, effective teachers cultivate learning environments that promote participation, enhance students' academic confidence, and encourage sustained involvement. Lei et al. (2018), using meta-analytic evidence, confirmed a significant positive association between student engagement and academic achievement. Therefore, effective teaching may influence academic performance both directly through improved instruction and indirectly by fostering greater student involvement in the learning process.

Feedback and assessment practices further differentiate effective teaching from mere content delivery. Feedback enables students to identify gaps between their current performance and desired learning standards, offering guidance for subsequent improvement. Wisniewski et al. (2020), synthesizing 435 studies with over 61,000 participants, reported an overall positive effect of feedback on student learning, while emphasizing that its effectiveness depends on the quality of information provided. Feedback is most effective when it is specific, clear, timely, and oriented toward improvement rather than simply communicating grades. Similarly, student-centered assessment transforms assessment from a terminal point of instruction into an integral component of learning by promoting reflection, application, and continuous improvement (Rutherford et al., 2025).

Collectively, the existing literature offers substantial evidence that instructional strategies, teacher support, student engagement, assessment, and feedback all contribute to student learning. However, much of this research investigates these components in isolation or focuses on specific pedagogical approaches and disciplinary contexts. As a result, relatively little attention has been given to examining students' overall perceptions of teaching effectiveness as a direct predictor of academic performance within a straightforward empirical framework. Contextual differences across higher education systems further

constrain the generalizability of previous findings. Accordingly, the present study investigates the influence of teaching effectiveness on Student Academic Performance in higher education, providing a focused assessment of whether greater perceived teaching effectiveness is associated with stronger academic outcomes.

Methodology

Research Design

A quantitative research approach utilizing a cross-sectional survey design was employed to examine the influence of teaching effectiveness on student academic performance in higher education. This approach was deemed suitable as it enabled the numerical measurement of students' perceptions and the statistical determination of the magnitude and direction of relationships between variables. Data collection occurred at a single point in time. Teaching effectiveness was designated as the independent variable, while student academic performance was identified as the dependent variable.

Population and Sample

The target population comprised undergraduate and postgraduate students enrolled in public and private higher education institutions in Karachi, Sindh, Pakistan. Data were obtained from students attending selected public and private universities located in Karachi. Students were considered appropriate respondents because they had direct experience with instructors' teaching practices and were therefore able to evaluate teaching effectiveness in relation to their learning experiences. The final sample consisted of 250 students representing different academic programs and levels of study. Of these respondents, 148 (59.2%) were enrolled in public-sector universities and 102 (40.8%) in private-sector universities. A convenience sampling technique was employed because a complete sampling frame of students across the participating institutions was unavailable and access to respondents depended on institutional and student availability.

Research Instrument

Data were collected using a structured, self-administered questionnaire comprising three sections. The first section collected respondents' demographic information, including gender, age, university sector, academic level, and year of study. The second section measured teaching effectiveness using six items covering instructional clarity, teaching methods, classroom interaction, assessment practices, and constructive feedback. The third section contained five items assessing students' perceived academic performance, including perceived academic achievement, understanding of course content, ability to complete academic tasks, and overall learning performance. All construct items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores representing greater perceived teaching effectiveness and stronger perceived academic performance.

The measurement items were adapted from established instruments and relevant higher education literature. Teaching effectiveness was operationalized through six items reflecting instructional clarity, organization and delivery of instruction, teaching methods, classroom interaction, assessment practices, and constructive feedback. The selection and adaptation of these dimensions were primarily informed by the Students' Evaluations of Educational Quality (SEEQ) framework developed by Marsh (1982), which conceptualizes teaching effectiveness as a multidimensional construct assessed through students' evaluations of university teaching. The measurement was further informed by subsequent research on students' perceptions of teaching effectiveness in higher education (Jackson et al., 1999). Student academic performance was measured using five self-reported items reflecting students' academic achievement, understanding of course content, ability to accomplish academic tasks, and overall learning performance. These items were adapted conceptually from the Student Academic Performance Scale developed and validated for undergraduate and graduate students by Taimur et al. (2024). Items were contextually modified to ensure their relevance to the higher education setting of the present study while retaining the conceptual meaning of the original constructs. All adapted items were subsequently subjected to expert review and pilot testing before final data collection.

Validity and Reliability

Content validity of the questionnaire was established through expert review. Experts in education and research methodology evaluated the items for relevance, clarity, wording, and alignment with the study objectives. Modifications were implemented before the final administration. A pilot test was conducted with 30 students excluded from the final sample. Internal consistency reliability was assessed using Cronbach's alpha coefficient, with values of 0.70 or above considered acceptable for adequate internal consistency.

Data Collection Procedure

Data were collected from undergraduate and postgraduate students enrolled in selected public and private higher education institutions in Karachi, Sindh, Pakistan. Necessary institutional permission was obtained where required before questionnaire administration. Participation was voluntary, and respondents were assured of confidentiality and that their responses would be used solely for academic research. Questionnaires were distributed both physically and electronically to maximize participation. Completed questionnaires were reviewed for completeness before data entry and statistical analysis.

Data Analysis

Collected data were coded and analyzed using IBM SPSS Statistics. Initial data screening identified missing values, incomplete responses, and data-entry errors. Frequencies and percentages summarized respondents' demographic characteristics, while means and standard deviations described teaching effectiveness and student academic performance. Cronbach's alpha was calculated to assess the internal consistency of the measurement scales.

Pearson's correlation analysis was conducted to determine the direction and strength of the relationship between teaching effectiveness and student academic performance. Simple linear regression analysis was then performed to assess the influence of teaching effectiveness on academic performance, with teaching effectiveness as the predictor variable and student academic performance as the outcome variable. The coefficient of determination (R^2) indicated the proportion of variance in academic performance explained by teaching effectiveness, while the standardized beta coefficient (β) assessed the magnitude and direction of the effect. Statistical significance was set at $p < 0.05$.

The regression model was specified as:

$$SAP = \beta_0 + \beta_1(TE) + \varepsilon$$

where SAP represents Student Academic Performance, TE represents Teaching Effectiveness, β_0 represents the intercept, β_1 represents the regression coefficient for teaching effectiveness, and ε represents the error term.

Ethical Considerations

Ethical principles were upheld throughout the research process. Participation was voluntary, and informed consent was obtained from all respondents before data collection. Participants were informed of their right to withdraw from the study at any time without penalty. No personally identifiable information was collected, and both confidentiality and anonymity were maintained. All data were used exclusively for research purposes and stored securely to prevent unauthorized access.

Research Hypothesis

Drawing on the study objective and empirical literature regarding teaching quality and student achievement, the following hypothesis was formulated:

H1: Teaching effectiveness has a positive and statistically significant influence on student academic performance in higher education.

Results

Demographic Characteristics of Respondents

The demographic characteristics of the 250 respondents were analyzed using frequencies and percentages. The sample comprised students representing various genders, ages, institutional sectors, academic levels, and years of study.

Table1*Demographic Characteristics of Respondents (N = 250)*

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	138	55.2
	Female	112	44.8
Age	18–20 years	67	26.8
	21–23 years	119	47.6
	24 years and above	64	25.6
University Sector	Public	148	59.2
	Private	102	40.8
Academic Level	Undergraduate	184	73.6
	Postgraduate	66	26.4
Year of Study	1st–2nd year	83	33.2
	3rd–4th year	134	53.6
	5th year or above	33	13.2

Table 1 shows that 55.2% of respondents were male, while 44.8% were female. The largest age group was students aged 21 to 23 years, comprising 47.6% of the sample. Students from public-sector universities comprised 59.2% of the sample, whereas those from private institutions accounted for 40.8%. Undergraduate students made up the majority of respondents at 73.6%, while postgraduate students represented 26.4%.

The largest proportion of respondents, 53.6%, were enrolled in their third or fourth year of study.

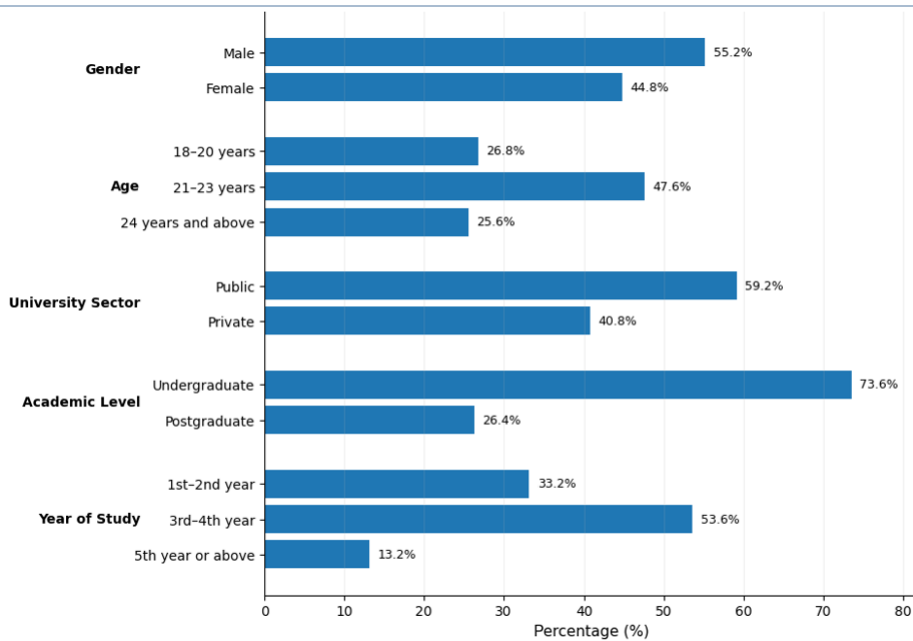


Figure 1 Demographic Characteristics of Respondents

Descriptive Statistics

Descriptive statistics were computed to assess students' overall perceptions of teaching effectiveness and academic performance. Mean scores, standard deviations, minimum values, and maximum values were reported for both constructs.

Table 2

Descriptive Statistics of Study Variables

Construct	N	Mean	SD	Minimum	Maximum
Teaching Effectiveness	250	3.89	0.67	1.80	5.00
Student Academic Performance	250	3.81	0.64	1.75	5.00

Table 2 indicates that teaching effectiveness achieved a mean score of 3.89 (SD = 0.67). Student academic performance similarly yielded a mean score of 3.81 (SD = 0.64). Both mean values exceeded the midpoint of the five-point measurement scale. The standard deviations reflect moderate variability in students' responses for both constructs. Overall, respondents expressed positive perceptions regarding both teaching effectiveness and their academic performance.

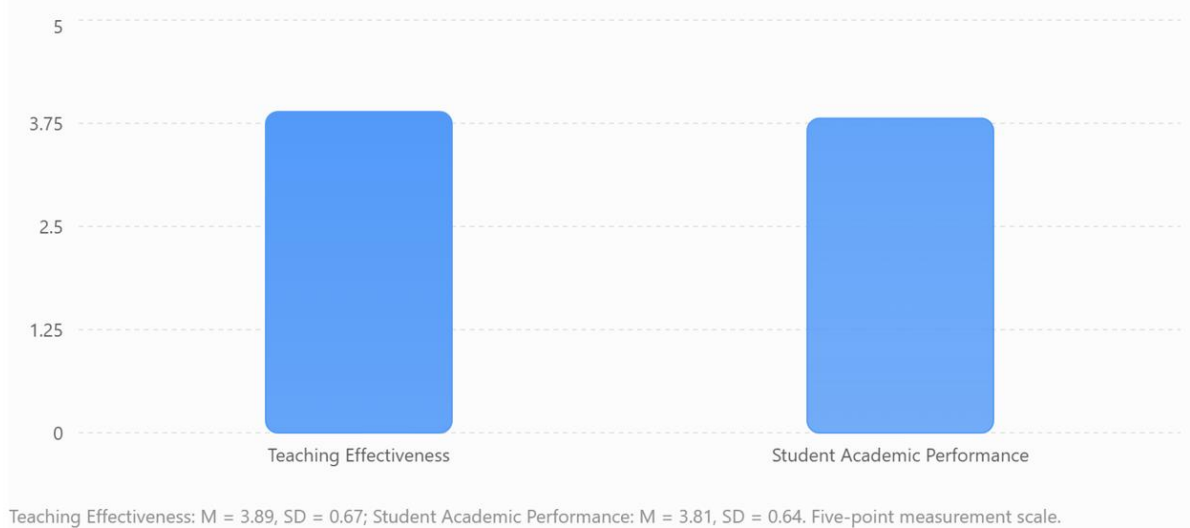


Figure 2 Descriptive Statistics of Study Variables

Reliability Analysis

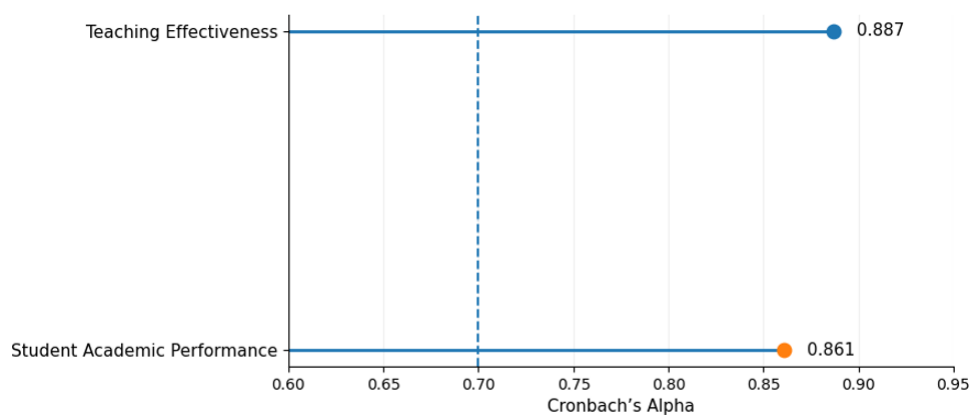
Cronbach's alpha was employed to assess the internal consistency of the measurement scales. A coefficient of 0.70 or higher was regarded as indicative of acceptable reliability.

Table3

Reliability Analysis of Study Constructs

Construct	Number of Items	Cronbach's Alpha	Interpretation
Teaching Effectiveness	6	0.887	Good
Student Academic Performance	5	0.861	Good

Table 3 presents evidence of satisfactory internal consistency for both constructs examined in the study. The construct of teaching effectiveness yielded a Cronbach's alpha coefficient of 0.887. Student academic performance demonstrated a reliability coefficient of 0.861. Both coefficients substantially surpassed the commonly recommended minimum. These findings indicate that the questionnaire items consistently measured their intended constructs.



• *Figure 3 Reliability Analysis of Study Constructs*

Correlation Analysis

Pearson's correlation analysis was performed to examine the relationship between teaching effectiveness and student academic performance.

Table 4

Pearson Correlation between Teaching Effectiveness and Student Academic Performance

Variables	Teaching Effectiveness	Student Academic Performance
Teaching Effectiveness	1	0.610***
Student Academic Performance	0.610***	1

Note. N = 250. ***p < 0.001.

Table 4 presents a positive and statistically significant relationship between teaching effectiveness and student academic performance. The correlation coefficient was $r = 0.610$, which demonstrates a moderately strong positive association between the two variables. The relationship was statistically significant at $p < 0.001$. These results suggest that higher levels of perceived teaching effectiveness are associated with higher levels of student academic performance. The correlation analysis provides preliminary empirical support for the proposed relationship between the study variables. These findings indicate that the questionnaire items consistently measured their intended constructs.

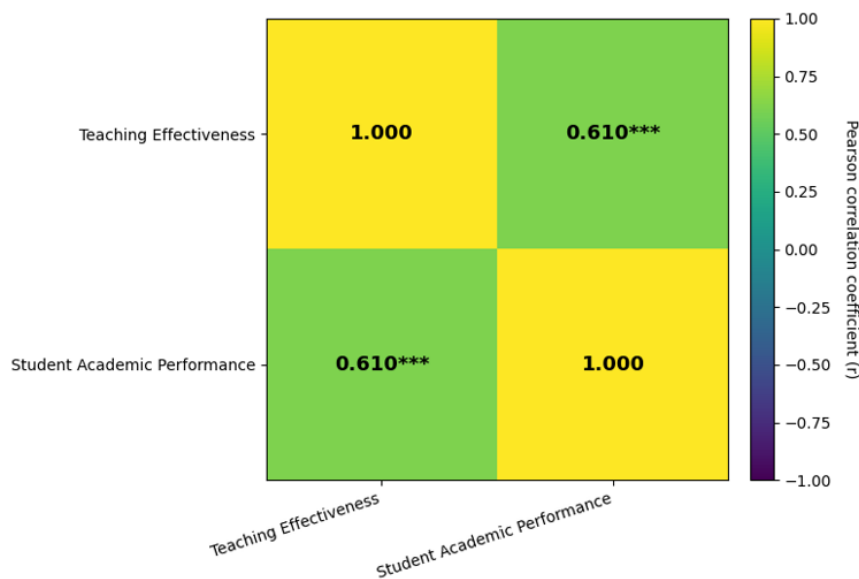


Figure 4 Pearson Correlation between Teaching Effectiveness and Student Academic Performance

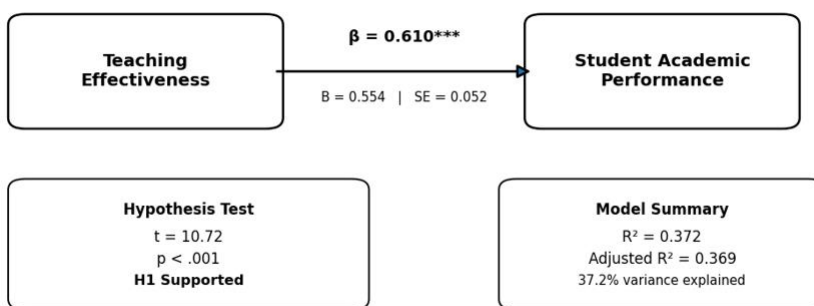
Simple Linear Regression Analysis

Simple linear regression was conducted to determine whether teaching effectiveness significantly predicts student academic performance.

Table 5*Influence of Teaching Effectiveness on Student Academic Performance*

Predictor	B	SE	β	t-value	p-value	R ²	Adjusted R ²	Decision
Teaching Effectiveness → Academic Performance	0.554	0.052	0.610	10.72	<0.001	0.372	0.369	H1 Supported

Note. Dependent variable = Student Academic Performance; N = 250.



• *Figure 5 Influence of Teaching Effectiveness on Student Academic Performance*

Table 5 shows that teaching effectiveness exerted a positive and statistically significant influence on student academic performance ($\beta = 0.610$, $t = 10.72$, $p < 0.001$). The model accounted for approximately 37.2% of the variance in student academic performance ($R^2 = 0.372$). The positive unstandardized coefficient ($B = 0.554$) suggests that academic performance increased with higher levels of perceived teaching effectiveness. The statistical significance of the regression coefficient confirms that teaching effectiveness served as a meaningful predictor of academic performance. Accordingly, H1 was supported, indicating a significant positive influence of teaching effectiveness on student academic performance.

Discussion

This study investigated the influence of teaching effectiveness on student academic performance in higher education. The results revealed a positive and statistically significant relationship between teaching effectiveness and academic performance ($r = .610$, $p < .001$). Additionally, simple linear regression indicated that teaching effectiveness significantly predicted student academic performance ($\beta = .610$, $t = 10.72$, $p < .001$), accounting for 37.2% of the variance in academic performance ($R^2 = .372$). Within the context of the surveyed higher education institutions in Karachi, these findings indicate that students who perceived their instructors as more effective also tended to report stronger academic performance. These results support the study hypothesis and suggest that students who perceive their instructors as more effective tend to report higher academic performance. The magnitude of the explained variance indicates that teaching effectiveness is an important instructional factor in students' academic success, although academic performance is also shaped by individual, institutional, and contextual factors not included in the current model.

The positive association identified in this study aligns with extensive evidence demonstrating that the quality of instructional practices contributes to student learning and achievement. Schneider and Preckel (2017), through a systematic review of meta-analyses in higher education, demonstrated that instructional characteristics are substantially associated with academic achievement. Their findings emphasize that effective teaching extends beyond the transmission of disciplinary knowledge and depends on how instructors organize learning experiences, communicate expectations, facilitate understanding, and encourage

students' active cognitive involvement. The current findings extend this argument by showing that students' overall perceptions of teaching effectiveness are significantly associated with their academic performance.

These findings are also consistent with research emphasizing active and student-centered instructional practices. Freeman et al. (2014) demonstrated through a meta-analysis of 225 studies that active learning improved examination performance and reduced failure rates compared to conventional lecturing. Similarly, Deslauriers et al. (2019) found that students exposed to active classroom instruction achieved greater actual learning than those receiving passive instruction, despite discrepancies between perceived and actual learning. These results help explain the relationship observed in the current study. Effective instructors are more likely to encourage students to participate actively, apply concepts, ask questions, solve problems, and engage meaningfully with course content. Such instructional practices can strengthen conceptual understanding and contribute to improved academic outcomes.

Teacher support and interaction offer an additional explanation for the significant influence of teaching effectiveness. Tao et al. (2022) identified a positive association between perceived teacher support and academic achievement and demonstrated that behavioral, cognitive, and emotional engagement partially mediated this relationship. In higher education, Okada (2023) similarly reported that perceived autonomy support was positively associated with academic performance and motivational outcomes. Effective teaching may therefore enhance academic performance not only through the direct delivery of instructional content but also by fostering a supportive learning environment in which students experience greater autonomy, motivation, confidence, and involvement in academic activities.

The importance of student engagement further supports the interpretation of the current findings. Lei et al. (2018) reported a significant positive relationship between student engagement and academic achievement, indicating that students who participate behaviorally, cognitively, and emotionally in learning activities are more likely to achieve favorable academic outcomes. Effective instructors can promote such engagement through interactive teaching, clear communication, appropriate learning activities, encouragement, and responsiveness to student difficulties. Thus, the relatively strong relationship identified in this study may reflect the capacity of effective teaching practices to stimulate greater student involvement in the learning process.

Constructive assessment and feedback may also contribute to the observed relationship. Effective teaching requires instructors not only to assess student performance but also to provide information that enables students to identify weaknesses and improve subsequent learning. Wisniewski et al. (2020), in a meta-analysis of 435 studies involving more than 61,000 participants, found an overall positive effect of feedback on student learning, although the magnitude of the effect depended considerably on the nature and quality of the feedback. Therefore, timely, specific, and improvement-oriented feedback may strengthen students' understanding of academic expectations, correct misconceptions, and facilitate better performance in future academic tasks.

In summary, the findings demonstrate that teaching effectiveness is a meaningful predictor of student academic performance in higher education. The 37.2% variance explained by teaching effectiveness is substantial, yet approximately 62.8% of the variance is attributable to other factors. Academic motivation, prior achievement, self-efficacy, socioeconomic background, institutional resources, learning environment, and student engagement may independently or collectively contribute to academic performance. These results should not be interpreted as indicating that teaching effectiveness alone determines student success. Rather, effective teaching constitutes a significant component within a broader educational system. Higher education institutions should therefore strengthen faculty development, instructional clarity, student-centered pedagogy, meaningful teacher-student interaction, and constructive feedback practices to foster stronger student academic outcomes.

Conclusion

This study examined the influence of teaching effectiveness on student academic performance among undergraduate and postgraduate students enrolled in selected public and private higher education institutions in Karachi, Pakistan. The findings provide empirical evidence of a positive and statistically significant association between teaching effectiveness and student academic performance. Correlation analysis revealed a moderately strong positive association between teaching effectiveness and student academic performance ($r = .610$, $p < .001$). Regression analysis further identified teaching effectiveness as a statistically significant predictor of academic performance ($\beta = .610$, $t = 10.72$, $p < .001$). Additionally, teaching effectiveness accounted for 37.2% of the variance in student academic performance ($R^2 = .372$), underscoring the critical role of teaching quality in shaping students' academic outcomes.

These findings emphasize the significance of effective instructional practices in higher education. Teaching effectiveness encompasses not only instructors' subject matter expertise but also their capacity to communicate concepts clearly, employ appropriate instructional strategies, foster meaningful classroom interaction, implement effective assessment methods, and deliver constructive feedback. When these elements are systematically integrated into instruction, students are more likely to comprehend course material, engage actively in learning, meet academic expectations, and attain improved academic outcomes. Therefore, enhancing teaching quality should remain a central focus of institutional strategies designed to promote student achievement.

From a practical standpoint, higher education institutions are encouraged to invest systematically in faculty development and the ongoing enhancement of instructional practices. Professional development initiatives should prioritize student-centered teaching, instructional clarity, interactive learning, effective assessment, constructive feedback, and the integration of educational technologies. Institutions should also implement regular evaluations of teaching quality using student feedback, peer review, and other evidence-based methods. These evaluations should primarily support faculty development by identifying areas where instructors may benefit from additional pedagogical support and training.

Despite its contributions, this study has several limitations. The cross-sectional design limits causal inference, as variables were measured at a single point in time. The reliance on convenience sampling may restrict the generalizability of the results to the wider higher education student population. Additionally, academic performance was assessed through students' self-reported perceptions rather than independently verified academic records. Future research should utilize probability sampling, longitudinal or experimental designs, and objective measures such as grade point average or examination scores. Researchers are also encouraged to investigate student engagement, academic motivation, self-efficacy, learning environment, and teacher-student interaction as potential mediating or moderating factors. In summary, strengthening teaching effectiveness constitutes a promising institutional strategy for enhancing student learning and academic performance in higher education. Furthermore, because the study was geographically confined to selected higher education institutions in Karachi and employed convenience sampling, caution should be exercised when generalizing the findings to students in other regions of Pakistan.

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