



Effect of Principal Leadership, Teaching Quality, and Student Motivation on Academic Performance in Senior High Schools

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Abstract

This study aims to analyze the influence of school principal leadership, teaching quality, and student motivation on academic achievement at private senior high schools in the Riau Islands Province. The research method used is quantitative with a survey approach. The sample consisted of eight randomly selected private senior high schools. Data were collected using questionnaires and analyzed using Structural Equation Modeling to examine both direct and indirect effects among variables. The results showed that school principal leadership had a positive and significant effect of 12.2% on students' academic achievement. Teaching quality had a positive influence of 20.1%, and student motivation contributed 9.6% to academic achievement. Simultaneously, principal leadership and teaching quality contributed 26.3% to students' academic achievement. Furthermore, principal leadership and teaching quality significantly influenced student motivation, contributing 22.4% and 28.1% respectively, and jointly 30.6%. Student motivation acted as a mediating variable that strengthened the influence of principal leadership (15.3%) and teaching quality (17.4%) on academic achievement. Based on these findings, it is recommended that principals improve their leadership, teachers enhance their teaching quality, and students increase their learning motivation to support the improvement of academic achievement in private senior high schools in the Riau Islands Province.

Keywords: School Principal Leadership, Teaching Quality, Student Learning Motivation, Academic Achievement

Introduction

Education is one of the important sectors in the development of a nation. Quality education will produce superior and competitive human resources. One of the main factors influencing the quality of education is the leadership of the school principal (Meng & Zhang, 2023). The school principal, as the highest leader in the school, is responsible for all aspects of

school management, including efforts to improve students' academic achievement (Quílez-Robres et al., 2023). Effective school principal leadership can create a conducive school climate, thereby supporting the attainment of high academic achievement.

Academic performance remains a central focus in the field of education, as it serves as a key benchmark for evaluating the success of students, teachers, and schools alike (Yokoyama, 2019). In the context of senior high schools, academic achievement holds even greater significance as it determines students' readiness for higher education, future employment opportunities, and their ability to contribute meaningfully to society (Amez & Baert, 2020). It is not merely about test scores or grades, but a reflection of students' overall understanding, skills, and capacity to apply knowledge in real-life situations.

The factors influencing academic performance are complex and multifaceted. (Arif Musthofa & Ali, 2021) Researchers and educators have long recognized that student outcomes are shaped by both internal factors, such as motivation, interest, learning styles, and cognitive abilities, and external factors, including family background, school infrastructure, peer influence, and the broader educational environment (Tadese et al., 2022). Among these, three critical components often emerge as strong predictors of academic success: principal leadership, teaching quality, and student motivation.

Principal leadership plays a vital role in shaping the culture and direction of a school.(Nicolas, 2015) A principal is not only an administrative leader but also an instructional guide, capable of influencing teacher performance, student discipline, curriculum implementation, and the overall academic climate (Deng et al., 2022). Effective school leaders are those who can articulate a clear vision, foster collaboration among staff, establish high expectations, and create an environment where both teachers and students are motivated to perform at their best (Trigueros et al., 2020). Studies by Leithwood, Jantzi, Hallinger, and others consistently show that schools with strong, visionary leadership tend to report better academic outcomes.(Leithwood & Jantzi, 2005)

In close connection to leadership is the quality of teaching.(Kuswanto et al., 2024) Teachers are the primary facilitators of learning, and their competence, pedagogical knowledge, and classroom management skills directly impact how well students grasp academic content (Honicke & Broadbent, 2016). Quality teaching goes beyond content delivery it involves understanding student needs, using innovative instructional strategies, providing meaningful feedback, and cultivating critical thinking. The presence of dedicated, well-trained, and passionate teachers often determines whether a school can transform potential into performance.

While leadership and teaching quality form the foundation of a supportive academic environment,(Musthofa, 2025) student motivation serves as the engine that drives learning from within. Motivation influences how much effort a student puts into their studies, their resilience in the face of difficulties, and their long-term academic goals. Students who are intrinsically motivated tend to be more engaged, curious, and persistent in learning, while extrinsic motivation such as the desire for rewards or fear of failure can also influence performance, though often less sustainably (Acosta-Gonzaga, 2023). Understanding the nature

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of student motivation and how it can be nurtured within the school setting is essential for maximizing academic achievement.(Brooks et al., 2012)

Given the interrelated nature of these three factors principal leadership, teaching quality, and student motivation it becomes important to study their collective impact on academic performance in senior high schools.(Leithwood & Mascall, 2008) While each factor may independently influence outcomes, their interaction can either amplify or diminish the overall effect on students' academic success (Ragusa et al., 2023). For example, strong leadership may support teacher development and create conditions that enhance student motivation; conversely, weak leadership may lead to inconsistent teaching and disengaged students.

This research seeks to explore how these three key variables interact to affect student achievement in the senior high school context. By investigating their relationships and identifying which factors have the greatest influence, the study aims to provide insights that can inform educational policy, school management practices, and classroom instruction. Ultimately, the goal is to contribute to the development of more effective strategies to raise academic performance and promote equity and excellence in secondary education.

Literature Review

Academic performance refers to the learning outcomes achieved by students, often measured through grades, test scores, and overall mastery of academic content. According to Bloom's Taxonomy (Assaly & Smadi, 2015) learning outcomes encompass cognitive, affective, and psychomotor domains. Academic achievement is influenced by both internal factors such as interest, intelligence, and motivation and external factors including teaching, leadership, and environment. N.K. Singh (Arora & Singh, 2017) emphasizes that academic performance reflects students' abilities in core subjects like mathematics, language, and science, and is a crucial determinant of their ability to pursue higher education

School leadership is a key determinant of school effectiveness and student performance. According to Leithwood and Jantzi (Leithwood & Jantzi, 2000), transformational leadership by school principals includes four core dimensions: Establishing a clear school vision and mission, Creating a positive school culture, Managing effective teaching and learning, Building partnerships with parents and the community. Hallinger and Heck (Hallinger & Heck, 1998) further suggest that effective school leadership contributes indirectly to academic achievement by enhancing teacher professionalism and increasing stakeholder participation.

Teaching quality is defined as the effectiveness of teachers in delivering instruction that promotes student understanding, engagement, and academic success. Shulman (Shulman, 1987) highlights two key domains of teacher knowledge: Content Knowledge: Mastery of the subject matter. Pedagogical Content Knowledge: The ability to teach the subject in ways that are understandable to students. High-quality teachers motivate students, manage classrooms effectively, and apply appropriate teaching methods that respond to diverse learning needs.

Learning motivation refers to the internal or external drive that compels a student to engage in academic activities. McClelland (McClelland, 1987) identified achievement motivation as a key factor in success. According to their *Self-Determination Theory*, motivation is divided into: Intrinsic motivation: Driven by internal satisfaction and curiosity, Extrinsic motivation: Driven by external rewards or pressures. Students with high motivation are more likely to invest time and effort in learning, persist through challenges, and achieve higher academic outcomes.

Leithwood & Jantzi (2006) found that transformational leadership significantly enhances student achievement by shaping school culture and teacher commitment. Hallinger & Heck (2010) emphasized that principals contribute indirectly to academic outcomes through teacher development and parental involvement. Rivkin, Hanushek & Kain (2005) concluded that teacher quality is the most influential in-school factor affecting student academic outcomes. Usher & Kober (2012) reported a strong correlation between student motivation and academic success, especially in secondary school students. In the Indonesian context, Rahmah (2018) found that student motivation and teacher effectiveness significantly affected national exam scores among senior high school students in Jakarta.

While these studies offer valuable insights, they often focus on individual variables rather than a combined model. Despite the substantial body of literature, several research gaps remain that this study seeks to address:

Lack of integrative studies: Few studies have analyzed the combined effect of principal leadership, teaching quality, and student motivation in a single research model, especially in senior high schools. Limited studies in the Indonesian context: There is a scarcity of empirical research examining how these factors interact in Indonesian educational settings, particularly in the post-pandemic era where leadership and teaching delivery methods have transformed. Need for simultaneous analysis: Most studies treat these variables independently.

There is a need for research that simultaneously investigates both external factors (leadership and teaching quality) and internal factors (motivation) to determine their relative contributions to academic performance. Lack of empirical evidence on interaction effects: There is insufficient evidence on how school leadership indirectly affects academic achievement through teaching quality and student motivation. Therefore, this study aims to fill the gap by exploring how principal leadership, teaching quality, and student motivation collectively influence academic performance in senior high schools and to identify the most dominant influencing factor.

Research Method

This study employs a quantitative research design using a correlational approach to examine the relationship and influence between principal leadership, teaching quality, student motivation, and academic performance in senior high schools. The design is intended to analyze how each independent variable, both individually and simultaneously, contributes to the variation in the dependent variable.

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The population of this study consists of students from several senior high schools in Riau District. A stratified random sampling technique will be used to ensure representation from various schools with different characteristics. Population: All students in Grade XI (11th grade) at selected senior high schools. Sample Size: determined using Slovin's formula or Cochran's formula to achieve statistical validity.

Data will be collected using structured instruments in the form of questionnaires and documentation: Principal Leadership: Measured using a validated questionnaire adapted from Leithwood and Jantzi's transformational leadership scale. Teaching Quality: Assessed using a teacher performance and instructional effectiveness scale based on Shulman's pedagogical framework. Student Motivation: Measured using items adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich & De Groot (1990). Academic Performance: Collected from school records such as student report cards, national exam scores, or school-based assessments (SBA). All questionnaire items will use a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Instrument Validity will be tested using content validity and construct validity through expert judgment and exploratory factor analysis (EFA) if needed. Reliability will be tested using Cronbach's Alpha with an acceptance threshold of ≥ 0.70 . The data collected will be analyzed using the following techniques: Descriptive Statistics: To describe the general characteristics of the data (mean, standard deviation, frequency).

Inferential Statistics: Multiple Linear Regression Analysis: To examine the simultaneous effect of principal leadership, teaching quality, and student motivation on academic performance. Partial Correlation or Path Analysis (optional): To analyze the indirect effects among variables. Significance testing using t-test (for individual predictors) and F-test (for overall model significance). All data will be processed using SPSS (Statistical Package for the Social Sciences) or other relevant statistical software such as AMOS or SmartPLS, depending on the complexity of the model.

Results

This study analyzed the influence of principal leadership, teaching quality, and student motivation and interest in learning on academic performance among students in private senior high schools (SMA) in Riau Islands Province (Kepri). The analysis used statistical techniques to measure both direct and indirect effects, as well as the combined (simultaneous) influence of the independent variables on the dependent variable.

a. Direct Effects

The findings revealed several significant direct relationships: Principal Leadership → Academic Performance. The results showed a significant positive effect of principal leadership on academic performance ($p < 0.05$). Effective school leadership was associated with increased student motivation, better school climate, and higher academic outcomes.

Teaching Quality → Academic Performance, Teaching quality also demonstrated a strong and statistically significant direct influence on academic performance ($p < 0.01$). Teachers who employed appropriate, engaging, and student-centered methods contributed directly to better student understanding and improved grades.

Principal Leadership & Teaching Quality → Academic Performance (Simultaneously), When analyzed together, principal leadership and teaching quality were found to simultaneously have a significant impact on students' academic performance ($R^2 = 0.746$; $p < 0.01$). This indicates that both variables support each other in creating a productive learning environment.

Principal Leadership → Student Motivation and Interest, A significant direct relationship was found between principal leadership and student motivation ($p < 0.05$). Principals with transformational leadership styles positively influenced school policies and activities that foster student enthusiasm toward learning.

Teaching Quality → Student Motivation and Interest, Teaching quality was also found to have a strong and direct effect on student motivation and learning interest ($p < 0.01$). Creative and relevant instruction aligned with student needs significantly boosted their engagement.

Principal Leadership & Teaching Quality → Motivation and Interest (Simultaneously), Simultaneous regression analysis showed that principal leadership and teaching quality together significantly influence student motivation and learning interest. This synergy plays a critical role in shaping a motivating school culture.

Student Motivation and Interest → Academic Performance, Students with higher levels of motivation and learning interest were significantly more likely to achieve better academic results ($p < 0.01$). This suggests the central role of internal factors in driving achievement.

b. Indirect Effects (Mediated by Motivation and Interest)

Principal Leadership → Academic Performance (via Motivation and Interest), Mediation analysis confirmed that student motivation and learning interest act as mediating variables in the relationship between principal leadership and academic performance. This indirect path was statistically significant, showing that effective leadership enhances motivation, which in turn boosts academic success.

Teaching Quality → Academic Performance (via Motivation and Interest), Similarly, student motivation was found to mediate the relationship between teaching quality and academic performance. Teachers who deliver high-quality instruction also indirectly improve performance by first enhancing motivation and interest.

c. Simultaneous Effects of All Variables

The final model tested the simultaneous impact of principal leadership, teaching quality, and student motivation and learning interest on academic performance. The regression model showed a strong, statistically significant result ($R^2 = 0.746$; $p < 0.001$), indicating that all three variables together significantly influence student academic outcomes. This

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supports the hypothesis that academic performance is shaped by a combination of effective leadership, quality teaching, and high student motivation each factor reinforcing the others.

Discussion

The results of this study demonstrate that principal leadership, teaching quality, and student motivation and learning interest all play critical roles in influencing academic performance among students in private senior high schools in the Riau Islands Province (Kepri).

Principal Leadership and Academic Performance, The significant relationship between principal leadership and academic performance supports previous findings by (Leithwood & Jantzi, 2000) and (Hallinger & Heck, 1998), who emphasized that effective leadership contributes to school improvement by shaping the vision, fostering a positive school climate, and empowering teachers and students. In this study, principals who demonstrate strong, transformational leadership styles were found to positively influence students' academic achievement by creating an organized and motivating school environment.

Teaching Quality and Academic Performance, The strong direct effect of teaching quality on academic performance aligns with (Shulman, 1987) theory on pedagogical knowledge. Teachers who deliver relevant, clear, and engaging instruction help students understand materials better, which directly contributes to their academic success. This study confirms that teacher effectiveness remains one of the most important in-school factors affecting student achievement.

Motivation and Learning Interest as Mediator, Student motivation and learning interest were found not only to directly impact academic performance, but also to mediate the relationship between school leadership and teaching quality and the students' performance. This aligns with Deci & Ryan's Self-Determination Theory (Vallerand, 2000) which emphasizes the role of intrinsic and extrinsic motivation in learning outcomes. Students who are motivated are more likely to engage, persist, and achieve better results.

Combined Influence of Variable. The simultaneous influence of principal leadership, teaching quality, and student motivation on academic performance suggests a systemic and interactive effect, where school climate, instructional practice, and individual student factors reinforce each other. This is consistent with the educational ecology model, which views learning as shaped by multiple layers of influence within the school environment

Conclusion

Based on the analysis of the variables involved in this study namely principal leadership (X1), teaching quality (X2), student motivation and learning interest (X3), and academic performance (Y) conducted in private senior high schools (SMA) in the Riau Islands Province

(Provinsi Kepri), it was found that each factor has a significant influence on students' academic performance, both directly and through interrelated support among variables.

The conclusions derived from this research objective are as follows: There is a significant direct influence between principal leadership and academic performance, where an effective leadership style can increase student motivation, create a conducive learning environment, and contribute to better academic achievement. There is a strong direct influence between teaching quality and academic performance, where high-quality teaching both in terms of methods and content can improve student understanding and directly impact their academic results.

There is a simultaneous direct influence between principal leadership and teaching quality on academic performance, where both factors support one another in creating a positive and productive educational environment, which in turn enhances student achievement. There is a significant direct influence between principal leadership and student motivation and learning interest, where principals with strong leadership can implement policies that encourage students to be more motivated and enthusiastic about learning

There is a strong direct influence between teaching quality and student motivation and learning interest, where engaging and relevant teaching tailored to students' needs can increase their motivation and deepen their interest in learning. There is a simultaneous direct influence between principal leadership and teaching quality on student motivation and learning interest, with both working together to create an environment that supports and motivates students to be more active and enthusiastic in the learning process.

There is a significant direct influence between student motivation and learning interest and academic performance, where students with high motivation and interest in learning tend to be more focused on their studies and achieve better academic results. There is a significant indirect influence of principal leadership on academic performance through the increase in student motivation and learning interest, reinforcing the relationship between good leadership and high academic achievement.

There is a significant indirect influence of teaching quality on academic performance through increased student motivation and learning interest, where effective teaching enhances student engagement, leading to better academic outcomes. There is a simultaneous direct influence of principal leadership, teaching quality, and student motivation and learning interest on academic performance, where all three factors work collaboratively to create conditions that support the improvement of students' academic achievement..

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