

The Effect of Principal Transformational Leadership and Job Satisfaction on the Performance of State Elementary School Teachers

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Abstract: This study analyzes the influence of principal's transformational leadership and job satisfaction on teacher performance at public elementary schools in Sematang Borang District, Indonesia. Employing a quantitative approach, the research targeted a population of 101 teachers, all of whom were selected as samples using saturated sampling technique. Data were collected through Likert-scale questionnaires and documentation, then analyzed using regression tests, t-tests, and F-tests. The results reveal three key findings: first, principal's transformational leadership has a positive and significant influence on teacher performance; second, job satisfaction also demonstrates a positive and significant influence on teacher performance; and third, both variables simultaneously exert a positive and significant influence on teacher performance. The study concludes that improving teacher performance requires strengthening both transformational leadership practices and job satisfaction levels concurrently. The novelty lies in examining the combined effects of these two variables within the underexplored context of elementary schools in Sematang Borang District, providing localized empirical evidence. Practically, school principals should adopt transformational behaviors such as intellectual stimulation and individualized consideration while also systematically addressing teacher job satisfaction through recognition, supportive working conditions, and professional growth opportunities. This study contributes to educational leadership literature by confirming that transformational leadership and job satisfaction are not mutually exclusive but rather complementary drivers of teacher performance, suggesting that holistic interventions targeting both leadership style and teacher welfare yield optimal results in elementary school settings.

Keywords: Job Satisfaction, Teacher Performance, Transformational Leadership

A. Introduction

Education plays a strategic role in improving the quality of human resources and determining a nation's competitiveness in the era of globalization (Krstić et al., 2020). Through education, people are expected to develop their potential, enhance critical thinking skills, and acquire skills relevant to current developments. Therefore, the success of a nation's development is greatly influenced by the quality of its education

system (Gaol, 2023). This produces superior, creative human resources capable of competing globally. In Indonesia, education is a top priority in national development. This is reflected in Article 31, paragraph (2) of the 1945 Constitution of the Republic of Indonesia, which states that every citizen is obliged to receive basic education and the government is obliged to finance it. This mandate demonstrates the government's commitment to improving the quality of human resources through the provision of equitable and quality education. To achieve this goal, the active participation of all elements in education is required, including the government, educational institutions, and educators.

One crucial element in the provision of education is teachers (Akimov et al., 2023). Teachers are professionals who play a key role in the learning process in schools. Teachers are not only tasked with delivering subject matter but also play a role in guiding, directing, and shaping the character of students. According to Aqib (2018), teachers are a key factor in the success of education in schools because they are the center of teaching and learning activities (García-Martínez et al., 2021). The success of the educational process is largely determined by the quality of teacher performance in carrying out their duties and responsibilities. Teacher performance is the teacher's ability to carry out learning tasks effectively and efficiently according to established standards (Boateng et al., 2024; Sánchez-Cabrero et al., 2021). Teacher performance can be seen from various aspects, such as the ability to plan learning, implement the learning process, conduct learning evaluations, and guide and develop student potential.

High-performing teachers are able to create active, creative, innovative, and enjoyable learning processes for students, thereby improving the overall quality of education (Xin et al., 2022). In line with this, the Minister of Education, Culture, Research, and Technology of the Republic of Indonesia, Nadiem Makarim, has stated on various occasions that improving the quality of education must begin with improving the quality and performance of teachers. At the launch of the "Merdeka Belajar" (Freedom to Learn) policy in 2019, he emphasized that teachers need to be given space to innovate in learning, supported by adaptive school leadership and a work environment that fosters enthusiasm and job satisfaction. This demonstrates that improving teacher performance is a primary focus in efforts to improve the quality of education in Indonesia. However, various studies indicate that teacher performance in some schools remains suboptimal. This condition is evident in various problems that arise in the learning process. One frequently encountered problem is the learning process, which remains monotonous and lacks innovation.

Teachers tend to use the same learning methods repeatedly without developing variations that can stimulate student interest (Muchson et al., 2024). This results in a less engaging learning process and a less effective way to develop students' potential. Research conducted by Dacholfany et al. (2024) shows that some teachers are still not optimal in managing classroom learning. This is evident in the use of less varied

learning methods, monotonous learning activities, and inappropriate use of language and diction when interacting with students. These conditions indicate that teacher performance in implementing the learning process still needs improvement. Furthermore, the rapid development of information technology in the current digital era requires teachers to be able to adapt to various technology-based learning innovations. The use of technology in learning can help teachers deliver material in a more engaging, interactive, and effective manner (Yang et al., 2021). However, in reality, some teachers still fail to utilize technology optimally in the learning process. Teachers' poor ability to integrate technology into learning is one factor that can hinder the improvement of the quality of learning in schools (Mustafa et al., 2024; Timotheou et al., 2023).

Another issue that impacts teacher performance is the high administrative workload. In practice, teachers are not only responsible for teaching but also for completing various administrative tasks such as preparing learning materials, activity reports, and various other administrative tasks. This high administrative burden often causes teachers to spend more time completing administrative tasks than preparing for the learning process. This situation has the potential to reduce teachers' focus on their primary duties as educators and teachers. According to Yayuk & Haqqi (2024), one of the causes of low teacher performance is their focus on administration. These various issues demonstrate that teacher performance remains a critical issue that requires serious attention. Optimal teacher performance is essential for creating a quality learning process and improving the quality of education in schools (Díez et al., 2020). Teacher performance is influenced not only by internal factors originating from within the teacher but also by external factors originating from the work environment.

One external factor that has a significant impact on teacher performance is the leadership of the principal (Wulaningrum et al., 2025). The principal is an educational leader responsible for managing, directing, and developing all school resources to achieve educational goals. Effective principal leadership can create a conducive work environment, motivate teachers, and encourage them to continuously improve their competence and professionalism (Ahmed, 2025). Transformational leadership is considered a form of leadership that can improve teacher performance. Transformational leadership is leadership that inspires and motivates subordinates to achieve organizational goals through positive change. According to Yakob et al. (2025), transformational leadership encourages subordinates to transcend personal interests to achieve organizational goals through an inspiring vision and high motivation. Transformational leaders are also able to provide idealistic influence, inspiring motivation, intellectual stimulation, and individual attention to each member of the organization. With this type of leadership, principals can encourage teachers to be more creative, innovative, and highly committed to their work.

In reality, not all principals are able to optimally implement transformational leadership. Some principals still tend to employ administrative or bureaucratic

leadership, making them less able to inspire and motivate teachers. This condition can affect teacher morale and impact their performance in carrying out teaching tasks. Besides principal leadership, another factor that influences teacher performance is job satisfaction. Job satisfaction is a person's positive feelings about their job as a result of evaluating various aspects of that work. According to Katebi et al. (2022), job satisfaction is a person's general attitude toward their job, indicating the difference between what they receive and what they believe they should receive. Teachers with high levels of job satisfaction tend to have better work motivation, demonstrate a strong commitment to their work, and are able to carry out their duties responsibly. Conversely, teachers with low levels of job satisfaction tend to show less enthusiasm, lack initiative, and experience decreased performance in carrying out their duties.

Teacher job satisfaction can be influenced by various factors, such as the work environment, relationships with colleagues, reward systems, principal leadership, and opportunities to develop professional competencies. If these factors are managed well by schools, teacher job satisfaction can increase and positively impact their performance. Several studies have shown a significant relationship between job satisfaction and teacher performance. Someone with a high level of job satisfaction will display a positive attitude toward their work (Quesada-Puga et al., 2024). Conversely, someone who is dissatisfied with their job tends to display a negative attitude, which can impact the quality of their performance. Furthermore, research conducted by Hoang (2023) shows that teacher job satisfaction has a positive influence on the quality of learning and teacher discipline in schools. In national policy, the government also emphasizes the importance of increasing teacher job satisfaction as an effort to improve the quality of education.

In his speech commemorating National Education Day 2021, the Minister of Education emphasized that teachers with high motivation and job satisfaction are better able to innovate in learning and positively impact student development. This demonstrates that teacher job satisfaction is a strategic factor that needs to be considered in education management. From the explanation above, it is clear that teacher performance is influenced by various factors, both internal and external. Two factors that play a crucial role in influencing teacher performance are the principal's transformational leadership and teacher job satisfaction. Principal leadership that inspires and motivates teachers is believed to create a conducive work environment and increase teacher job satisfaction. High job satisfaction ultimately encourages teachers to perform more optimally in carrying out their teaching duties.

However, the extent to which the principal's transformational leadership and job satisfaction influence teacher performance, particularly in public elementary schools in Sematang Borang District, remains unknown. Therefore, research on the influence of principal transformational leadership and job satisfaction on teacher performance is crucial. This research is expected to provide both theoretical and practical contributions in efforts to improve the quality of teacher performance and the quality

of education in elementary schools. Based on this description, this research focuses on the influence of the principal's transformational leadership and job satisfaction on teacher performance at public elementary schools in the Sematang Borang District.

B. Methods

The research was conducted at public elementary schools in Sematang Borang District, Palembang, namely Public Elementary School 245, Public Elementary School 246, Public Elementary School 247, and Public Elementary School 248. The study period was from January 2026 to July 2026. The type of research used in this study was quantitative. The research method used partial correlation to analyze and test hypotheses regarding the influence or relationship between independent and dependent variables. The research design employed an ex post facto research design. The population in this study was all 101 teachers at public elementary schools in Sematang Borang District, consisting of classroom teachers and subject teachers. The sampling technique in this study used saturated sampling (total sampling). Data collection techniques used questionnaires and documentation. The validity used in this study was internal validity. Instrument validity in this study was measured using the Pearson Product Moment formula. Product Moment with the following decision rule: If $r\text{-count} > r\text{-table}$, then the instrument is considered valid. However, if $r\text{-count} < r\text{-table}$, then the instrument is categorized as invalid and unsuitable for data collection. Reliability testing in this study uses an internal reliability test obtained by analyzing data from a trial result with the Cronbach alpha formula. The testing criteria are if $>$ a significance level of 0.05, then the measuring instrument is reliable. Conversely, if $<$ then the measuring instrument is not reliable. The statistical hypothesis in this research is as follows:

- H1: H01: There is no influence of the principal's transformational leadership on teacher performance at the Sematang Borang District Public Elementary School.
Ha1: There is an influence of the principal's transformational leadership on teacher performance at the Sematang Borang District Public Elementary School.
- H2: H02: There is no effect of job satisfaction on teacher performance at SD Negeri Sematang Borang District.
Ha2: There is an influence of job satisfaction on teacher performance at SD Negeri Sematang Borang District.
- H3: H03: There is no simultaneous influence of the principal's transformational leadership and job satisfaction on teacher performance at the Sematang Borang District Elementary School.
Ha3: There is a simultaneous influence of the principal's transformational leadership and job satisfaction on teacher performance at the Sematang Borang District Elementary School.

Parametric statistical analysis of the “t” test. This partial test was carried out with a significance level of $\sigma = 0.05$.

Accept H_0 : if the calculated t-value $\leq$ t-table

Reject H_0 : if the calculated t-value $>$ t-table

If the data is normally distributed, parametric statistical analysis can be performed using the “F” test for simultaneous multiple regression. This simultaneous test can be performed with a significance level of $\sigma = 0.05$.

Accept H_0 if the calculated F-value $\leq$ F-table.

Reject H_0 : if the calculated F-value $>$ F-table

Data analysis techniques in quantitative research use inferential statistics. To test for multicollinearity, product-moment correlation analysis was used with the help of SPSS for Windows version 22.00. For the calculation technique for analyzing the research data, the researcher used SPSS 22.00 linear regression analysis. The multiple regression equation can be expressed as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_nX_n$$

The t-test is used to determine the partial or individual effect of each independent variable on the dependent variable. This test is used to examine the relationship between the independent variable and the dependent variable partially, namely by controlling for other independent variables. This test is used to examine the relationship between the independent variables and the dependent variable simultaneously.

C. Results and Discussion

The Influence of Transformational Leadership on Teacher Performance

The partial hypothesis test results demonstrate that transformational leadership significantly influences teacher performance at a public elementary school in Sematang Borang District. This finding is supported by the regression coefficient, which indicates a positive relationship between transformational leadership and teacher performance. These results demonstrate that transformational leadership plays a crucial role in improving teacher performance. The more effective the transformational leadership style implemented by the principal, the higher the teacher’s professional performance. Transformational leadership, characterized by the leader’s ability to provide inspiration, motivation, individual attention, and intellectual stimulation, encourages teachers to work not only based on formal obligations but also with a high level of commitment and responsibility. Furthermore, transformational leaders tend to be able to create a clear vision and build harmonious working relationships so that teachers feel valued and supported in developing their

potential. This ultimately improves the quality of the learning process, work discipline, and teacher responsibility in achieving educational goals at the school.

These results are in accordance with the theory stated by Armansyah (2022), transformational leadership is a leader model that communicates the organization's vision and goals clearly so that subordinates can identify and tend to have a strong influence on followers, provide motivation to subordinates, and stimulate creativity to work better to achieve organizational goals. These results align with research by Sianipar (2025), which demonstrated that transformational leadership significantly influences teacher performance. This means that both the current and previous studies confirm that transformational leadership is indeed a factor influencing teacher performance.

The Influence of Teacher Satisfaction on Teacher Performance

The results of a partial hypothesis test demonstrate that job satisfaction significantly influences teacher performance at a public elementary school in Sematang Borang District. This finding is supported by the regression coefficient, which indicates a positive relationship between job satisfaction and teacher performance. These results indicate that job satisfaction is a significant factor in improving teacher performance. The higher the level of job satisfaction experienced by teachers, the more optimal their performance will be. Job satisfaction encompasses various aspects, such as satisfaction with the work environment, relationships with colleagues, rewards received, and the match between workload and abilities. Teachers who are satisfied with their jobs tend to have high work enthusiasm, low absenteeism, and a strong commitment to the organization. Conversely, job dissatisfaction can decrease motivation and result in poor performance. It is crucial for schools to create supportive working conditions, including facilities, organizational climate, and reward systems, so that teachers can perform optimally and professionally in carrying out their duties. These results align with the theory proposed by Gary Dessler which states that teacher and employee job satisfaction is a factor that management must consider in an effort to maintain the desired level of teacher and employee performance (Dessler, 2013). These results align with research by Hoque et al. (2023), which demonstrated that job satisfaction significantly influences teacher performance. This means that both the current and previous studies demonstrate that job satisfaction is indeed a factor influencing teacher performance.

The Influence of Transformational Leadership and Job Satisfaction on Teacher Performance

The results of simultaneous hypothesis testing demonstrate that transformational leadership and job satisfaction significantly influence teacher performance at a public elementary school in Sematang Borang District. This finding is supported by the regression coefficient, which indicates a positive relationship between

transformational leadership and job satisfaction on teacher performance. These results indicate that transformational leadership and job satisfaction simultaneously have a significant influence on teacher performance, indicating that the two variables complement each other in improving performance quality. Transformational leadership plays a role in shaping teachers' direction, vision, and work motivation, while job satisfaction plays a role in maintaining teachers' emotional and psychological stability at work. When leadership is implemented that inspires and supports teachers and is balanced with a high level of job satisfaction, a conducive, productive, and goal-oriented work environment is created.

The synergy between these two factors will encourage teachers to work more effectively, innovatively, and responsibly, resulting in improved performance not only in quantity but also in quality. Therefore, efforts to improve teacher performance cannot be carried out in isolation but must address both aspects simultaneously and sustainably. These results align with the theory proposed by Armansyah (2022), which states that transformational leadership is a leadership model that clearly communicates the organization's vision and goals so that subordinates can identify with them and tends to exert a strong influence on them, motivating them and stimulating creativity to perform better to achieve organizational goals. Furthermore, according to Gary Dessler's theory, teacher and employee job satisfaction is a factor that management must consider in an effort to maintain the desired level of teacher and employee performance (Dessler, 2013). These results align with research by Firmansyah et al. (2022), which demonstrated that transformational leadership and job satisfaction significantly influence teacher performance. This means that both the current and previous studies demonstrate that transformational leadership and job satisfaction are indeed factors that influence teacher performance.

D. Conclusions

Based on the research findings, it can be concluded that transformational leadership and job satisfaction have a significant influence on teacher performance at a public elementary school in Sematang Borang District. The key finding reveals three major results. First, transformational leadership has a partially significant influence on teacher performance, with a significance value of 0.000 (less than 0.005), indicating that a leadership style capable of inspiring, motivating, and encouraging positive change plays a crucial role in improving teacher professionalism and productivity. Second, job satisfaction also has a partially significant influence on teacher performance, with a significance value of 0.000 (less than 0.005), demonstrating that teachers' comfort, appreciation, and fulfillment of work needs contribute significantly to boosting work enthusiasm and the quality of their performance. Third, simultaneously, transformational leadership and job satisfaction significantly influence teacher performance, confirming that the combination of effective leadership and high levels of job satisfaction are key factors in creating optimal teacher performance. Both factors must be managed synergistically in the educational

environment to achieve maximum results. The practical implication of this study is that school principals in Sematang Borang District must adopt transformational leadership practices that inspire, motivate, and encourage positive change among teachers. This includes articulating a compelling vision, providing intellectual stimulation, offering individualized consideration, and serving as a role model. Principals should move beyond transactional management toward leadership that fosters teacher ownership of school goals. Simultaneously, school administrators must prioritize teacher job satisfaction by ensuring adequate recognition, fair compensation, positive working conditions, opportunities for professional growth, and supportive collegial relationships. Regular satisfaction surveys can identify areas requiring intervention. The synergistic management of both factors is essential transformational leadership enhances job satisfaction, and high satisfaction makes teachers more receptive to transformational influence. Professional development programs should train principals in transformational leadership skills and educate school committees about the importance of teacher satisfaction for school effectiveness. Future research should expand the sample beyond a single public elementary school to include multiple schools across different districts to enhance generalizability. Comparative studies examining how the influence of transformational leadership and job satisfaction varies across different school levels (elementary, junior high, senior high) and school types (public versus private) would provide valuable insights. Longitudinal research tracking teacher performance changes alongside leadership and satisfaction measures over time would strengthen causal claims. Additionally, qualitative studies exploring teachers' lived experiences of transformational leadership and job satisfaction would reveal contextual factors shaping these relationships. Finally, intervention research testing specific principal training programs or job satisfaction improvement initiatives would provide evidence-based guidance for school improvement policies.

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References

- Ahmed, E. I. (2025). Principals' Leadership Styles and Teachers' Organizational Citizenship Behaviour: A Systematic Review of Research. *International Journal of Educational Management*, 39(1), 219–239. <https://doi.org/10.1108/IJEM-08-2024-0508>
- Akimov, N., Kurmanov, N., Uskelenova, A., Aidargaliyeva, N., Mukhiyayeva, D., Rakhimova, S., Raimbekov, B., & Utegenova, Z. (2023). Components of Education 4.0 in Open Innovation Competence Frameworks: Systematic Review. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100037. <https://doi.org/10.1016/j.joitmc.2023.100037>
- Armansyah. (2022). *Transformational Leadership in Improving the Performance of*

Educational Organizations. Bandung: Alfabeta.

- Boateng, S. L., Penu, O. K. A., Boateng, R., Budu, J., Marfo, J. S., & Asamoah, P. (2024). Educational Technologies and Elementary Level Education - A Bibliometric Review of Scopus Indexed Journal Articles. *Heliyon*, 10(7), e28101. <https://doi.org/10.1016/j.heliyon.2024.e28101>
- Dacholfany, M. I., Antoni, R., Sulissusiawan, A., Rijal, S., Utiahman, A., Vanni Alam, H., & Bagea, I. (2024). The Effectiveness of Teacher Professional Development Program on Classroom and Behavior Management: A Systematic Review. *Journal of Education Culture and Society*, 15(2), 451-470. <https://doi.org/10.15503/jecs2024.2.451.470>
- Dessler, G. (2013). *Human Resources Management*. Thirteenth Edition. USA: Pearson Global Edition.
- Díez, F., Villa, A., López, A. L., & Iraurgi, I. (2020). Impact of Quality Management Systems in the Performance of Educational Centers: Educational Policies and Management Processes. *Heliyon*, 6(4), e03824. <https://doi.org/10.1016/j.heliyon.2020.e03824>
- Firmansyah, F., Prasajo, L. D., Jaedun, A., & Retnawati, H. (2022). Transformational Leadership Effect on Teacher Performance in Asia: A Meta-Analysis. *Cypriot Journal of Educational Sciences*, 17(6), 2143-2152. <https://doi.org/10.18844/cjes.v17i6.7552>
- García-Martínez, I., Montenegro-Rueda, M., Molina-Fernández, E., & Fernández-Batanero, J. M. (2021). Mapping Teacher Collaboration for School Success. *School Effectiveness and School Improvement*, 32(4), 631-649. <https://doi.org/10.1080/09243453.2021.1925700>
- Hoang, A.-D. (2023). A Bibliometrics Analysis of Research on Teachers' Satisfaction from 1956 to 2022. *International Journal of Educational Management*, 37(1), 164-185. <https://doi.org/10.1108/IJEM-01-2022-0009>
- Hoque, K. E., Wang, X., Qi, Y., & Norzan, N. (2023). The Factors Associated with Teachers' Job Satisfaction and Their Impacts on Students' Achievement: A Review (2010-2021). *Humanities and Social Sciences Communications*, 10(1), 177. <https://doi.org/10.1057/s41599-023-01645-7>
- Katebi, A., HajiZadeh, M. H., Bordbar, A., & Salehi, A. M. (2022). The Relationship Between "Job Satisfaction" and "Job Performance": A Meta-analysis. *Global Journal of Flexible Systems Management*, 23(1), 21-42. <https://doi.org/10.1007/s40171-021-00280-y>
- Krstić, M., Filipe, J. A., & Chavaglia, J. (2020). Higher Education as a Determinant of the Competitiveness and Sustainable Development of an Economy. *Sustainability*, 12(16), 6607. <https://doi.org/10.3390/su12166607>
- Lumban Gaol, N. T. (2023). School Leadership in Indonesia: A Systematic Literature Review. *Educational Management Administration & Leadership*, 51(4), 831-848. <https://doi.org/10.1177/17411432211010811>
- Muchson, M., Cobern, W. W., & Saefi, M. (2024). The Science Education Research Trends (SERT) in Indonesian Secondary Schools: A Systematic Review and Bibliometrics Study. *Cogent Education*, 11(1).

- <https://doi.org/10.1080/2331186X.2024.2308407>
- Mustafa, F., Nguyen, H. T. M., & Gao, X. (Andy). (2024). The Challenges and Solutions of Technology Integration in Rural Schools: A Systematic Literature Review. *International Journal of Educational Research*, 126, 102380. <https://doi.org/10.1016/j.ijer.2024.102380>
- Quesada-Puga, C., Izquierdo-Espin, F. J., Membrive-Jiménez, M. J., Aguayo-Estremera, R., Cañadas-De La Fuente, G. A., Romero-Béjar, J. L., & Gómez-Urquiza, J. L. (2024). Job Satisfaction and Burnout Syndrome Among Intensive-Care Unit Nurses: A Systematic Review and Meta-Analysis. *Intensive and Critical Care Nursing*, 82, 103660. <https://doi.org/10.1016/j.iccn.2024.103660>
- Sánchez-Cabrero, R., Estrada-Chichón, J. L., Abad-Mancheño, A., & Mañoso-Pacheco, L. (2021). Models on Teaching Effectiveness in Current Scientific Literature. *Education Sciences*, 11(8), 409. <https://doi.org/10.3390/educsci11080409>
- Sianipar, A. (2025). The Role of Transformational Leadership in Improving School Performance a Systematic Literature Review (SLR). *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5086830>
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Monés, A. M., & Ioannou, A. (2023). Impacts of Digital Technologies on Education and Factors Influencing Schools' Digital Capacity and Transformation: A Literature Review. *Education and Information Technologies*, 28(6), 6695–6726. <https://doi.org/10.1007/s10639-022-11431-8>
- Wulaningrum, L. P., Muhimmah, H. A., & Hariyati, N. (2025). Principal Management and Its Impact on Teacher Performance in Elementary School Learning. *Journal of Innovation and Research in Primary Education*, 4(3), 630–639. <https://doi.org/10.56916/jirpe.v4i3.1409>
- Xin, X., Shu-Jiang, Y., Nan, P., ChenXu, D., & Dan, L. (2022). Review on A Big Data-Based Innovative Knowledge Teaching Evaluation System in Universities. *Journal of Innovation & Knowledge*, 7(3), 100197. <https://doi.org/10.1016/j.jik.2022.100197>
- Yakob, M., Sahudra, T. M., & Sukirno, S. (2025). Transformational Leadership of Principals: Driving Excellence in Education Quality. *AL-ISHLAH: Jurnal Pendidikan*, 17(1). <https://doi.org/10.35445/alishlah.v17i1.6887>
- Yang, Q.-F., Lin, C.-J., & Hwang, G.-J. (2021). Research Focuses and Findings of Flipping Mathematics Classes: A Review of Journal Publications Based on the Technology-Enhanced Learning Model. *Interactive Learning Environments*, 29(6), 905–938. <https://doi.org/10.1080/10494820.2019.1637351>
- Yayuk, E., & Haqqi, Y. A. (2024). Maximizing Teacher Competence and Performance: The Influential Factors Across Individuals, Organizations, Leadership, and Environment - A Comprehensive Systematic Review and Model. *AL-ISHLAH: Jurnal Pendidikan*, 16(1), 257–272. <https://doi.org/10.35445/alishlah.v16i1.4408>