

## **Transformational Leadership and Teacher Performance as Determining Factors of ICT-Based School Quality**

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**Abstract:** This study aims to examine the effects of transformational leadership and teacher performance on ICT-based school quality, with curriculum implementation serving as a mediating variable, in junior high schools in the Empat Petulai Dangku District. The study was motivated by the predominance of administrative leadership practices, inconsistent teacher performance, and the suboptimal implementation of ICT-based curricula, which have hindered efforts to improve school quality. A quantitative survey design was employed using proportional random sampling to select the research participants. Data were analysed using multiple linear regression and path analysis to examine both direct and indirect relationships among the variables. The findings indicate that transformational leadership and teacher performance significantly and positively influence curriculum implementation as well as ICT-based school quality. Furthermore, curriculum implementation was found to mediate the relationship between transformational leadership, teacher performance, and ICT-based school quality, indicating that effective curriculum implementation strengthens the contribution of leadership and teacher performance to school improvement. These findings suggest that visionary school leadership, professional teacher performance, and effective ICT integration are essential components for enhancing school quality in the digital era. The study provides empirical evidence supporting the integration of transformational leadership, teacher performance, and curriculum implementation as key strategies for improving ICT-based school quality.

**Keywords:** *Transformational, leadership, teacher performance, curriculum implementation, school quality*

### **A. Introduction**

Education is the main foundation in the development of high-quality and competitive human resources. The quality of education is not only determined by the curriculum and infrastructure but also by the quality of school leadership and teacher performance. In this context, transformational leadership becomes one of the relevant approaches. Assert that transformational leadership is capable of inspiring, motivating, and directing followers through a clear vision and commitment to shared goals. Transformational leadership has been empirically demonstrated to cultivate a school environment that nurtures instructional innovation, as principals who embody this leadership style consistently foster a positive school culture that directly strengthens teaching performance (Dikdik et al., 2025).

Principals with this leadership style act as change agents who encourage teachers to innovate, enhance their competencies, and adapt to the times. This is further reinforced by evidence that *transformational leadership* exerts a direct and positive effect on both teacher performance and *professional learning communities (PLCs)*, where principals who embody this style create collaborative structures that sustain collective teacher growth and instructional improvement (Rusnadi et al., 2026).

On the other hand, the performance of teachers is a determining factor in the success of curriculum implementation. Professional teachers not only conduct lessons according to standards but are also able to integrate technology into the teaching and learning process. (Bangquiao & Galigao, 2025) emphasise that teachers' competence in utilising ICT is crucial for the success of learning, while (Wulandari & Hidayat, 2025) add that the integration of ICT can train students' critical thinking skills as a primary demand of the 21st century (Nenosaban & Lestari, 2024).

Beyond technical proficiency in *ICT* utilization, sustained professional development underpinned by transformational leadership plays a pivotal role in enhancing teachers' *self-efficacy* and encouraging the adoption of innovative instructional strategies in digitally integrated classrooms (Unurni, 2025). From the perspective of *digital leadership*, principals who actively model and promote the use of technology within their institutions significantly strengthen teachers' inclination and capacity to integrate *ICT* into classroom practice, creating a mutually reinforcing cycle between leadership behaviour and instructional quality (Habibah et al., 2025).

In the perspective of the curriculum, (Ibrahim, 2024) emphasises that curriculum planning adaptive to local needs is an important factor in improving the quality of education. The implementation of a curriculum that is relevant to the times and based on ICT will strengthen the quality of schools (M. M. Msambwa & Daniel, 2024). Alongside curriculum adaptability, research confirms that *ICT* integration in secondary education yields measurable gains across multiple dimensions of learning quality, including improved curriculum coverage, more equitable distribution of educational resources, and greater personalisation of instruction to accommodate diverse learner profiles (Bengkulu et al., 2026).

Effective curriculum implementation requires not merely sound planning, but also school leaders who actively empower teachers to incorporate digital technologies into daily pedagogical practice. Empirical evidence confirms that transformational leadership by school principals significantly motivates teachers to engage with digital tools in cognitively demanding and educationally meaningful ways (Adhinugraha et al., 2024). Liu et al. (2025) also show that the integration of ICT in school administration enhances management efficiency and strengthens communication between teachers, students, and parents. Furthermore, a comprehensive *systematic review* of *EdTech* integration frameworks in schools affirms that the effectiveness of technology-based school management is substantially shaped by leadership policy and the systemic support extended by principals as primary institutional decision-makers (Alzoraiki et al., 2024).

Previous research supports the urgency of the roles of leadership and teacher performance. Nenosaban et al. (2024) found that the transformational leadership of school principals has an influence of 16.5% on the quality of education, while teacher performance has a greater influence, namely 29.3%. This finding is corroborated by a *systematic literature review* which reveals that *transformational leadership style* exerts a consistently positive influence on teacher work motivation and overall performance, given its capacity to generate an organisational climate conducive to holistic professional growth (Lin et al., 2022).

(Supandi, 2022) and (Efendi, 2023) also proved that transformational leadership and teacher performance simultaneously have a significant impact on the quality of education. Building on these findings, a *meta-analytic structural equation modelling* study further validates that all major forms of school leadership including transformational leadership exert both direct effects on teacher performance and indirect effects on student achievement, affirming that leadership efficacy is substantially mediated by the quality of teachers' instructional practices (Sosa-díaz et al., 2022).

Based on theoretical studies and empirical findings, the author argues that the success of secondary schools in optimising ICT does not only depend on the availability of infrastructure but primarily on the quality of the principal's leadership and the performance of the teachers. Visionary transformational leadership is capable of creating a work environment conducive to innovation, while professional teachers become the main driving force in the implementation of technology-based curricula. Therefore, the integration of leadership and teacher performance is a crucial factor that cannot be overlooked in the effort to improve school quality in the digital era.

In this regard, *digital leadership* competence among school principals has emerged as a critical determinant of institutional readiness for educational transformation, as principals with strong digital literacy are demonstrably more capable of embedding technology strategically across all levels of school management and instructional delivery (M. Msambwa et al., 2023). Accumulated empirical evidence further underscores that *ICT*-based school quality is fundamentally contingent upon the *digital pedagogical competence* of teachers, which in turn is shaped by the degree of institutional support and leadership engagement in professional capacity-building programs (Yu & Jang, 2024).

## **B. Method**

This research uses a quantitative approach with a survey method. This approach was chosen because it can objectively measure the relationship between variables and provide an empirical picture of the influence of transformational school principal leadership and teacher performance on the quality of ICT-based school through curriculum implementation.

The research population consists of all junior high schoolteachers in the Empat Petulai Dangku District. The sample was determined using the proportional random sampling technique, so that each school receives representation according to the number of teachers present. This technique was chosen to ensure data representation and reduce bias.

The main instrument is a closed questionnaire with a Likert scale, which is structured based on variable indicators:

1. Transformational leadership (idealised influence, inspirational motivation, intellectual stimulation, individualised consideration).
2. Teacher performance (pedagogical competence, discipline, learning innovation).
3. Curriculum implementation (planning, execution, ICT-based evaluation).
4. ICT-based school quality (digital learning, technology-based administration, school management).

The instrument was tested for content validity (expert judgement) and empirical validity using item-total correlation analysis. Reliability was tested with the Cronbach Alpha coefficient. Data is collected through the distribution of questionnaires to respondents, supplemented with school documentation related to the use of ICT.

Data were analysed using:

1. Descriptive statistics to describe the profile of research variables.
2. Classical assumption tests (normality, linearity, multicollinearity, heteroscedasticity) to ensure model feasibility.
3. Multiple linear regression to test the direct influence of transformational leadership and teacher performance on curriculum implementation and the quality of ICT-based schools.
4. Path analysis to test the indirect influence through the mediation variable of curriculum implementation.

The hypothesis is accepted if the significance value ( $p$ -value)  $< 0.05$ , with a confidence level of 95%. The coefficient of determination ( $R^2$ ) is used to see the contribution of the independent variable to the dependent variable.

### **C. Result and Discussion**

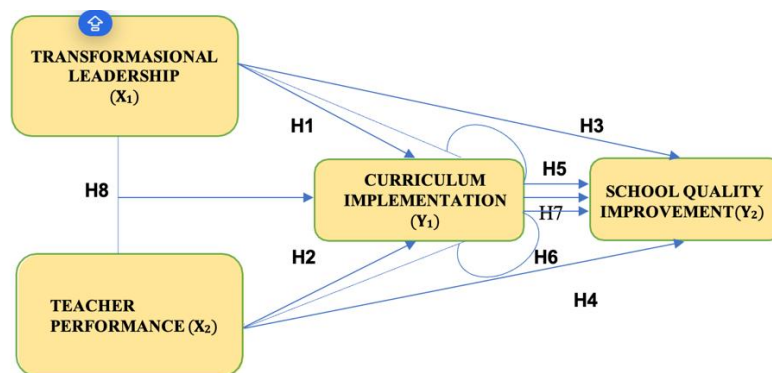
The Conceptual framework developed in this study. The framework proposes that transformational leadership ( $X_1$ ) and teacher performance ( $X_2$ ) are the primary independent variables influencing ICT-based school quality improvement ( $Y_2$ ), both directly and indirectly through curriculum implementation ( $Y_1$ ) as a mediating variable. Transformational leadership is expected to encourage teachers to implement the curriculum more effectively by providing a clear vision, intellectual stimulation, individualized support, and inspirational motivation. Therefore, it is hypothesized that transformational leadership has a positive effect on curriculum implementation (H1). Likewise, teacher performance, reflected in pedagogical competence, professional commitment, discipline, and innovation in teaching, is expected to contribute positively to curriculum implementation (H2).

Furthermore, transformational leadership is assumed to have a direct influence on school quality improvement (H3), as effective school leaders can create an organizational climate that supports educational innovation and the integration of information and communication technology (ICT). Teacher performance is also hypothesized to directly improve school quality (H4), since competent teachers are essential for delivering effective learning and achieving educational objectives. Aligned with this, a comprehensive review of

*EdTech* integration frameworks demonstrates that the sustained realisation of educational technology's potential is fundamentally dependent on strategic planning at the institutional level, where school leadership plays a decisive role in establishing norms, allocating resources, and building the capacity necessary for effective *ICT* use (Schmitz et al., 2023).

Curriculum implementation is proposed to have a direct positive effect on school quality improvement (H5). Effective curriculum implementation enables schools to optimize *ICT* utilization, improve learning quality, and achieve better educational outcomes. In addition to these direct relationships, this study proposes that curriculum implementation mediates the influence of transformational leadership on school quality improvement (H6) and the influence of teacher performance on school quality improvement (H7). This mediation suggests that the effectiveness of leadership and teacher performance in enhancing school quality depends partly on how successfully the curriculum is implemented.

Finally, the framework assumes a positive relationship between transformational leadership and teacher performance (H8). School principals who practice transformational leadership are expected to foster higher teacher motivation, professionalism, and work performance, thereby strengthening the overall quality improvement process. Overall, the conceptual framework reflects the assumption that improving *ICT*-based school quality requires the integration of visionary leadership, high teacher performance, and effective curriculum implementation. This assumed relationship gains further empirical grounding from a *systematic literature review* confirming that *transformational leadership style* and teacher work motivation are consistently and significantly correlated, and that the quality of leadership vision directly shapes the professional orientation teachers adopt toward their instructional responsibilities (Roesminingsih & Windasari, 2025).



**Figure 1 Theoretical Framework**

The path analysis model illustrating the direct relationships among transformational school leadership, teacher performance, curriculum implementation, and *ICT*-based school quality. This finding indicates that principals who demonstrate transformational leadership are more likely to encourage effective curriculum implementation by providing a clear vision, motivating teachers, and promoting innovation in teaching and learning. This pattern is consistent with quantitative findings from Indonesian secondary schools showing that transformational leadership significantly influences both *PLCs* and individual teacher performance, with *PLCs* serving as a partial mediator that amplifies the productive effects of leadership on classroom practice (Bentri & Hidayati, 2022).

This suggests that teachers with strong pedagogical competence, professional commitment, and the ability to integrate ICT into classroom practices contribute substantially to the successful implementation of the curriculum. Overall, the path analysis confirms that transformational leadership and teacher performance contribute both directly and indirectly to ICT-based school quality through curriculum implementation. This dual pathway both direct and curriculum-mediated mirrors findings from studies employing *Structural Equation Modelling (SEM)* which confirm that school principals who practise transformational leadership simultaneously drive curriculum commitment among teachers and elevate the broader institutional quality of *ICT-based educational delivery* (Alajmi, 2022).

Therefore, curriculum implementation functions as a mediating variable that strengthens the influence of leadership and teacher performance on school quality improvement. This mediation finding aligns with empirical evidence indicating that school culture, as cultivated through transformational leadership, serves as a critical bridging mechanism that amplifies the influence of leadership on teacher performance, whereby both *school culture* and curriculum implementation function as essential mediating variables within the broader chain of educational quality improvement (Karakose, 2024).

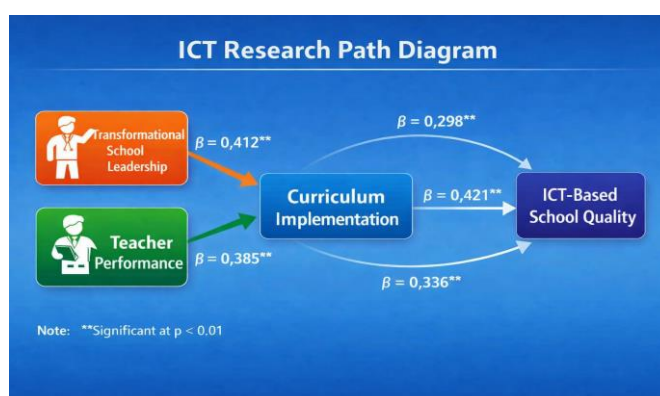


Figure 2 Research Path Diagram

This research shows that transformational leadership of school principals has a significant impact on curriculum implementation, where visionary principals are able to motivate teachers to implement the curriculum with high commitment. Similarly, teacher performance has proven to be a key factor in the successful implementation of the curriculum, as professional teachers are more consistent in planning, executing, and evaluating learning. The centrality of teacher competence in curriculum execution is echoed by research demonstrating that teachers' *digital pedagogical competence* encompassing the ability to design, deliver, and evaluate technology-enriched lessons is shaped not only by individual capacity but also by the degree of institutional support and leadership engagement embedded within the school environment (Enita & Wening, 2024).

Transformational leadership also plays an important role in driving innovation and technology adaptation, there by directly contributing to the improvement of ICT-based school quality. Complementing this, a *narrative literature review on digital leadership* in educational management underscores that principals who adopt a strategic and visionary

approach to technology governance consistently achieve higher levels of teacher engagement with *ICT*, contributing to a more innovative and effective learning organisation (Akhmad, 2025).

On the other hand, the quality of ICT-based schools is greatly determined by the quality of teachers' performance in integrating technology into learning. Path analysis results show that the influence of transformational leadership and teacher performance on school quality is not only direct but also mediated by the successful implementation of the curriculum. This mediated relationship is empirically grounded by evidence that the capacity of teachers to translate leadership directives into effective curriculum delivery depends on their level of professional development, *self-efficacy*, and the collaborative learning culture fostered by the principal all of which are systematically nurtured through transformational leadership. Thus, the quality of ICT-based schools is an outcome of the synergy between the principal's leadership and the teachers' performance, which together drive the effective implementation of the curriculum.

**Table 1. Summary of Regression Analysis Results**

<b>Independent Variable</b>	<b>Dependent Variable</b>	<b>Regression Coefficient</b>	<b>Sig. (p-Value)</b>	<b>Information</b>
Transformasional Leadership	Curriculum Implementation	0,412	0,000	Significant
Teacher Performance	Curriculum Implementation	0,385	0,000	Significant
Transformasional Leadership	School Quality Improvement	0,298	0,001	Significant
Teacher Performance	School Quality Improvement	0,336	0,000	Significant
Curriculum Implementation	School Quality Improvement	0,421	0,000	Significant (Mediation)

From the table, all independent variables have a significant positive effect. The implementation of the curriculum has proven to be a mediating variable that strengthens the influence of leadership and teacher performance on the quality of ICT-based schools.

The results of this study reinforce the theory that transformational leadership is capable of inspiring and motivating subordinates to innovate. Visionary school principals not only function as administrators but also as change agents who encourage teachers to enhance their competencies. The performance of teachers has proven to be a determining factor in the implementation of the curriculum. This is in line with (Bangquiao & Galigao, 2025) who emphasise that teachers' competence in utilising *ICT* is crucial for the success of learning. The mastery of *digital pedagogical competence* among teachers not only elevates classroom learning quality but also determines the institutional capacity of schools to respond

adaptively and sustainably to the transformative demands of 21st-century education (M. M. Msambwa & Daniel, 2024).

The implementation of the curriculum acts as a mediating variable, supporting (Sianipar, 2024) view that a technology-based adaptive curriculum can enhance the quality of education. Thus, the integration of transformational leadership, teacher performance, and ICT-based curriculum becomes the main foundation in improving the quality of secondary schools in the digital era (Liu et al., 2025). The quality of schools cannot be improved merely by providing ICT facilities, but must be supported by visionary school leadership and professional teacher performance. The optimisation of ICT will be achieved if the curriculum is implemented in a relevant, innovative manner, and orientated towards the needs of the 21st century.

#### **D. Conclusion**

This research proves that transformational leadership of school principals has a significant impact on curriculum implementation. A visionary principal is able to inspire and motivate teachers to implement the curriculum with high commitment, thereby making the planning, execution, and evaluation of learning processes more effective. This emphasises that visionary and change-oriented leadership is an important foundation in the development of ICT-based curricula. Additionally, teacher performance has proven to be a key factor in improving the quality of ICT-based schools. Professional, disciplined, and innovative teachers are able to integrate technology into learning according to established standards. The quality of ICT-based schools does not only depend on the principal's policies but also on the quality of teachers' performance in utilising technology to support the teaching and learning process.

Overall, the research results indicate that the quality of ICT-based schools is an outcome of the synergy between the transformational leadership of the principal and the performance of teachers, both directly and through the implementation of the curriculum as a mediating variable. Thus, the integration of visionary leadership, professional teacher performance, and an adaptive technology-based curriculum becomes a determining factor for the success of secondary schools in facing educational challenges in the digital era.

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