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Transformational Leadership and Teacher Innovation Culture in Primary Schools: Evidence from Klang District, Malaysia

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ABSTRACT: The increasing demand for educational transformation under the Fourth Industrial Revolution has intensified the role of school leadership in fostering sustainable teacher innovation. In primary education, transformational leadership is widely recognized as a key driver of innovation culture; however, empirical evidence on the effects of its distinct dimensions remains limited, particularly within the Malaysian context. This study examines the relationship between transformational leadership and teacher innovation culture in primary schools in Klang District, Malaysia. Data were collected from 302 primary school teachers using validated measures of transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) and teacher innovation culture. Data were analyzed using SPSS. The findings indicate that both transformational leadership and teacher innovation culture are at a high level. Significant positive relationships were found between all dimensions of transformational leadership and teacher innovation culture. The results further show that all four leadership dimensions significantly predict teacher innovation culture, with inspirational motivation emerging as the strongest predictor. These findings provide empirical evidence that transformational leadership is a critical determinant of teacher innovation culture in primary schools. The study extends existing leadership literature by offering dimension-specific insights and highlights the importance of strengthening inspirational and motivational leadership practices to sustain innovation in school settings.

KEYWORDS: Transformational leadership; teacher innovation culture; primary education; school leadership; Malaysia

1. INTRODUCTION

The ongoing transformation of education systems under the influence of the Fourth Industrial Revolution (IR 4.0) has reshaped expectations regarding school effectiveness, particularly in relation to innovation, adaptability, and instructional improvement. Contemporary education is increasingly oriented toward developing twenty-first-century competencies such as critical thinking, collaboration, creativity, and digital literacy (OECD, 2020; UNESCO, 2021). Within this evolving landscape, schools are required not only to adopt new technologies but also to develop sustainable innovation cultures that support continuous improvement in teaching and learning practices. As a result, school leadership has become a central mechanism in driving organizational change and fostering innovation-oriented school environments.

In this context, transformational leadership has been widely recognized as a key leadership approach that enables school improvement and innovation. Transformational leadership is conceptualized through four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 1994). These dimensions collectively enable leaders to serve as role models, articulate a clear vision, stimulate intellectual engagement, and provide personalized support to teachers. Such leadership behaviors are essential in shaping teachers' attitudes, professional engagement, and willingness to adopt innovative pedagogical practices, thereby contributing to the development of a strong innovation culture within schools (Aas & Blom, 2021; Yee et al., 2022).

In Malaysia, the Ministry of Education has emphasized the importance of educational transformation through the Malaysia Education Blueprint 2013–2025, which prioritizes quality teaching, ICT integration, and school-based innovation (KPM, 2013; Yaakob et al., 2022). This policy direction requires school leaders to play a proactive role in fostering innovation among teachers through strategic leadership practices. However, empirical studies indicate that the implementation of transformational leadership among school leaders remains inconsistent, with some

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headmasters still relying on traditional administrative approaches rather than innovation-driven leadership practices (Tan & Hew, 2022; Gopalakrishnan et al., 2021). This inconsistency limits the extent to which schools are able to develop a coherent and sustained culture of innovation.

Teacher innovation culture refers to the shared values, norms, and practices that encourage teachers to engage in creative, reflective, and improvement-oriented teaching behaviors. It involves experimentation with pedagogical approaches, collaboration among teachers, and continuous professional learning to enhance instructional quality (Díaz-Gibson et al., 2019). Prior research has shown that transformational leadership is positively associated with teacher motivation, professional commitment, and willingness to adopt innovative practices (Ahmad et al., 2023; Yee et al., 2022). However, innovation practices among teachers are often uneven and dependent on the level of leadership support and organizational conditions within schools.

Despite growing interest in educational leadership and innovation, there remains a limited understanding of how specific dimensions of transformational leadership influence teacher innovation culture in Malaysian primary schools, particularly at the district level such as Klang. Existing studies tend to examine leadership in general terms or focus on technology adoption rather than isolating the effects of individual transformational leadership dimensions on innovation culture development. This creates a clear empirical gap in explaining how different leadership behaviors contribute to fostering sustained innovation among teachers. Therefore, this study aims to examine the influence of transformational leadership dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, on teacher innovation culture in primary schools in Klang District. By addressing this gap, the study contributes to the literature on educational leadership and organizational innovation and provides empirical evidence that can inform leadership development programs and policy initiatives aimed at strengthening innovation-oriented school environments in Malaysian primary education.

2. THEORETICAL FOUNDATION AND CONCEPTUAL FRAMEWORK

2.1 Transformational Leadership

Transformational Leadership Theory, initially introduced by Burns (1978) and further developed by Bass and Avolio (1994), emphasizes leadership processes that inspire meaningful organizational change through shared vision, intellectual stimulation, and motivational influence. Unlike traditional leadership approaches that focus primarily on supervision and administrative control, transformational leadership seeks to enhance followers' motivation, commitment, and professional development in achieving collective organizational goals (Piaralal et al., 2026; Ramalingam et al., 2021). Within educational settings, transformational leadership has become increasingly relevant due to rapid technological advancement, digital transformation, and the growing expectation for schools to cultivate innovation-oriented learning environments. The theory comprises four key dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. These dimensions enable school leaders to act as role models, motivate teachers toward shared educational goals, encourage creative problem-solving, and provide individualized professional support (Aas & Blom, 2021; Bass & Avolio, 1994). Consequently, transformational leadership is widely regarded as an effective leadership framework for strengthening school effectiveness and promoting sustainable educational innovation.

Previous studies have consistently demonstrated the positive influence of transformational leadership on school culture, teacher performance, and innovation practices. Leithwood and Jantzi (2006) found that transformational leadership among school principals significantly improved teacher motivation, student achievement, and the development of innovation-supportive school environments in Canada. In the Malaysian context, Hassan et al. (2021) found that intellectual stimulation and idealized influence were positively associated with teachers' commitment toward curriculum reform and digital teaching practices. Furthermore, Wahab et al. (2021) and Zawawi et al. (2023) emphasized that transformational headmasters play a significant role in supporting teachers' professional growth, integrating technology into school management, and encouraging innovative instructional practices. Collectively, these findings suggest that transformational leadership serves as an important mechanism for cultivating innovation-oriented school cultures and supporting continuous professional learning among teachers.

2.2 Innovation Culture

Innovation culture among teachers refers to the development of shared values, attitudes, and professional practices that encourage creativity, experimentation, and continuous improvement in teaching and learning processes. In the context of twenty-first-century education, innovation is increasingly regarded as a necessity rather than an option, particularly as schools are expected to respond effectively to technological advancement and evolving student learning needs. Teacher innovation may be reflected through the adoption of new pedagogical approaches, meaningful integration of digital technologies, collaborative instructional practices, and the continuous refinement of teaching strategies. According to Fullan (2021), innovation culture does not emerge automatically but requires supportive organizational environments that encourage experimentation, collaboration, and reflective practice. Similarly, Schleicher (2020) argued that teachers are more likely to innovate when schools provide professional autonomy, structured support systems, and opportunities for collaborative learning through professional learning communities (PLCs). Therefore, leadership support and organizational climate are fundamental factors in sustaining innovation practices within schools.

Existing studies have identified several organizational and individual factors that contribute to the cultivation of teacher innovation culture. In Malaysia, Salleh et al. (2024) observed that teachers were more willing to implement innovative teaching approaches when they received technical and motivational support from headmasters and colleagues. Additionally, Yee et al. (2022) found that active participation in PLCs strengthened idea sharing, peer collaboration, and teachers' innovative capacities. However, Rahim and Abdul Razak (2023) argued that innovation initiatives often remain unsustainable without systematic organizational support and clear leadership direction. These findings indicate that the cultivation of innovation culture requires not only technological resources and professional development opportunities, but also leadership practices that encourage collaboration, tolerate experimentation, and recognize innovative contributions among teachers.

2.3 Hypotheses Development and Conceptual Framework

Transformational leadership has been widely associated with positive organizational outcomes, particularly in fostering innovation, collaboration, and continuous professional development within educational institutions. In school settings, leadership behaviors that inspire, motivate, and

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intellectually support teachers are essential in creating environments that encourage experimentation and innovative teaching practices (Leithwood & Jantzi, 2006; Sun et al., 2017). Previous studies have demonstrated that teachers are more likely to engage in innovative instructional approaches when school leaders provide clear vision, professional encouragement, and supportive organizational cultures (Hassan et al., 2021; Zawawi et al., 2023). Accordingly, transformational leadership is considered an important factor in strengthening teacher innovation culture within primary schools.

The four dimensions of transformational leadership are expected to influence teacher innovation culture in different ways. Idealized influence enables headmasters to serve as credible role models who encourage teachers to adopt positive and innovative professional behaviors. Inspirational motivation strengthens teachers' commitment toward shared educational goals and encourages continuous improvement. Intellectual stimulation promotes critical thinking, problem-solving, and openness toward new teaching approaches, while individualized consideration provides teachers with professional support, guidance, and confidence to experiment with innovative instructional strategies (Bass & Avolio, 1994; Aas & Blom, 2021). Empirical evidence further suggests that these leadership behaviors positively influence teachers' motivation, self-efficacy, adaptability, and willingness to implement innovation in teaching and learning processes (Yee et al., 2022).

Grounded in Transformational Leadership Theory, this study proposes that the dimensions of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration positively influence teacher innovation culture in primary schools. Accordingly, the following hypotheses are proposed:

H1: Idealized influence positively influences teacher innovation culture in primary schools.
H2: Inspirational motivation positively influences teacher innovation culture in primary schools.
H3: Intellectual stimulation positively influences teacher innovation culture in primary schools.
H4: Individualized consideration positively influences teacher innovation culture in primary schools.

The conceptual framework of this study proposes that the four dimensions of transformational leadership function as independent variables influencing teacher innovation culture as the dependent variable. Based on this theoretical integration, the proposed conceptual framework is presented in Figure 1.

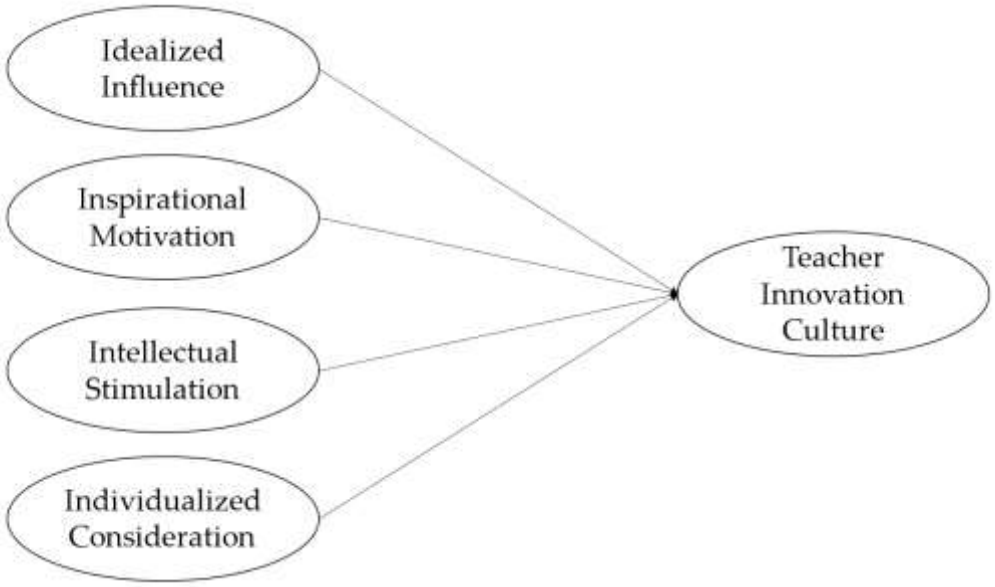


Fig. 1 Conceptual Framework.

3. METHODOLOGY

3.1 Sampling Design and Data Collection Method

This study adopted a quantitative research design using a cross-sectional survey approach to examine the relationship between Transformational Leadership and teacher innovation culture in primary schools in Klang District, Selangor. A quantitative approach was considered appropriate as it enables objective measurement of variables and the application of statistical techniques to test hypothesized relationships, allowing generalization to a broader population (Creswell & Creswell, 2020). Specifically, a correlational research design was employed to determine the extent to which the four dimensions of Transformational Leadership (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) are associated with teacher innovation culture. A cross-sectional design was selected as it allows data to be collected at a single point in time, providing an efficient snapshot of relationships among variables in real educational settings.

The target population comprised primary school teachers from national primary schools (SK), Chinese national-type primary schools (SJKC), and Tamil national-type primary schools (SJKT) in Klang District. Given the heterogeneity of the population in terms of school type, gender, and teaching experience, stratified random sampling was applied to ensure proportional representation across key subgroups (Etikan et al., 2016). The sampling frame was obtained from official records provided by the Klang District Education Office (PPD Klang), ensuring accurate population coverage. Based on Krejcie and Morgan's (1970) sampling table, a minimum sample size of 323 respondents was required for a population of approximately 2,000 teachers. However, the sample size was increased to 350 respondents to enhance statistical power and reduce potential non-response bias.

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Data were collected using a structured self-administered questionnaire distributed via Google Forms over a four-week period. Prior to the main study, a pilot test involving 30 teachers was conducted to assess clarity and internal consistency. The pilot study results indicated that all constructs achieved Cronbach's alpha values above the acceptable threshold of 0.70, with Transformational Leadership ($\alpha = 0.89$) and Teacher Innovation Culture ($\alpha = 0.86$), indicating high reliability. Ethical procedures were strictly followed, including informed consent, voluntary participation, anonymity, and confidentiality. Incomplete or invalid responses were removed before the final dataset was used for analysis.

3.2 Measurement Instruments

This study utilized a structured questionnaire as the primary research instrument to examine the relationship between Transformational Leadership and teacher innovation culture in primary schools in Klang District. The instrument was developed through adaptation of established measurement scales derived from prior validated studies and grounded in Transformational Leadership Theory by Bass and Avolio (1994). A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed, as it is widely used in educational research due to its efficiency in capturing perceptual data and suitability for statistical analysis (Creswell & Creswell, 2020). The instrument was refined to ensure contextual relevance to Malaysian primary school settings while maintaining theoretical consistency and construct validity.

The questionnaire comprised two main constructs: Transformational Leadership and teacher innovation culture. Transformational Leadership was measured using 8 items, representing four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, adapted from Bass and Avolio (1994), Leithwood et al. (2020), Anderson and Dexter (2020), and Mohd Yusof and Yunus (2021). Teacher innovation culture was measured using 7 items, focusing on innovative teaching practices, digital integration, collaborative professional learning, and instructional improvement, adapted from Hashim and Mohamad (2021) and Yusof et al. (2020). Content validity was ensured through systematic adaptation from established instruments, and reliability was confirmed through pilot testing prior to the main study.

3.3 Data Analysis

Data collected from the completed questionnaires were analyzed using Statistical Package for the Social Sciences (SPSS) version 26. Prior to analysis, data screening procedures were conducted to ensure accuracy, completeness, and consistency of responses. This included checking for missing values, identifying outliers, and removing invalid questionnaires. Only valid responses were retained for subsequent analysis.

The analysis began with descriptive statistics, specifically mean and standard deviation, to describe the overall level of Transformational Leadership and teacher innovation culture. Prior to inferential analysis, assumptions of normality, linearity, and multicollinearity were assessed to ensure the suitability of parametric tests. Pearson correlation analysis was then conducted to determine the strength and direction of the relationship between Transformational Leadership dimensions and teacher innovation culture.

In addition, multiple regression analysis was performed to examine the predictive effect of Transformational Leadership dimensions (idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration) on teacher innovation culture. This analysis also determined the relative contribution of each dimension in explaining variance in the dependent variable. The significance level was set at $p < 0.05$. These statistical techniques collectively enabled a comprehensive examination of both associative and predictive relationships within the study framework.

4. RESULTS

The demographic profile of the 302 respondents shows that the sample is predominantly female (75.2%), reflecting the typical gender distribution in Malaysian primary schools. In terms of age, most respondents are in the 31–40 years category (42.7%), followed by 41–50 years (30.5%), indicating a largely mid-career teaching cohort with substantial professional experience. Consistently, teaching experience is skewed towards senior teachers, with the largest proportion having more than 15 years of service (39.7%). Respondents are also distributed across various teaching subjects, with language teachers forming the largest group (25.2%), and are mainly drawn from SK (65.2%), followed by SJKC (21.5%) and SJKT (13.2%). Overall, this composition indicates a sufficiently diverse yet experience-rich sample, providing a robust basis for examining Transformational Leadership and teacher innovation culture within primary schools in Klang District.

Table 1 Demographic Profile of Respondents (n = 302)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	75	24.8
	Female	227	75.2
Age	21–30 years	53	17.5
	31–40 years	129	42.7
	41–50 years	92	30.5
	51 years and above	28	9.3
Teaching Experience	< 5 years	42	13.9
	5–10 years	54	17.9
	11–15 years	86	28.5
	> 15 years	120	39.7
Teaching Option	Language	76	25.2
	Science/Social Science	60	19.9
	Mathematics	56	18.5
	Islamic Education/Moral	47	15.6

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	Others	63	20.9
School Type	SK	197	65.2
	SJKC	65	21.5
	SJKT	40	13.2
Total		**302**	**100.0**

4.1 Descriptive Analysis

The descriptive analysis shows that both Transformational Leadership and Teacher Innovation Culture are rated at a high level among respondents, with mean scores of 4.19 (SD = 0.56) and 4.21 (SD = 0.59), respectively (Table 2). The relatively low standard deviations indicate strong agreement among teachers, suggesting consistent perceptions of leadership effectiveness and innovation practices across the sample. Transformational Leadership is characterised by high ratings in vision, motivation, intellectual stimulation, and individualized consideration, while Teacher Innovation Culture reflects active engagement in digital integration, pedagogical experimentation, and collaborative professional learning. The marginal difference in mean scores indicates a closely aligned relationship between perceived leadership practices and innovation behaviours, with no substantial gap between the two constructs. Overall, the findings suggest a coherent and mutually reinforcing relationship between Transformational Leadership and Teacher Innovation Culture, providing preliminary empirical support for leadership as a key driver of innovation-oriented school environments.

Table 2 Descriptive Statistics for Transformational Leadership and Teacher Innovation Culture (n = 302)

Construct	Number of Items	Mean	SD	Interpretation
Transformational Leadership	8	4.19	0.56	High
Teacher Innovation Culture	7	4.21	0.59	High

4.2 Pearson Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships between the four dimensions of transformational leadership and teacher innovation culture among primary school teachers in Klang District. As presented in Table 3, all transformational leadership dimensions demonstrated significant positive correlations with teacher innovation culture at the 0.01 significance level. Inspirational motivation recorded the strongest relationship with teacher innovation culture ($r = 0.501$, $p < 0.001$), followed by individualized consideration ($r = 0.437$, $p < 0.001$), idealized influence ($r = 0.420$, $p < 0.001$), and intellectual stimulation ($r = 0.385$, $p < 0.001$). These findings indicate that higher levels of transformational leadership practices among headmasters are associated with stronger innovation culture among teachers. The results further suggest that motivational and supportive leadership behaviors play an important role in encouraging innovative teaching practices and professional engagement within primary school settings.

Table 3 Pearson Correlation between Transformational Leadership Dimensions and Teacher Innovation Culture (N = 302)

Variables	r	p-value	Interpretation
Idealized Influence and Teacher Innovation Culture	0.420	< 0.001	Moderate positive relationship
Inspirational Motivation and Teacher Innovation Culture	0.501	< 0.001	Moderate positive relationship
Intellectual Stimulation and Teacher Innovation Culture	0.385	< 0.001	Moderate positive relationship
Individualized Consideration and Teacher Innovation Culture	0.437	< 0.001	Moderate positive relationship

Note. Correlations are significant at $p < 0.01$.

4.3 Regression Analysis

Multiple regression analysis was conducted to examine the extent to which the four dimensions of transformational leadership predict teacher innovation culture among primary school teachers in Klang District. The regression model was statistically significant, $F(4, 297) = 45.71$, $p < 0.001$, indicating that transformational leadership dimensions collectively contribute to the prediction of teacher innovation culture. The model produced an R value of .617, suggesting a moderately strong relationship between the independent variables and the dependent variable. Furthermore, the coefficient of determination ($R^2 = 0.389$) indicates that 38.9% of the variance in teacher innovation culture can be explained by idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. The adjusted R^2 value of 0.374 demonstrates that the regression model possesses satisfactory explanatory power and model stability within the context of primary school education.

The regression coefficients shown in Table 4 indicate that all four dimensions of transformational leadership significantly influenced teacher innovation culture. Inspirational motivation emerged as the strongest predictor ($\beta = 0.243$, $t = 4.587$, $p < 0.001$), followed by idealized influence ($\beta = 0.214$, $t = 4.057$, $p < 0.001$), intellectual stimulation ($\beta = 0.162$, $t = 2.973$, $p = 0.003$), and individualized consideration ($\beta = 0.113$, $t = 2.191$, $p = 0.029$). These findings suggest that headmasters who inspire, motivate, and intellectually stimulate teachers are more likely to

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cultivate stronger innovation practices within schools. The results further demonstrate that transformational leadership plays a significant role in promoting innovative teaching behaviors and continuous professional development among teachers in the digital education context. Overall, all proposed hypotheses were supported.

Table 4 Regression Coefficients and Hypothesis Testing (N = 302)

	Structural Path	β	t	p	Result
H1	Idealized Influence → Innovation Culture	0.214	4.057	<0.001	Supported
H2	Inspirational Motivation → Innovation Culture	0.243	4.587	<0.001	Supported
H3	Intellectual Stimulation → Innovation Culture	0.162	2.973	0.003	Supported
H4	Individualized Consideration → Innovation Culture	0.113	2.191	0.029	Supported

Note. **β = standardized regression coefficient; all predictors were statistically significant at p < 0.05.**

5. DISCUSSION

The findings of this study demonstrate that transformational leadership significantly influences teacher innovation culture in primary schools in Klang District. All four dimensions of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, were found to have positive and significant relationships with teacher innovation culture. The regression model explained 38.9% of the variance in teacher innovation culture, indicating that transformational leadership constitutes an important organizational factor in shaping teachers' innovative behaviors and technology-integrated instructional practices. These findings support the foundational assumptions of Transformational Leadership Theory proposed by Bass and Avolio (1994), which suggest that transformational leaders influence followers by inspiring shared goals, encouraging professional growth, and facilitating organizational change. The findings also align with previous educational leadership studies demonstrating that transformational leadership positively contributes to teachers' professional commitment, instructional improvement, and readiness for innovation (Leithwood et al., 2020; Mohd Yusof & Yunus, 2021). In the context of Malaysian primary schools, the findings suggest that innovation culture is shaped not only by technological resources but also by leadership practices that foster supportive and motivating educational environments.

Among the four leadership dimensions, inspirational motivation emerged as the strongest predictor of teacher innovation culture. This finding indicates that teachers are more likely to adopt innovative teaching approaches when headmasters communicate a clear educational vision, provide encouragement, and foster collective commitment toward school improvement and digital transformation. One possible explanation is that Malaysian schools operate within relatively hierarchical organizational structures, where teachers often depend on leadership direction and motivational support when implementing new pedagogical initiatives. Consequently, visionary and inspirational leadership behaviors may exert stronger influence on innovation culture than purely managerial or technical leadership approaches. This finding is consistent with the work of Fullan (2021), who argued that sustainable educational reform depends heavily on leaders' ability to build shared purpose and collaborative commitment among teachers. Similarly, Hargreaves and Fullan (2021) emphasized that collaborative professional learning environments encourage continuous instructional innovation and organizational learning. The high descriptive scores for teachers' willingness to experiment with new pedagogical methods, participate in professional learning communities, and integrate technology into classroom instruction further reinforce the importance of motivational leadership in strengthening innovation culture within schools.

The findings additionally revealed that idealized influence and intellectual stimulation significantly contributed to teacher innovation culture. The significant effect of idealized influence suggests that headmasters who demonstrate ethical leadership, professional credibility, and commitment toward technology integration are more likely to influence teachers to emulate similar innovative behaviors. This finding supports earlier studies showing that school leaders who act as role models positively shape teachers' attitudes toward change and professional learning (Anderson & Dexter, 2020; Leithwood et al., 2020). Meanwhile, the positive effect of intellectual stimulation indicates that teachers become more innovative when encouraged to think critically, explore alternative teaching approaches, and challenge conventional instructional practices. This finding reflects the growing importance of adaptive and reflective teaching practices within digitally evolving educational environments. In addition, the result supports the latest study done by Amin et al. (2025), which found that top management commitment in an educational environment involves creating organizational conditions that promote collaboration, experimentation, and continuous professional inquiry. The findings therefore suggest that innovation culture is strengthened when school leaders encourage both cognitive engagement and pedagogical creativity among teachers.

Although individualized consideration recorded the weakest regression effect among the four dimensions, the construct remained statistically significant in predicting teacher innovation culture. This suggests that personalized support, professional recognition, and attention toward teachers' individual developmental needs still play meaningful roles in encouraging innovative practices within schools. One possible explanation is that collective motivational processes and shared organizational vision may exert stronger influence on innovation culture than individualized support within public primary school settings. Nevertheless, teachers who perceive higher levels of emotional and professional support from their headmasters may feel more confident in experimenting with new instructional strategies and participating in innovation-related activities. These findings are consistent with prior research emphasizing that teacher empowerment and supportive leadership environments contribute positively to instructional innovation and organizational commitment (Hashim & Mohamad, 2021; Hargreaves & Fullan, 2012). Overall,

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the findings extend transformational leadership theory by demonstrating that transformational leadership remains highly relevant within digital education contexts, particularly in fostering sustainable innovation culture among teachers. Therefore, leadership development programs for school administrators should place greater emphasis on transformational leadership competencies, including motivational communication, collaborative vision-building, teacher empowerment, and support for innovative pedagogical practices, to strengthen long-term educational transformation in Malaysian schools.

5.1 Theoretical and Practical Implications

This study contributes to the literature on Transformational Leadership by providing empirical evidence on the influence of transformational leadership dimensions on teacher innovation culture within Malaysian primary schools. The findings demonstrate that all four dimensions of transformational leadership significantly influence teacher innovation culture, with inspirational motivation emerging as the strongest predictor. This finding reinforces the central proposition of transformational leadership theory that leaders who communicate a compelling vision and inspire organizational members are more effective in encouraging behavioral change and innovative practices (Bass & Avolio, 1994). The study further extends the application of transformational leadership theory into contemporary educational settings characterized by increasing digitalization and pedagogical transformation. By focusing on the Malaysian primary school context, this study also contributes contextual evidence to the limited empirical literature on leadership and innovation culture in developing educational environments.

Practically, the findings highlight the importance of transformational leadership practices in strengthening innovation culture among teachers. School leaders who provide encouragement, intellectual stimulation, professional support, and clear strategic direction are more likely to cultivate innovative teaching behaviors and greater openness toward pedagogical change. The dominance of inspirational motivation suggests that teachers are more willing to adopt innovative practices when school leaders actively communicate shared goals and foster a supportive school climate. Therefore, school administrators should strengthen collaborative professional learning communities (PLCs), encourage experimentation with digital pedagogies, and provide continuous professional development opportunities related to educational innovation. At the policy level, the Ministry of Education Malaysia may consider integrating transformational leadership competencies into leadership training programs for school administrators, particularly in areas related to teacher empowerment, innovation management, and digital educational practices. Such initiatives may strengthen schools' readiness for ongoing educational transformation and enhance the sustainability of innovation-oriented teaching practices.

5.2 Limitations and Future Research

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. The study adopted a cross-sectional design and focused only on primary school teachers in Klang District, which may limit the generalizability of the findings across different educational settings in Malaysia. In addition, the use of self-reported questionnaire data may introduce response bias, as the findings were based on teachers' perceptions rather than direct observation of leadership practices and innovative behaviors. Although the study confirmed the significant influence of transformational leadership dimensions on teacher innovation culture, it did not examine other contextual factors such as organizational climate, digital readiness, or school support systems that may further strengthen or weaken these relationships. Future studies are therefore encouraged to employ mixed-method or longitudinal research designs to provide deeper understanding of how Transformational Leadership influences innovation culture over time. Expanding the research across different states, school categories, and rural–urban contexts would also improve external validity and contextual comparison. Furthermore, future research may investigate mediating or moderating variables and explore the impact of teacher innovation culture on student learning outcomes, including academic achievement, classroom engagement, and 21st-century learning competencies.

5.3 Conclusion

This study examined the influence of Transformational Leadership on teacher innovation culture among primary school teachers in Klang District, Malaysia. The findings revealed that all four dimensions of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, significantly contributed to the development of teacher innovation culture, with inspirational motivation identified as the strongest predictor. These findings highlight the critical role of school leaders in fostering supportive, collaborative, and innovation-oriented school environments that encourage teachers to adopt creative pedagogical practices and adapt to evolving educational demands. The study further reinforces the relevance of transformational leadership theory within contemporary educational settings characterized by digital transformation and continuous pedagogical change. Despite limitations related to the cross-sectional design and localized sample, the study provides meaningful empirical evidence within the Malaysian primary education context and contributes to the growing literature on leadership and innovation in schools. Overall, the findings suggest that strengthening transformational leadership practices among school administrators is essential for sustaining teacher innovation culture and enhancing schools' capacity to respond effectively to the challenges of 21st-century education.

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