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Priority Strategies for Improving Teachers' Innovative Behavior using SITOREM Analysis

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ABSTRACT

In the context of ongoing transformation in school learning, teachers are required to adapt and develop more innovative instructional practices continuously. This study examines the influence of technology leadership, self-efficacy, and ICT literacy on teachers' innovative behavior and identifies priority areas for improvement using SITOREM analysis. A descriptive quantitative approach was employed, involving 136 teachers selected through multistage random sampling from private senior high schools in Depok City, West Java. Data were collected through structured questionnaires and a standardized test, and analyzed using path analysis followed by SITOREM. The results indicate that all three variables significantly influence teachers' innovative behavior, with technology leadership emerging as the most dominant factor. Further analysis highlights several priority areas requiring attention, particularly those related to professional practice, teacher development, infrastructure support, and key aspects of self-efficacy. These findings suggest that improving innovative behavior requires not only strengthening overall competencies but also focusing on specific areas where performance remains suboptimal. The integration of statistical analysis with a priority-based approach provides more practical and targeted guidance for managing innovation in schools.

ARTICLE INFORMATION

Keywords:
ICT Literacy; Innovative Behavior; Self-Efficacy; SITOREM; Technological Leadership

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INTRODUCTION

Teachers' innovative behavior is a crucial factor in improving the quality of education, particularly amid the rapid development of information and communication technology. Teachers are required to adapt quickly to these developments (Modi, 2021; Khatoon et al., 2022). This adaptation is achieved by enhancing innovative behavior. Innovative teachers are those who can explore opportunities, generate ideas, promote them, implement them, and reflect on the ideas applied in their learning, thereby increasing the effectiveness of learning and student learning outcomes (Dasmo et al., 2021). Empirical data in the field indicate that many teachers still do not consistently display innovative behavior in their professional practice. A preliminary study, based on principals' assessments of 30 private high school teachers in Depok City, showed that only 59.78% of the teachers exhibited good innovative behavior. Overall, all indicators of teacher innovative behavior are still suboptimal, particularly for exploring opportunities, generating ideas, and promoting ideas. Other indicators, such as idea implementation and reflective evaluation, also showed weak results. These initial findings indicate the need for measurable, targeted, priority-based strategies and methods to strengthen teachers' innovative behavior.

Various previous studies have identified leadership, self-efficacy, and ICT literacy as important factors influencing teachers' innovative behavior (Thannimalai & Raman, 2018; Sharma, 2019; Keane et al., 2020; Omar & Ismail, 2021; Lemon & Garvis, 2016). Leadership practices that articulate a clear digital vision and cultivate an innovation-supportive culture have been shown to encourage instructional innovation (A'mar & Eleyan, 2022). Likewise, teacher self-efficacy influences confidence and persistence in implementing new instructional strategies (Lemon & Garvis, 2016; Permana et al., 2020; Bachtiar, 2024), while ICT literacy supports teachers' capacity to access, evaluate, and create digital learning resources (Chou et al., 2018; Dasmo et al., 2025; Dwijantie et al., 2025).

Although various variables that determine teachers' innovative behavior have been extensively researched, research specifically analyzing priority indicators that need improvement remains relatively limited. Most studies tend to focus on testing the significance of relationships between variables, without providing operational strategic direction. Based on this, SITOREM (Scientific Identification Theory to Conduct Operation Research in Education Management) offers a more comprehensive approach by integrating statistical analysis and expert judgment to identify and rank indicators based on cost, benefit, urgency, and importance (Hardienata, 2017). This approach allows the formulation of recommendations that are not only descriptive but also applicable to priorities, thereby supporting effective decision-making to improve teachers' innovative behavior.

Based on this background, this study aims to examine how technological leadership, self-efficacy, and ICT literacy contribute to teachers' innovative behavior and to determine strategies and methods for improving it through SITOREM analysis. Specifically, this study seeks to identify indicators that need immediate improvement and indicators that need to be maintained or further developed. The results of this study are expected to provide both theoretical and practical contributions, particularly in providing a more structured decision-making framework to support efforts to improve teachers' innovative behavior.

METHOD

This study uses a descriptive, quantitative approach to examine variables that influence teachers' innovative behavior and to determine priority-based improvement strategies through SITOREM analysis (Hardhienata, 2017). The study sample consisted of 136 teachers selected via multistage random sampling from a population of 531 teachers across 13 private high schools in Depok City, West Java. Research data were collected using a questionnaire to measure technological leadership and self-efficacy. Meanwhile, ICT literacy was measured using a test to provide an objective picture of teachers' ability to use technology. Content validity was established through expert assessment, and empirical validity was assessed using item-total correlation analyses. All variables showed a high level of reliability with a Cronbach's alpha value more than 0.70.

Data analysis was conducted in two stages. The first stage used path analysis to identify the direct influence of technological leadership, self-efficacy, and ICT literacy on teachers' innovative behavior. The second stage used SITOREM analysis to determine which indicators were prioritized for immediate improvement and which indicators were maintained or developed. SITOREM analysis was conducted in four stages: 1) contribution analysis, conducted by ranking the contribution of independent variables to the dependent variable based on the coefficient of determination value; 2) indicator analysis, conducted by calculating the average value of each indicator for each variable; 3) indicator weighting, conducted by analyzing indicators based on the criteria of "cost, benefit, urgency, and importance" (assessment conducted by experts in the field of educational management); and 4) indicator classification, conducted by determining strategic priorities in efforts to improve and develop indicators.

RESULTS AND DISCUSSION

The results of the path analysis calculations indicate that technological leadership has the strongest direct influence on teachers' innovative behavior (β = 0.283) compared to self-efficacy (β = 0.245) and ICT literacy (β = 0.205). All these influences are statistically significant ($p < 0.05$). Other data indicate a coefficient of determination (R^2) of 0.321. This condition indicates that the three independent variables together explain a significant proportion of the variation in teachers' innovative behavior. Based on the results of the path analysis, a SITOREM analysis was conducted to translate variable-level influence into strategic priorities at the indicator level. While path analysis focuses on the strength of the relationship between variables, SITOREM was used to identify specific indicators that need immediate improvement and those that need to be maintained based on their level of importance and empirical performance. In the teachers' innovative behavior variable (Table 1), the indicators of idea generation, idea promotion, and reflection emerged as the top priorities for improvement. Meanwhile, opportunity exploration and idea implementation were included in the category that needs to be maintained or further developed.

Table 1. SITOREM Analysis Results for Teachers' Innovative Behavior

Initial Indicator	Indicator After Expert Judgment (Rank & Weight)	Indicator Score
Opportunity exploration	1st Idea generation (24%)	3.50
Idea generation	2nd Opportunity exploration (22%)	4.08
Idea promotion	3rd Idea promotion (19%)	3.55
Idea implementation	4th Idea implementation (19%)	4.13
Reflection	5th Reflection (16%)	3.62

In the technology leadership variable (Table 2), professional practice excellence, teacher development and training, and technology and infrastructure support were identified as priority indicators requiring immediate improvement. Meanwhile, other indicators, such as personal and communication skills, digital citizenship, evaluation, vision-planning-management, and digital teaching and learning culture, demonstrated relatively better performance and were therefore categorized as indicators that need to be maintained or developed.

Table 2. SITOREM Analysis Results for Technology Leadership

Technology Leadership (β = 0.283) – Rank I		
Initial Indicator	**Indicator After Expert Judgment (Rank & Weight)**	**Indicator Score**
Vision, planning, and management	1st Professional practice excellence (14%)	3.67
Personal and communication skills	2nd Personal and communication skills (13%)	4.25
Teacher development and training	3rd Teacher development and training (13%)	3.66
Technology and infrastructure support	4th Technology and infrastructure support (13%)	3.81
Professional practice excellence	5th Digital citizenship (13%)	4.15
Digital teaching and learning culture	6th Evaluation (13%)	4.37
Digital citizenship	7th Vision, planning, and management (11%)	4.30
Evaluation	8th Digital teaching and learning culture (11%)	4.11

In the ICT literacy variable (Table 3), the five indicators are the top priorities for improvement: create, reflect and judge, manage, access, and evaluate. Meanwhile, the knowledge and integration indicators showed higher performance, so they are categorized as indicators that need to be maintained.

Table 3. SITOREM Analysis Results for ICT Literacy

ICT Literacy (β = 0.205) – Rank III		
Initial Indicator	**Indicator After Expert Judgment (Rank & Weight)**	**Indicator Score**
Knowledge	1st Create (17%)	1.93
Access	2nd Reflect and Judge (16%)	3.20
Manage	3rd Manage (15%)	3.68
Integrate	4th Access (14%)	3.32
Evaluate	5th Evaluate (14%)	3.64
Create	6th Knowledge (13%)	4.02
Reflect and Judge	7th Integrate (12%)	4.02

In the self-efficacy variable (Table 4), optimism for success, mastery experience, pride in achievement, and task complexity are priority indicators that need immediate improvement. Meanwhile, the indicators for self-motivation, task challenge, strong belief, confidence in success, and physical and mental readiness showed relatively good performance and are therefore included in the indicators that should be maintained or developed.

Table 4. SITOREM Analysis Results for Self-Efficacy

Self-Efficacy (β = 0.245) – Rank II		
Initial Indicator	**Indicator After Expert Judgment (Rank & Weight)**	**Indicator Score**
Task challenge	1st Self-motivation (13%)	4.63
Task complexity	2nd Optimism for success (13%)	3.93
Self-motivation	3rd Mastery experience (12%)	3.68
Strong belief	4th Pride in achievement (12%)	3.74
Confidence in success	5th Task challenge (11%)	4.11
Physical and mental readiness	6th Strong belief (11%)	4.19
Mastery experience	7th Confidence in success (11%)	4.13
Pride in achievement	8th Physical and mental readiness (9%)	4.03
Optimism for success	9th Task complexity (8%)	3.91

Overall, information was obtained on the priority indicators for immediate improvement and those to be maintained or developed (Table 5). The data shows that 15 indicators are prioritized for immediate improvement, and 14 indicators need to be maintained or developed. This integrated analysis demonstrates that SITOREM can expand on path analysis results by converting statistical relationships into operational decisions at the indicator level.

Table 5. Priority Order of Indicator Improvement

Immediate Improvement Priorities	**Indicators to be Maintained/Developed**
1st Professional practice excellence	1st Personal and communication skills
2nd Teacher development and training	2nd Digital citizenship
3rd Technology and infrastructure support	3rd Evaluation
4th Optimism for success	4th Vision, planning, and management
5th Prior mastery experience	5th Digital teaching and learning culture
6th Pride in achievement	6th Self-motivation
7th Task complexity	7th Task challenge
8th *Create*	8th Strong belief
9th *Reflect and Judge*	9th Confidence in success

Immediate Improvement Priorities	Indicators to be Maintained/Developed
10th *Manage*	10th Physical and mental readiness
11th *Access*	11th *Knowledge*
12th *Evaluate*	12th *Integrate*
13th Idea generation	13th Opportunity exploration
14th Idea promotion	14th Idea implementation
15th Reflection	

This study not only examines the statistical significance of variables influencing teachers' innovative behavior but also offers an operational perspective through SITOREM analysis (Hardhienata, 2017). Previous studies have emphasized the importance of leadership, self-efficacy, and ICT literacy for teachers' innovative behavior (Keane et al., 2020; Shen, 2022; Bachtiar, 2024), but have generally focused on demonstrating the influence of these variables. In contrast, this study emphasizes not only the influencing variables but also which indicators are prioritized for immediate improvement and which need to be maintained or developed. Thus, this study contributes to bridging the gap between empirical findings and practical decision-making needs in schools.

The results of this study reinforce the importance of technological leadership as the most influential variable in shaping teachers' innovative behavior. This finding aligns with previous studies that emphasize the principal's crucial role in formulating a digital vision and building a school culture that supports innovation (Thannimalai & Raman, 2018; Ridho & Wiyono, 2024; Witthöft et al., 2025). However, the SITOREM analysis reveals several issues that warrant careful attention. Although technological leadership has a statistically strong influence, several key indicators, such as excellence in professional practice, teacher development and training, and technology and infrastructure support, still show relatively low performance. This situation indicates that there is still an implementation gap, as the strategic vision has not been fully realized in schools. Similar conditions are also described by Dewi et al. (2025) and Syifa (2024), who note limitations in infrastructure and the sustainability of professional development programs in schools. Therefore, strengthening technological leadership should not be limited to policy alone but should be accompanied by systematic efforts to ensure consistent and sustainable implementation.

In addition to technological leadership, self-efficacy has also been shown to be a significant variable influencing teachers' innovative behavior. This aligns with previous studies suggesting that teachers with high self-efficacy tend to be more courageous in trying new approaches and persisting in the face of challenges (Siregar et al., 2026; Li et al., 2025). However, the SITOREM analysis results indicate that not all self-efficacy indicators are at optimal levels. Optimism for success, mastery experience, pride in achievement, and task complexity are areas that need immediate improvement. This condition indicates that although teachers have good self-efficacy, it is not fully supported by consistent experiences of success or structured challenges. Previous research has shown that successful experiences and collaborative environments play a crucial role in strengthening self-efficacy (Qin et al., 2025). Therefore, schools need to design structured support systems, such as mentoring programs, collaborative innovation forums, and reward mechanisms, to continuously strengthen teachers' self-efficacy. In terms of ICT literacy, research results show a relatively smaller contribution compared to other variables. However, this does not mean that ICT literacy is unimportant. The SITOREM analysis findings revealed that high-level competencies, particularly in the indicators of creating, reflecting, and judging technology use, have not yet developed optimally. This finding aligns with the digital literacy framework, which emphasizes integration, in which technology encompasses not only basic technical skills but also creative and reflective thinking skills in its use (Ribosa et al., 2024). In practice, many teachers are already capable of using basic digital

tools, but still face challenges in designing innovative digital learning and evaluating its effectiveness. Therefore, strengthening ICT literacy should focus on developing higher-level skills rather than just operational capabilities.

Furthermore, the SITOREM analysis results indicate that idea generation, idea promotion, and reflection practices on innovative behavior variables are priority indicators that need improvement. This condition indicates that the challenge of innovation lies not only in implementation but also in the processes of initiating and sustaining it. A collaborative school environment and active knowledge-sharing practices can foster teachers' innovative behavior (Purwanto et al., 2024; Basister, 2025). In this context, schools need to develop professional learning communities, provide structured reflection spaces, and encourage a culture of open idea sharing. Overall, the findings of this study indicate that improving teachers' innovative behavior requires an integrated approach, encompassing leadership, teacher capacity development, and school culture. This research demonstrates how SITOREM analysis can transform predictive statistical findings into prioritized, implementable strategies (Hardhienata, 2017). By identifying indicators of high importance but low performance, this approach provides a stronger basis for decision-making and resource allocation. Thus, this research not only provides theoretical contributions but also offers practical guidance to schools in strengthening innovation amid evolving digital transformation.

CONCLUSION

This study demonstrates that improving teachers' innovative behavior requires a priority-based strategy supported by empirical evidence. Technological leadership, self-efficacy, and ICT literacy have been shown to shape innovative behavior, with technological leadership as the most dominant variable. This underscores the principal's role in fostering an environment conducive to innovation. Through SITOREM analysis, this study identified 15 indicators prioritized for immediate improvement and 14 indicators to be maintained or developed. These findings indicate that improving teacher innovation requires a focus on aspects that are highly important but still perform poorly. Based on these findings, schools need to develop more targeted programs, particularly for the indicators identified as priorities. Principals can use the results of this study as a basis for designing policies, such as strengthening ongoing training, providing technological infrastructure, and developing systems for collaboration and reflection among teachers.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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REFERENCES

Aljufri, H., & Kusumawati, E. (2025). The Influence of Participative Leadership on School Innovation Climate with Teacher Collaborations as a Mediating Variable. *Lex Localis Journal of Local Self-Government, 23*(10), 390–399.

A'mar, F., & Eleyan, D. (2022). Effect of Principal's Technology Leadership on Teachers' Technology Integration. *International Journal of Instruction, 15*(1), 781–798.

Amemasor, S. K., Oppong, S. O., Benuwa, B., & Essel, D. D. (2025). A Systematic Review on the Impact of Teacher Professional Development on Digital Instructional Integration and Teaching Practices. *Frontiers in Education*, May, 1–14.

Bachtiar, B. (2024). Insight into Classroom Dynamics: Indonesian EFL Teachers' Self-Efficacy in Instructional Strategies. *Journal Basicedu, 8*(1), 837–848.

Basister, M. P., Petersson, J., & Baconguis, R. D. T. (2025). Educational Innovations for an Inclusive Learning Environment: Insights from the Teachers' Collaboration Through Lesson Study. *Frontiers in Education*.

Chou, C., Shen, C., Hsiao, H., & Shen, T. (2018). Factors Influencing Teachers' Innovative Teaching Behaviour With ICT: the Mediator Role of Organisational Innovation Climate. *Educational Psychology*, 1–21.

Dasmo, D., Notosudjono, D., & Sunardi, O. (2021). Increasing Innovative Behavior Through Strengthening Principals' Technology Leadership, Information and Communication Technology Literacy (ICT), and Self-Efficacy. *Multicultural Education, 7*(11), 250–256.

Dasmo, D., Notosudjono, D., & Wati, S. (2025). Technological Leadership and ICT Literacy as Keys to Increasing Innovative Teacher Behavior. *Journal Eduscience (JES), 12*(1), 25–36.

Dewi, M., Ballianie, N., Astuti, M., Halimatussakdiah, H., Fatimahi, S., & Sari, G. P. I. (2025). Tantangan Implementasi Kurikulum di Era Digital: Kesiapan Guru dan Infrastruktur. *INNOVATIVE: Journal of Social Science Research, 5*(4), 10732–10741.

Dwijantie, J. S., Rachmah, H., & Afrianti, N. (2025). Literasi Digital Guru dalam Perencanaan Pembelajaran PAUD di Era Society 5.0. *Jurnal Riset Pendidikan Guru PAUD, 5*(2), 143–150.

Fauzi, F. (2025). Kepemimpinan Digital dalam Dunia Pendidikan: Tinjauan Systematic Literature Review. *TA'LIM: Jurnal Studi Pendidikan Islam, 8*(2), 215–237.

Hardhienata, S. (2017). The Development of Scientific Identification Theory to Conduct Operation Research in Education Management. *IOP Conference Series: Materials Science and Engineering*, *166*(1).

Keane, T., Boden, M., Chalmers, C., & Williams, M. (2020). Effective Principal Leadership Influencing Technology Innovation in the Classroom. *Education and Information Technologies, 25*(6), 5321–5338.

Khatoon, U. T., Ruba, M., Mohammad, A., & Masri, M. R. (2023). Implementing Innovative Teaching and Learning Strategies. *Saudi Journal of Business and Management Studies, 8*(1), 10–12.

Lemon, N., & Garvis, S. (2016). Pre-Service Teacher Self-Efficacy in Digital Technology. *Teachers and Teaching: Theory and Practice, 22*(3), 387–408.

Li, X., Pei, X., & Zhao, J. (2025). Intrinsic Motivation and Self-Efficacy as Pathways to Innovative Teaching: A Mixed Methods Study of Faculty in Chinese Higher Education. *BMC Psychology, 13*, 859.

Modi, T. (2021). Innovative Use of Information and Communications Technology Tools in Education Innovation. *Journal of Technology and Management, 1*(2), 8–12.

OECD. (2018). *Women in Science*. UNESCO Institute for Statistics.

Omar, M. N., & Ismail, S. N. (2021). Empowering Teacher Self-Efficacy on ICT: How Does Technology Leadership Play a Role? *Malaysian Online Journal of Education Management, 9*(3), 1–22.

Permana, J., Rahmawati, I., Saimima, M. P., Suhardan, D., & Herlina, L. (2020). The Impact of Global Leadership and Self-Efficacy on Teacher Innovation. *International Conference on Humanities, Education, and Social Science*, 478–483.

Purwanto, A., Suryadi, S., Nursofah, N., & Istiqomah, I. (2024). Perilaku Inovatif Guru Melalui Kepemimpinan Transformasional, Knowledge Sharing, dan Kompetensi Digital. *Indo MathEdu Intellectuals Journal, 5*(6), 7752–7762.

Qin, S., Jia, S., & Su, S. (2025). How Does Teacher Collaboration Impact Teachers' Innovation Ability? The Chain Mediation of Teaching Motivation and Teaching Efficacy. *Humanities and Social Sciences Communications, 12*, 924.

Rasdiana, R., Nurhadi, T., B, M. I. A., Salim, F. A., & Novitasari, A. T. (2024). The Effect of Digital Leadership in Nurturing Teachers' Innovation Skills for Sustainable Technology Integration Mediated by Professional Learning Communities. *Journal of Infrastructure, Policy, and Development, 8*(10), 1–26.

Ribosa, J., Noguera, I., Monguillot, M., & Duran, D. (2024). Teachers' Closeness of Professional Relationship and Its Role in Learning Perception After Reciprocal Peer Observation. *Teaching and Teacher Education, 140*, 104469.

Ridho, M. R., Wiyono, B. B., & Mustiningsih, M. (2024). Digital Leadership of School Principals to Improve the Quality of Learning in the Industrial Revolution Era 4.0. *INSANIA: Jurnal Pemikiran Alternatif Kependidikan, 29*(1), 17–34.

Sharma, S. (2019). Technology Leadership: Principals' Concerns in Leading Schools. *MIER-Journal of Educational Studies Trends and Practices, 9*(2), 263–276.

Shen, Q. (2022). Developing Teacher Leadership in Educational Technology: A Systematic Literature. *BCP Social Sciences & Humanities, 19*, 717–723.

Siregar, F. H., Siregar, N. I., & Chandra, A. (2026). Self-Efficacy as a Predictor of Teachers' Innovative Work Behavior in Medan City. *Jurnal Psikologi, 3*(2), 1–10.

Sofwan, M., Habibi, A., Attar, R. W., Alqahtani, T. M., Alahmari, S. A., & Alhazmi, A. H. (2024). Factors Affecting Teachers' Behavior of Innovative Teaching with Technology: Structural Equation Modelling. *Sustainability (Switzerland), 16*(19), 1–12.

Suryaman, M., & Setiyani, L. (2025). Assessing the Readiness of School Principals for Digital Leadership: An Exploratory Data Analysis Approach. *TADBIR: Jurnal Studi Manajemen Pendidikan, 9*(1), 29–48.

Syifa, S. N., Az-Zahra, A. M., & Rachman, I. F. (2024). Analisis Infrastruktur Teknologi, Pelatihan Pengajar dan Tantangan dalam Implementasi Model Pembelajaran Literasi Digital untuk Mendukung SDGs 2030. *Jurnal Sadewa, 2*(2), 212–224.

Thahir, I. (2025). Digital Leadership of School Principals in Enhancing Technology-Based Learning Quality. *International Journal of Studies in International Education, 2*(4), 33–42.

Thannimalai, R., & Raman, A. (2018). The Influence of Principals' Technology Leadership and Professional Development on Teachers' Technology Integration in Secondary Schools. *Malaysian Journal of Learning and Instruction, 15*(1), 203–228.

Witthöft, J., Aydin, B., & Pietsch, M. (2025). Leading Digital Innovation in Schools: the Role of the Open Innovation Mindset. *Journal of Research on Technology in Education, 57*(6), 1430–1449.

Zahro, K., Andriani, D. E., & Raihan, P. D. (2023). Exploring Vocational School Principals' Digital Leadership in Cultivating School Digital Culture. *Jurnal Dinamika Manajemen Pendidikan, 10*(1), 15–28.

Zurriati, L. (2024). Strategi Pengembangan Kompetensi Guru dalam Penggunaan Teknologi Informasi untuk Pembelajaran. *JPII: Jurnal Penelitian Inovasi Indonesia, 1*(1), 15–20.