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A Systematic Literature Review of Innovation Capabilities and Technology Adoption for Sustainable School Performance

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Abstract: Sustainable school performance has become a strategic issue in the field of education, driven by technological advancements, demands for improved educational quality, and the need for adaptive school management. Innovation capabilities and technology adoption are viewed as key factors that can enhance organizational effectiveness, the quality of educational services, and the sustainability of school performance. This study aims to identify, analyze, and synthesize the results of previous research on the relationship between innovation capabilities, technology adoption, and sustainable school performance through a Systematic Literature Review (SLR) approach. The research method followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which include the stages of identification, screening, eligibility assessment, and article inclusion. Data were obtained from scientific articles indexed in Scopus and published between 2016 and 2026 in accordance with the established inclusion criteria. The results of the study indicate that innovation capabilities contribute to enhancing schools' ability to adapt to change, drive continuous improvement, and strengthen the organization's learning culture. On the other hand, technology adoption has been shown to improve administrative efficiency, the quality of the learning process, data-driven decision-making, and collaboration among stakeholders. A literature review also indicates that the integration of innovation capabilities and technology adoption has the potential to lead to more sustainable school performance. Nevertheless, empirical research examining the simultaneous relationship between these two variables and sustainable school performance remains relatively limited, particularly in the context of developing countries. Therefore, this study provides a comprehensive synthesis of existing research, identifies research gaps, and proposes a future research agenda as a foundation for developing conceptual models and conducting empirical research in the field of educational management.

Keyword: Systematic Literature Review, innovation capabilities, technology adoption, sustainable school performance

INTRODUCTION

The increasingly dynamic changes in the educational environment require schools to adapt to technological advancements, policy changes, and rising public expectations regarding the quality of educational services. In the era of digital transformation, schools no longer focus solely on academic achievement but are also required to build sustainable performance. The concept of sustainable school performance refers to a school's ability to maintain and improve the quality of education on an ongoing basis through effective resource management, organizational innovation, and the ability to adapt to environmental changes.

One factor considered crucial to achieving sustainable school performance is innovation capability. Innovation capability describes an organization's ability to generate, develop, and implement new ideas, processes, and practices that can enhance the organization's effectiveness. In the context of schools, innovation capability is reflected in the development of teaching methods, the enhancement of teacher competencies, innovations in school governance, and the school's ability to respond to challenges and opportunities arising from changes in the educational environment. Schools with strong innovation capabilities tend to be more adaptable to change and capable of creating sustainable advantages.

In addition to innovation capabilities, technology adoption is also a strategic factor that supports improved school performance. Advances in digital technology have transformed various aspects of educational management, ranging from the learning process, school administration, and communication with stakeholders to data-driven decision-making. The implementation of various technologies such as Learning Management Systems (LMS), Artificial Intelligence (AI), cloud computing, and school management information systems provides schools with opportunities to improve operational efficiency while enhancing the quality of educational services. However, the success of technology adoption is not solely determined by the availability of infrastructure but is also influenced by organizational readiness, human resource competencies, and a culture of innovation that thrives within the school environment.

Various previous studies have examined the relationship between innovation capabilities, technology adoption, and the performance of educational organizations. Most studies indicate that innovation capabilities contribute to increased organizational effectiveness through adaptability, organizational learning, and the development of educational services. On the other hand, technology adoption has been shown to improve the efficiency of school business processes, enhance the quality of learning, and support faster and more accurate decision-making. Nevertheless, research on the relationship between these two variables and the sustainable performance of schools still yields mixed results and tends to be conducted in isolation. Furthermore, most studies focus on the business sector or higher education, while research specifically addressing schools as educational organizations remains relatively limited. This situation indicates the existence of a research gap that requires further investigation. To date, there have not been many studies that systematically integrate empirical findings on innovation capabilities, technology adoption, and sustainable school performance into a single comprehensive study. However, an integrated understanding of the relationships among these variables is crucial for providing an overview of research developments, emerging trends, the theories employed, dominant research methods, and future research opportunities.

To address this gap, this study employs a Systematic Literature Review (SLR) method, which enables the identification, evaluation, and synthesis of literature to be conducted in a systematic, transparent, and replicable manner. Through this approach, various published studies were comprehensively analyzed to identify patterns of relationships among variables, research trends, methodological characteristics, and directions for future research in the field of educational management. The SLR approach also helps minimize bias in the article selection process, resulting in a more objective synthesis of scientific evidence compared to a narrative literature review.

Based on this background, this study aims to identify, evaluate, and synthesize the results of previous research on innovation capabilities and technology adoption in relation to sustainable school performance. Specifically, this study analyzes trends in publications, research characteristics,

theories used, research methods, and key findings related to the relationships among these variables. Additionally, this study aims to identify research gaps and formulate a future research agenda as a foundation for developing conceptual models and conducting empirical research in the field of educational management.

To achieve this objective, this study is structured around four research questions (RQs), namely: RQ1: What are the trends in the literature on innovation capabilities, technology adoption, and sustainable school performance in the context of education? RQ2: What theories, research methods, and study characteristics are most commonly used in studies on innovation capabilities, technology adoption, and sustainable school performance? RQ3: How do empirical findings explain the role of innovation capabilities and technology adoption in enhancing sustainable school performance? RQ4: What are the research gaps and future research agenda regarding the relationship between innovation capabilities, technology adoption, and sustainable school performance? By answering these four research questions, this study aims to provide a comprehensive literature synthesis on research developments in this field, identify areas that require further exploration, and offer theoretical and practical contributions to both research development and policy formulation aimed at improving sustainable school performance through the strengthening of innovation capabilities and the utilization of technology.

METHOD

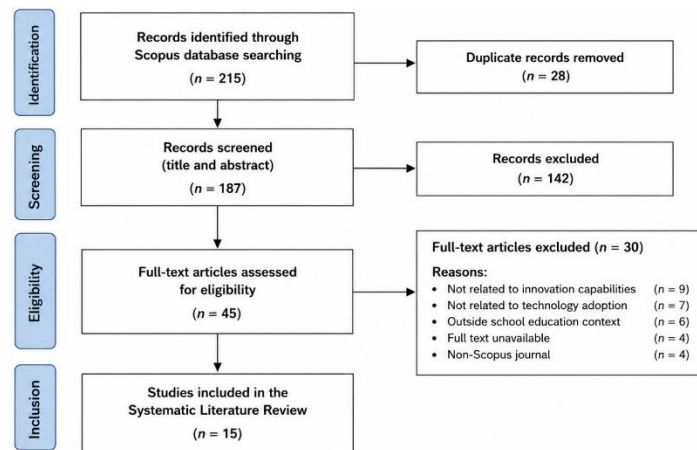


Figure 1: Prisma 2020 Flowchart

Figure 1 illustrates the article selection process using the PRISMA 2020 guidelines. A literature search was conducted in the Scopus database using a combination of keywords related to innovation capabilities, technology adoption, and sustainable school performance. The selection process consisted of four main stages: identification, screening, eligibility, and inclusion. After removing duplicate articles and screening the titles, abstracts, and full texts based on the inclusion and exclusion criteria, 15 articles that met the requirements were identified and used as the basis for the synthesis in this study.

To provide an overview of the characteristics of the studies analyzed, Table 1 presents information on the authors, the countries of origin of the studies, the research methods, the main theories or concepts used, the variables or research focus, and the samples or research subjects. The presentation of these article characteristics aims to facilitate the identification of research trends, dominant methodological approaches, and the research contexts that form the basis for the synthesis in the discussion section.

Table 1. Characteristics of the Articles Analyzed in the SLR Study

No	Author (Year)	Country	Research Methodology	Key Theories/Concepts	Research Variables/Focus	Sample/ Research Subject
1	Prenger et al. (2022)	Netherlands	Systematic Literature Review	Educational Innovation, Organizational Change	Sustainable Educational Innovation	44 articles
2	Fatmawati et al. (2026)	Indonesia	Bibliometric Analysis	Educational Innovation, SDGs	Educational Innovation, Sustainable Education	190 Scopus articles
3	Hariyanti et al. (2025)	Indonesia	Bibliometric Analysis	School Leadership	School Leadership, Sustainability	1,119 Scopus articles
4	Askell-Williams & Koh (2020)	Australia	Literature Review	School Improvement	Sustainable School Improvement	20 factors for program success
5	Rorije & Vanlommel (2026)	Netherlands	Scoping Review	Individual Innovative Capacity (IIC)	Teacher Innovation Capability	44 publications
6	Liang et al. (2024)	Australia	Quantitative Study	Technology Adoption	Technology-Enhanced Learning	College students
7	Agasisti et al. (2023)	Italy	Quantitative	ICT Adoption	ICT, School Efficiency	School data from 23 European countries
8	Escueta et al. (2020)	United States	Literature Review	Educational Technology	Digital Learning	Research on educational technology
9	Nurjanah et al. (2017)	Indonesia	Case Study	ICT Adoption Framework	ICT Adoption	Indonesian Public High School
10	Wang et al. (2021)	Taiwan	Analytical Hierarchy Process (AHP)	Technology Adoption	Communication Technology	Education expert
11	Hekimoğlu et al. (2025)	Turkey	Mixed Method	Critical Success Factors (CSFs)	Sustainable School Performance	Principals, teachers, students, parents
12	Roslani et al. (2025)	Indonesia	Rapid Appraisal	Triple Bottom Line (TBL)	Sustainable School Performance	High school
13	Thombs & Prindle (2018)	United States	Panel Study	Green School (LEED)	School Sustainability	LEED-Certified Schools in Ohio
14	Gamarra et al. (2019)	Spain	Case Study	Life Cycle Assessment (LCA)	Environmental Sustainability	High school
15	Fehr & Andrade (2016)	Brazil	Benchmarking Study	Environmental Performance Indicators	Sustainable School Performance	Elementary school

Based on Table 1, it can be seen that research on innovation capabilities, technology adoption, and sustainable school performance is dominated by quantitative approaches, systematic literature reviews, scoping reviews, and bibliometric analyses. Most of the research originates from developed countries such as the Netherlands, Australia, Italy, the United States, Turkey, and Spain, while contributions from developing countries remain relatively limited, although Indonesia is beginning to show an increase in the number of publications. From a theoretical perspective, the research is dominated by the concepts of innovation capability, technology adoption, critical success factors (CSFs), the triple bottom line (TBL), and life cycle assessment (LCA). Additionally, the research

subjects are highly diverse, ranging from elementary schools, secondary schools, and universities to syntheses of various scientific articles. This diversity indicates that research on sustainable school performance is developing in a multidisciplinary manner and still holds great potential for integrating innovation capability and technology adoption into a single comprehensive conceptual model.

This study employs the Systematic Literature Review (SLR) method to identify, evaluate, and synthesize the findings of previous research on innovation capabilities, technology adoption, and sustainable school performance. The SLR approach was chosen because it provides a systematic, transparent, and replicable literature review process, thereby enabling a more comprehensive synthesis of scientific evidence compared to a narrative literature review. The research process followed the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which consist of four main stages: identification, screening, eligibility, and inclusion.

Search Strategy

The literature search was conducted in the Scopus database because it has a broad coverage of international publications and provides peer-reviewed scientific articles. The search was conducted using a combination of keywords based on the three main concepts of the study: innovation capabilities, technology adoption, and sustainable school performance. The keywords were combined using the Boolean operators AND and OR to identify relevant articles.

The search strings used are as follows:

("innovation capability" OR "innovation capabilities") AND ("technology adoption" OR "digital technology adoption" OR "educational technology") AND ("school performance" OR "school effectiveness" OR "educational performance" OR "sustainable school performance")

A search was conducted for articles published between 2016 and 2026 to gain an overview of research developments over the past ten years.

Inclusion and Exclusion Criteria

Articles were selected based on inclusion and exclusion criteria to ensure that only those relevant to the research objectives were analyzed.

Inclusion criteria include:

1. Articles published between 2016 and 2026.
2. Articles published in international journals indexed in Scopus.
3. Articles written in English.
4. Articles that discuss innovation capabilities, technology adoption, and/or sustainable school performance in the context of education.
5. Articles available in full text.

Meanwhile, the exclusion criteria include:

1. Articles in the form of conference proceedings, books, book chapters, editorials, or non-systematic reviews.
2. Articles that are not relevant to the research focus.
3. Duplicate articles.
4. Articles that are not available in full text.

Study Selection

The article selection process followed the PRISMA 2020 guidelines. During the identification stage, all articles retrieved from Scopus were collected based on predetermined keywords. Next, duplicate articles were removed. The screening stage involved reviewing the titles, abstracts, and keywords to ensure alignment with the research focus. Articles that met the criteria then proceeded to the eligibility stage, which involved a comprehensive assessment of the article's content (full-text review). In the final stage (inclusion), articles that met all criteria were selected as the final sample for analysis.

Data Extraction and Analysis

Data from each article were extracted using a pre-designed data extraction form. The information collected included the author's name, year of publication, country of the study, research objectives, theories used, research methods, variables examined, analytical tools, and the study's main findings.

Next, the data were analyzed using descriptive and thematic analysis approaches. Descriptive analysis was used to identify publication trends, country distribution, research methods, theories employed, and article characteristics. Meanwhile, thematic analysis was used to group and synthesize research findings based on key themes related to innovation capabilities, technology adoption, and sustainable school performance. The results of this synthesis were then used to address each research question (RQ), identify research gaps, and formulate a future research agenda.

Quality Assessment

To ensure the quality of the articles analyzed, each article was evaluated based on several indicators: alignment with the research objectives, clarity of methodology, validity of the analysis, and relevance of the findings to the research topic. Only articles that met these quality criteria were included in the final synthesis process, ensuring that the study's results have a higher level of validity and reliability.

RESULTS AND DISCUSSION

Trends in Publications on Innovation Capabilities, Technology Adoption, and Sustainable School Performance

Based on the results of a literature review conducted using the PRISMA guidelines, 15 articles that met the inclusion criteria were identified and analyzed further. These articles were published between 2016 and 2026 and came from various reputable international journals indexed in Scopus, such as 1. Sustainability, 2. Computers & Education, 3. Omega, 4. Benchmarking: An International Journal, 5. Frontiers in Education, 6. Journal of Educational Change, and 7. School Effectiveness and School Improvement.

In general, publication trends indicate a growing focus on the topics of educational innovation and digital transformation over the past decade. Early research focused primarily on measuring school environment performance and the effectiveness of information technology use. Entering the 2020–2026 period, the research focus has shifted toward the development of innovation capabilities, digital transformation, instructional leadership, educational sustainability, and sustainable school performance. This shift indicates that school sustainability is no longer viewed solely in terms of academic achievement but also in terms of an organization's ability to adapt to environmental changes through innovation and the use of technology.

In addition to the increasing number of publications, research themes have also become more multidisciplinary. Some studies integrate perspectives from organizational management, information technology, educational leadership, and sustainable development (Sustainable Development Goals/SDGs). This indicates that sustainable school performance is a complex concept that requires an approach linking organizational, technological, and environmental factors simultaneously.

Dominant Theories, Research Methods, and Characteristics of Previous Studies

The results of the study indicate that research on innovation capabilities, technology adoption, and sustainable school performance is dominated by quantitative approaches, systematic literature reviews (SLRs), scoping reviews, bibliometric analyses, and case studies. The predominance of quantitative methods suggests that most studies seek to test relationships among variables using empirical data, while SLRs and bibliometric analyses are used to comprehensively map research trends.

From a theoretical perspective, research on innovation capabilities often draws on the concepts of organizational innovation, organizational learning, dynamic capabilities, and innovative capacity. Meanwhile, research on technology adoption generally employs the Technology Acceptance Model

(TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and frameworks for organizational readiness for digital transformation. Research on sustainable school performance more frequently employs the Critical Success Factors (CSFs) approach, the Triple Bottom Line (TBL), and indicators of educational sustainability.

The characteristics of the research indicate that most studies have been conducted in developed countries, particularly in Europe and Australia, while research in developing countries especially in Southeast Asia remains relatively limited. This situation suggests that the available research findings do not yet fully represent the characteristics of schools in developing countries, which face distinct challenges in terms of infrastructure, organizational readiness, and human resource competencies.

RQ3. The Role of Innovation Capabilities and Technology Adoption in Improving Sustainable School Performance

The findings indicate that innovation capabilities play a crucial role in enhancing schools' ability to adapt to changes in the educational environment. Innovation capabilities foster the creation of an adaptive organizational culture, continuous learning, teacher creativity, and the development of new strategies to improve the quality of education. Schools with high innovation capabilities tend to be better able to maintain the quality of their educational services over the long term compared to schools that focus only on short-term innovations.

On the other hand, the adoption of technology contributes to improved school administrative efficiency, the effectiveness of the learning process, the quality of communication, and data-driven decision-making. Various studies show that the implementation of Learning Management Systems (LMS), Artificial Intelligence (AI), cloud computing, and school information systems can enhance organizational productivity when supported by adequate infrastructure, school policies, and teacher competencies.

Interestingly, the study's findings show that innovation capabilities and technology adoption are complementary. Innovation capabilities enable an organization to bring about change, while technology adoption serves as the means to implement those innovations in the school's daily operations. Thus, these two variables are inseparable in efforts to build sustainable school performance that can withstand changes in the educational environment.

RQ4. Research Gaps and Future Research Agenda

The results of this study reveal several research gaps that still require attention in future research. First, most studies still examine innovation capabilities and technology adoption separately. Research that integrates both variables into a single research model remains very limited. Second, previous studies have primarily focused on higher education or business organizations, whereas research specifically addressing elementary and secondary schools remains relatively scarce. Third, most studies employ a cross-sectional approach and thus are unable to explain how innovation capabilities and technology adoption evolve over the long term. Longitudinal research is still needed to understand the dynamics of change within school organizations.

Fourth, the measurement of sustainable school performance remains inconsistent. Some studies use academic indicators, while others adopt the Triple Bottom Line or Critical Success Factors approaches. There is currently no integrated and widely accepted measurement model. Given this gap, future research should develop a conceptual model that integrates innovation capabilities and technology adoption as key determinants of sustainable school performance.

In addition, empirical research in elementary and secondary schools in developing countries needs to be expanded to produce models that are better suited to the characteristics of the education systems in those regions. The use of mixed-methods and longitudinal approaches is also recommended to provide a more comprehensive understanding of the process of school transformation toward sustainable performance. The table presents the characteristics and a summary of the research findings from fifteen articles that met the inclusion criteria in this Systematic Literature Review (SLR). The summary includes the researcher's name, year of publication, journal, and research findings relevant to innovation capabilities, technology adoption, and sustainable

school performance. The synthesis analysis discussed in RQ1, RQ2, RQ3, and RQ4 is based on the identification, evaluation, and synthesis of these articles to answer each of the formulated Research Questions (RQs).

Tabel 2 Summary of Previous Studies

No	Researcher and Year	Journal	Research Findings
1	Prenger, R., Tappel, A. P. M., Poortman, C. L., & Schildkamp, K. (2022)	Frontiers in Education	A systematic literature review of 44 articles shows that the sustainability of educational innovation is influenced by the characteristics of the school organization, the innovation itself, individuals, and the context. The sustainability of innovation is achieved through the adaptive integration of innovation into organizational routines, thereby enabling the maintenance or improvement of educational performance.
2	Fatmawati, N. S. D., Wulandari, W., & Irawan, N. (2026)	Indonesian Journal on Learning and Advanced Education (IJOLAE)	A bibliometric analysis of 190 Scopus articles shows that educational innovation, digital transformation, teacher quality improvement, and inclusive education policies play a key role in reducing educational disparities and supporting sustainable education development (SDG 4).
3	Hariyanti, R. A. M., Pahrudin, A., Akmansyah, M., & Fauzan, A. (2025)	European Journal of Sustainable Development Research	A bibliometric analysis of 1,119 Scopus articles shows that research on school leadership is evolving toward the themes of professional development, instructional leadership, digital transformation, sustainability, and well-being, which are key factors in improving the effectiveness and sustainability of school performance.
4	Askill-Williams, H., & Koh, G. A. (2020)	School Effectiveness and School Improvement	Research shows that the sustained improvement of school performance requires a systems-based approach that integrates goals, processes, evaluation, and the implementation of innovations. A total of 20 success factors have been identified as determinants of the sustainability of school improvement programs.
5	H. M. Rorije & K. Vanlommel (2026)	Journal of Educational Change	This study employed a scoping review of 44 publications to identify teachers' Individual Innovative Capacity (IIC) in driving complex educational change. The results of the study indicate that teachers' innovative capacity consists of four key competencies: entrepreneurship, creativity, resilience, and inquisitiveness. These four competencies serve as a crucial foundation for teachers to lead change, enhance the effectiveness of innovation in schools, and support sustainable school development.
6	Yan (Danni) Liang, Shujie Chen, Ruwan Abeysekera, Helen O'Sullivan, Jeff Bray, & Izzy Keevill-Savage (2024)	Computers and Education Open	Research findings indicate that the adoption of technology in learning can improve educational performance when supported by user readiness and an appropriate learning environment. Conversely, technostress and low user readiness can hinder the effectiveness of technology and have a negative impact on sustained performance.
7	Agasisti, Tommaso et al. (2023)	Omega	Research shows that the effective use of information and communication technology (ICT) can improve school operational efficiency and the quality of the learning process. The adoption of technology supported by school policies, infrastructure, and human resource competencies contributes to sustained improvements in school performance.
8	Escueta, Maya et al. (2020)	Computers & Education	Research findings indicate that the implementation of digital technology in the learning process can improve student learning outcomes when used appropriately and supported by effective teaching strategies. These findings confirm that the adoption of technology is a key factor in improving the quality of education and supporting the sustainability of school performance.

9	Nurjanah, Siti, Santoso, Harry Budi, & Hasibuan, Zainal Arifin (2017)	<i>Journal of Physics: Conference Series</i> (Scopus)	The study developed a framework for ICT adoption in schools that emphasizes the importance of organizational readiness, policy support, technological infrastructure, and teacher competence. These factors are key determinants of successful technology implementation, which ultimately supports improved school management effectiveness and sustainable school performance.
10	Wang, Xin Yu et al. (2021)	<i>Sustainability</i>	Research shows that the adoption of communication technology in education plays a role in enhancing the effectiveness of the learning process, collaboration, and decision-making. The sustained implementation of technology enables schools to improve the quality of educational services, organizational efficiency, and institutional competitiveness in the long term.
11	Hekimoğlu, İ., Özgen, D., & Şen, C. (2025)	<i>Sustainability</i>	Developing a model for measuring sustainable school performance by identifying Critical Success Factors (CSFs) in collaboration with school principals, teachers, students, and parents. This model can be used as a tool for evaluating school sustainability.
12	Roslani, E., Muhafidin, D., Rusli, B., & Sumaryana, A. (2025)	<i>Sustainability</i>	Assessing school sustainability performance using the Triple Bottom Line (TBL) approach, which encompasses economic, social, and environmental dimensions. The results show that TBL indicators are effective for evaluating school performance in a sustainable manner.
13	Thombs, R. P., & Prindle, A. (2018).	<i>Sustainability</i>	A study examining the impact of environmentally friendly (LEED-certified) school buildings on academic performance. The results show that green buildings do not necessarily lead to a significant improvement in academic performance, but they do offer sustainability benefits and a better learning environment.
14	Gamarra, A. R., Herrera, I., & Lechón, Y. (2019).	<i>Science of the Total Environment</i>	Developing a Life Cycle Assessment (LCA) method to measure the sustainability of high school activities. Transportation and mobility are the largest contributors to a school's environmental impact.
15	Fehr, M., & Andrade, V. S. C. S. (2016)	<i>Benchmarking: An International Journal</i>	Developing objective indicators to measure a school's environmental performance through energy and water consumption, waste management, and the behavior of the school community, so that these can be used as indicators of sustainable school performance

Innovation Capabilities in Enhancing Sustainable School Performance

The results of the literature review indicate that innovation capabilities are one of the key factors supporting the achievement of sustainable school performance. Of the fifteen articles analyzed, most studies emphasize that a school's ability to generate, implement, and sustain innovation serves as the foundation for enhancing the effectiveness of educational organizations. Prenger et al. (2022) explain that the sustainability of innovation is determined not only by the innovation itself but also by organizational and individual characteristics, as well as the school's environmental context, which supports a continuous process of change. These findings are reinforced by Askill-Williams and Koh (2020), who state that the success of school quality improvement programs depends on the integration of innovation into systems, organizational culture, evaluation, and implementation processes.

Furthermore, Rorije and Vanlommel (2026) found that teachers' innovative capacity comprising creativity, resilience, entrepreneurship, and curiosity is a key factor in addressing increasingly complex changes in education. These findings indicate that innovation is not only related to the use of technology but also to the ability of human resources to develop new ideas that can improve the quality of educational services. Thus, innovation capabilities can be viewed as a strategic capability that enables schools to maintain their competitiveness while enhancing the sustainability of their performance.

Technology Adoption as a Driver of Sustainable School Performance

A synthesis of the research also shows that the adoption of technology makes a significant contribution to improving school performance. Various studies explain that the use of digital technology can improve the efficiency of school administration, the quality of the learning process, communication among stakeholders, and data-driven decision-making. Liang et al. (2024) found that the success of technology implementation is greatly influenced by user readiness and a supportive learning environment, while technostress is one of the main barriers to the optimal use of technology.

These findings are consistent with the research by Agasisti et al. (2023), which demonstrated that the use of ICT improves school operational efficiency in various European countries. The study by Wang et al. (2021) also showed that modern communication technology can enhance collaboration, learning effectiveness, and the quality of decision-making. In Indonesia, Nurjanah et al. (2017) emphasize that the successful adoption of technology is influenced by organizational readiness, policy support, teacher competence, and the availability of infrastructure. Thus, the implementation of technology requires not only the provision of digital devices but also organizational readiness and human resources.

Sustainable School Performance

Based on the findings of the study, the concept of sustainable school performance has evolved significantly. Early studies tended to measure school success primarily through academic achievement, whereas more recent studies have begun to integrate economic, social, and environmental dimensions as indicators of school sustainability.

Hekimoğlu et al. (2025) developed a measurement model based on Critical Success Factors (CSFs) that involves school principals, teachers, students, and parents. Meanwhile, Rosliani et al. (2025) adopted the Triple Bottom Line approach, which integrates economic, social, and environmental dimensions in evaluating school performance. Research by Fehr and Andrade (2016) and Gamarra et al. (2019) also shows that environmental aspects such as energy consumption, waste management, and school mobility are important factors in assessing school sustainability. This indicates that school performance measurement has shifted toward a more comprehensive approach.

Summary of the Relationship Between Innovation Capacity, Technology Adoption, and Sustainable School Performance

Based on the articles analyzed as a whole, there appears to be a complementary relationship between innovation capabilities and technology adoption in enhancing sustainable school performance. Innovation capabilities serve as an organization's internal capacity to generate change and foster continuous learning, while technology adoption acts as a means to accelerate the implementation of innovations in daily school activities.

Nevertheless, most studies still examine these two variables separately. Research on innovation capabilities generally focuses more on individual and organizational capacities, while research on technology adoption emphasizes the implementation of ICT and learning technologies. Only a few studies have simultaneously integrated these two variables to explain sustainable school performance, particularly at the elementary and secondary levels in developing countries. This situation indicates a significant research opportunity to develop a conceptual model linking innovation capabilities and technology adoption as key determinants of sustainable school performance.

Conceptual Framework of the Research

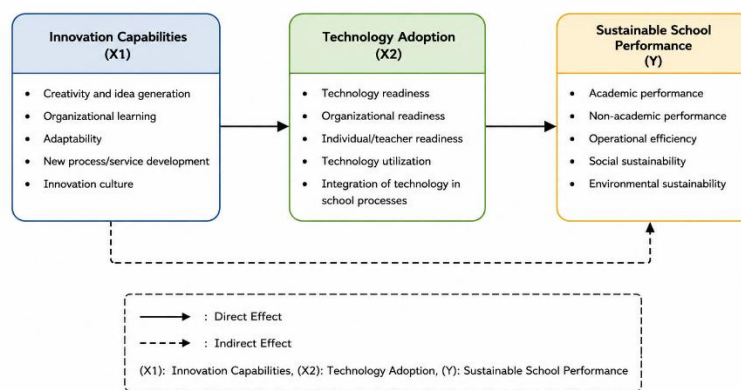


Figure 2: Conceptual Framework of the Study

The conceptual framework of this study, shown in Figure 2, is a synthesis of the fifteen articles analyzed in this research. The framework indicates that Innovation Capabilities are the primary factor driving the success of Technology Adoption, which in turn contributes to improved Sustainable School Performance. Furthermore, the results of the literature synthesis also indicate that Innovation Capabilities can have a direct impact on Sustainable School Performance, as schools with a culture of innovation, adaptability, and strong organizational learning tend to be able to continuously improve the quality of their educational services.

The relationships among the variables within this conceptual framework can be explained as follows.

1. Innovation Capabilities → Technology Adoption

Innovation capability reflects a school's ability to create, develop, and implement innovations through creativity, organizational learning, a culture of innovation, and the ability to adapt to change. Schools with high innovation capability will be better prepared to adopt, implement, and utilize technology in both the learning process and school management.

2. Technology Adoption → Sustainable School Performance

The effective adoption of technology supports improvements in school operational efficiency, the quality of the learning process, communication among stakeholders, and data-driven decision-making. Thus, the use of technology contributes to the sustainable improvement of school performance, both in academic and non-academic areas

3. Innovation Capabilities → Sustainable School Performance

In addition to the adoption of technology, innovation capabilities also contribute directly to sustainable school performance. A culture of innovation, teacher creativity, organizational learning, and adaptability enable schools to implement various improvements in governance, learning processes, and the quality of educational services, thereby enhancing the sustainability of school performance.

Based on this literature review, this study proposes that technology adoption serves as a bridging mechanism between the utilization of innovation capabilities and the improvement of sustainable school performance. Therefore, strengthening innovation capabilities and implementing technology in an integrated manner are key strategies for creating schools that are adaptive, effective, and sustainable.

CONCLUSION

Innovation capabilities and technology adoption are two strategic factors that play a key role in enhancing sustainable school performance. A synthesis of fifteen Scopus-indexed articles shows that innovation capabilities encourage schools to be more adaptive to change through the development of creativity, organizational learning, and a culture of continuous innovation. On the other hand, technology adoption improves the efficiency of school management, the quality of learning, communication, and data-driven decision-making when supported by organizational readiness, human resource competencies, and adequate infrastructure.

This study also shows that the concept of sustainable school performance has evolved from measurements focused on academic outcomes toward a more comprehensive approach that takes into account economic, social, and environmental dimensions. However, research that simultaneously integrates innovation capabilities and technology adoption to explain sustainable school performance remains relatively limited, particularly in the context of elementary and secondary schools in developing countries. This situation represents a research gap that opens opportunities for future empirical research to develop a conceptual model capable of explaining the relationship between these two variables and sustainable school performance.

In practical terms, the findings of this study imply that fostering a culture of innovation, enhancing teacher competencies, and implementing integrated technology should be priorities in the development of school policies. Theoretically, this study provides a literature synthesis that can serve as a foundation for developing research models on innovation capabilities, technology adoption, and sustainable school performance in future studies.

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