

Innovative Learning Management Model to Create Learning Space for Elementary School Students

Tippawan Sukjairungwattana, Silpakorn University, Thailand
Nopporn Chantaranamchoo, Silpakorn University, Thailand
Saranya Chanchusakun, Silpakorn University, Thailand

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Abstract

Learning spaces play a crucial role in promoting equity in learning and providing opportunities for all learners. This research aims to examine the learning space model and develop guidelines for utilizing an innovative learning management model to create learning spaces for primary school students in the lower central region of Thailand. The study involved 40 key informants, including school administrators, teachers from best-practice schools, and educational academics, with data collected through in-depth interviews and focus group discussions. Qualitative data were analyzed using thematic and content analysis. The findings indicate that the learning space model comprises: (1) active, learner-centered learning management that integrates multiple disciplines and employs project-based approaches; (2) learning management innovations in curriculum, instruction, educational technology, and school administration; (3) learning spaces both within and beyond educational institutions; and (4) learning outcomes that enhance educational opportunities and develop learners' skills. Guidelines for implementing the model emphasize the integration of learning management, learning innovation, and learning spaces, with a recommendation for educational institutions to incorporate technology and environments that foster creative learning engagement.

Keywords: learning innovation, learning management, learning space, elementary school

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Introduction

The Sustainable Development Goals (SDGs) in education emphasize the provision of quality education that ensures inclusive and equitable access for all learners, alongside the delivery of vocational education and training at affordable and equitable tuition rates. These efforts are intended to reduce educational, economic, and social inequalities, thereby enabling learners to attain higher standards of educational quality (UNESCO, 2005). Consequently, educational management systems that promote universal access to education have emerged as a critical national priority. Primary education serves as a fundamental foundation for the development of essential skills in reading, writing, and numeracy, which are vital for lifelong learning (UNESCO, 2015) and for advancing educational equity. Moreover, primary education contributes to the development of learners' social, emotional, and problem-solving competencies, enabling them to adapt to societal demands and participate effectively in social contexts. Access to high-quality basic education has a significant influence on future economic opportunities and overall quality of life (World Bank, 2018). Therefore, promoting equitable access to education plays a crucial role in reducing social inequalities and fostering the sustainable development of learners' quality of life.

Enhancing access to education and improving learner quality necessitate the deliberate creation of effective learning spaces. Learning spaces are defined as learning-related environments that encompass both physical and virtual contexts in which teaching and learning activities occur. These environments must be intentionally designed to support knowledge construction, learner engagement, and meaningful interaction between students and teachers. Learning spaces may take diverse forms and serve multiple purposes, including traditional classrooms, out-of-class learning environments, and virtual learning platforms (Thorhauge, 2015). The development of such learning spaces is therefore essential for achieving equity in learning and promoting educational equality. Accordingly, educational institutions must establish environments that support equal learning opportunities for all learners by ensuring accessibility, providing adequate resources, designing inclusive settings, delivering appropriate support services, and fostering community engagement (Oblinger, 2006).

The creation of effective learning spaces requires innovative blended learning management, which represents a systematic approach to instructional design, strategies, and pedagogical methods that integrate time, place, and modes of teaching and learning. This approach combines face-to-face instruction, online interaction, and the strategic use of information technology to construct learning spaces that incorporate both physical and virtual dimensions, supported by interconnected digital systems (Nordquist & Laing, 2015). Such integration enhances flexibility in accommodating diverse learning activities, expands access to learning opportunities, supports personalized learning, encourages collaborative learning, promotes learner autonomy, facilitates anytime-and-anywhere learning support, and develops learning skills aligned with individual learner needs (Thorhauge, 2015). Consequently, the development of learning spaces functions as a key mechanism for advancing equity in learning and improving educational quality.

Learning management constitutes a critical condition for the development of learning spaces and the realization of educational equity. Effective learning management requires careful planning and the purposeful integration of both physical and virtual learning environments. This integrated approach enhances educational experiences, addresses diverse learner needs, and leads to improved learning outcomes (Starr-Glass, 2022). Educational institutions, therefore, need to implement learning management practices grounded in innovation,

commonly referred to as learning innovation. Learning innovation involves the adoption of new strategies, methods, and applications of technologies and practices aimed at enhancing learning processes and environments. It encompasses innovative learning activities, the development of new educational technologies, the application of novel teaching approaches, and the creation of effective learning environments. These innovations enhance teaching and learning processes and improve learner outcomes by fostering more engaging, effective, and meaningful learning experiences, ultimately strengthening educational quality and learners' knowledge and skills (Oblinger, 2006).

For these reasons, educational institutions must adopt innovative learning management models that involve changes in instructional formats, pedagogical methods, and learning processes to ensure equitable access to education for all learners, while simultaneously providing educators with effective approaches to support learner development. Accordingly, this study aims to investigate a model of innovative learning management for the creation of learning spaces for primary school students, with the intention of applying the research findings to benefit educational institutions and to contribute to the enhancement of quality education for learners across all groups.

Literature Review

Concept of Learning Spaces

A learning space refers to a flexible and intentionally designed environment that enables learners and educators to organize learning activities in accordance with users' needs and developmental stages. The design of spatial elements, furniture, and facilities should be adaptable and movable to accommodate a variety of learning activities. Learning spaces support diverse forms of engagement, including conversation, brainstorming, discussion, exhibitions, and the expression of children's and youths' abilities and talents. An effective learning space fosters a positive atmosphere that promotes creativity, enjoyment, and meaningful learning experiences (Thorhaug, 2015).

Learning spaces encompass both tangible physical spaces and virtual environments. Physical learning spaces consider essential environmental factors such as lighting, acoustics, ventilation, and air quality, while virtual learning spaces emphasize usability, accessibility, and the effective integration of information and communication technologies. Contemporary and future learning contexts are increasingly characterized by the integration and connectivity between physical and virtual spaces, enabling more flexible, interactive, and technology-supported learning experiences (Nordquist & Laing, 2015).

The organization of learning spaces through inclusive classroom environments plays a critical role in reducing discrimination and barriers to learning. Inclusive learning spaces enable learners to access appropriate support services, encourage collaborative learning activities, and promote educational equity (Harerimana, 2019). Equity derived from the design and management of learning spaces is therefore essential for ensuring equal learning opportunities, equitable access to qualified teachers, and the availability of high-quality educational resources for all learners. Ultimately, well-designed learning spaces contribute to the overall improvement of educational quality and learner outcomes (Wood et al., 2011).

Concept of Learning Innovation

Learning innovation refers to the creation, adoption, and application of new ideas, methods, and tools that enhance the effectiveness of teaching, learning processes, and learning management. Its primary objective is to transform traditional educational practices so that learning becomes more responsive to contemporary social and technological changes, more relevant to learners' needs, and more engaging in terms of learner participation (Kim & Maloney, 2020). Learning innovation emphasizes active learner engagement, individualized learning management, and the provision of meaningful learning experiences that lead to improved learning outcomes.

Learning innovation comprises three key dimensions. Product innovation refers to innovations related to curriculum development that align with contextual conditions and address individual learner needs, such as integrated curricula, individualized curricula, activity- and experience-based curricula, and locally contextualized curricula (OECD/Eurostat, 2018). Process innovation involves the introduction of innovative teaching and learning approaches, instructional media, and assessment methods designed to enhance learning effectiveness and support learner development. Management innovation focuses on the innovative use of information systems and digital technologies to support administrative management, improve efficiency, and enhance decision-making by educational administrators (Tidd & Bessant, 2021).

Through these dimensions, learning innovation promotes a shift toward learner-centered education and supports the development of essential twenty-first-century competencies, including critical thinking, creativity, collaboration, and problem-solving skills. These competencies are crucial for preparing learners to succeed in complex and rapidly changing social and professional contexts (Fullan & Langworthy, 2014).

Concept of Learning Management

Learning management refers to a systematic process involving the planning, design, organization, implementation, and assessment of learning activities to facilitate effective learning outcomes, with a strong emphasis on learner-centered approaches (Jonassen & Land, 2012). Effective learning management ensures alignment between educational objectives, instructional strategies, learning activities, and assessment practices.

Learning management comprises four key dimensions. Curriculum refers to the analysis of educational goals, the clarification of course objectives, and the formulation of clear and measurable learning outcomes. It also involves the selection and organization of content that aligns with learners' contexts and integrates twenty-first-century skills. Instruction involves the selection and application of appropriate teaching methods and learning management strategies that enable learners to achieve the intended learning objectives. This dimension emphasizes learner-centered instruction and accounts for individual differences among learners, including learning styles, abilities, and interests (Tomlinson, 2014). Measurement refers to the selection of appropriate assessment tools and methods, as well as the analysis of learning outcomes, to monitor learners' progress and development. Evaluation of learning management involves the systematic evaluation of the overall effectiveness of learning management processes, enabling educators to enhance learner quality and continuously improve educational quality (Nitko & Brookhart, 2014).

Research Methodology

This study employed a qualitative research approach to explore innovative learning management practices for creating learning spaces for primary school students. The research procedures were conducted as follows.

Key Informants

The key informants consisted of 20 participants, including school administrators, heads of learning areas, and teachers, drawn from four model primary schools in Thailand. These schools had received national-level awards for excellence in innovation and learning management, indicating their relevance to the objectives of the study. The selection of key informants was based on theoretical sampling (Corbin & Strauss, 2008), a method that involves identifying participants according to their relevance to the research conceptual framework.

Initially, informants were selected based on broadly defined characteristics aligned with the study's conceptual framework. Following data collection from the first informant, the researcher conducted preliminary data analysis and developed tentative hypotheses. These hypotheses then guided the selection of subsequent informants, particularly those expected to provide contrasting perspectives or non-supportive information (negative cases). Data obtained from these informants were continuously compared and used to refine, elaborate, and revise the emerging theoretical interpretations, thereby enhancing the depth and credibility of the findings.

Research Instruments

The primary research instrument was a semi-structured in-depth interview guide. The interview questions were developed based on the research conceptual framework, operational definitions of key constructs, and findings from the initial stage of the study to identify relevant issues for in-depth exploration. Sample interview questions included: "How does the school manage learning for primary school students to foster learner development?" "What learning innovations does the school implement for primary school students?" and "How does the school organize learning management to enhance learner development through learning spaces?"

To ensure the quality and appropriateness of the interview guide, pilot testing was conducted with key informants who were not part of the study sites. This process aimed to assess the clarity and comprehensibility of the questions, the alignment of the questions with the research objectives, the logical sequencing of the interview content, and the nature of participants' responses (Charmaz, 2014). Based on the pilot results, the interview guide was revised and refined prior to formal data collection.

Data Analysis

Data analysis was conducted using thematic analysis of the interview data (Creswell, 2018). This analytical process involved systematic coding, categorization, and theme development to identify patterns and relationships within the data. The analysis aimed to generate a comprehensive model of innovative learning management for the creation of learning spaces for primary school students. The resulting model comprises key components, including

learning management conditions, processes for developing learning innovations, mechanisms for creating learning spaces, and learning outcomes.

Research Findings

A Model of Innovative Learning Management for Creating Learning Spaces for Primary School Students

Based on in-depth interviews with key informants from four model primary schools, this study identified a comprehensive model of innovative learning management for creating learning spaces for primary school students. The findings address four interrelated components: (1) learning management conditions, (2) processes for developing learning innovations, (3) the creation of learning spaces, and (4) learning outcomes. Each component is presented in detail below.

Learning Management Conditions

The model primary schools implemented diverse and integrated learning management approaches, including the following:

1. Active learning, emphasizing hands-on practice and active learner participation;
2. Learner-centered learning, which positions students as central agents in a wide range of learning activities;
3. STEM-based learning, integrating science, technology, engineering, and mathematics across disciplinary boundaries; and
4. Project-based learning, in which students learn through projects involving planning, implementation, presentation, and evaluation.

Learning management emerged as a crucial foundation for the development of learning innovations for primary school students. Effective instructional design motivates teachers and schools to develop new teaching models, instructional media, and learning activities that respond to learners' needs and promote engagement, experiential learning, analytical thinking, problem-solving, and creative production. These elements constitute key foundations for classroom innovation. Furthermore, innovative learning management approaches support the creation of learning spaces that enable learners to experiment, explore, and independently develop ideas, thereby enhancing learning efficiency and providing novel and challenging learning experiences for primary school students.

Processes for Developing Learning Innovations

The model primary schools developed learning innovations across four interrelated dimensions:

1. Curriculum innovation, through the development of new curricula incorporating project-based learning and game-based learning;
2. Instructional innovation, through the adoption and refinement of innovative teaching methods;
3. Educational technology innovation, through the integration of online learning with face-to-face instruction; and
4. Educational management innovation, through the systematic use of technology and data to manage educational resources within schools.

The development of learning innovations expanded opportunities for accessing education in diverse forms. Learning innovations played a significant role in creating learning spaces for primary school students by transforming classrooms into environments that foster thinking, hands-on engagement, and interaction among learners. As a result, classrooms became more flexible and diverse, allowing students to select learning activities, instructional media, and learning corners aligned with their interests. Moreover, the integration of educational technology extended learning spaces beyond physical classrooms to virtual environments, enabling learners to access a broader range of information and learning experiences. Consequently, learning innovations contributed to the creation of learning environments that stimulate interest, promote creativity, and enhance the skills of primary school students.

Creation of Learning Spaces

The model primary schools organized learning spaces both within and beyond school settings. On-campus learning spaces included libraries, laboratories, computer rooms, and sports fields. Off-campus learning spaces comprised community-based learning resources, such as community learning centers, natural resource sites, local museums, and religious institutions. These diverse learning spaces enabled schools to connect formal learning with real-world contexts and community resources, thereby enriching learners' educational experiences.

Effects of Creating Learning Spaces

The creation of learning spaces constitutes a critical condition for enhancing learners' learning outcomes. Well-designed learning spaces increase learning efficiency, foster the development of multiple skills, enable learners to select learning methods suited to their individual needs, and reduce barriers to accessing information and new experiences. Such spaces promote equitable learning opportunities, expand access to education, and support the comprehensive development of skills that address learner diversity. Appropriately designed learning spaces therefore have a direct impact on the cognitive, skill-based, and affective development of primary school students by improving academic achievement, enhancing self-confidence, encouraging participation, and fostering positive learner attributes.

Learning Outcomes

Learner-centered learning management, learning innovations aligned with contemporary instructional practices and learner contexts, and flexible learning spaces that support both learning management and innovation collectively enhance learner engagement and development. The success of the model primary schools resulted in learning outcomes in two main areas:

1. Diverse learning modalities, including group learning, experiential learning, online learning, and blended learning; and
2. Learner skill development, encompassing academic competence, analytical thinking skills, collaboration, and responsibility for one's own learning.

These outcomes reflect the effectiveness of innovative learning management in supporting holistic learner development. The findings can be synthesized into a comprehensive model of innovative learning management for creating learning spaces for primary school students.

Theoretical Proposition

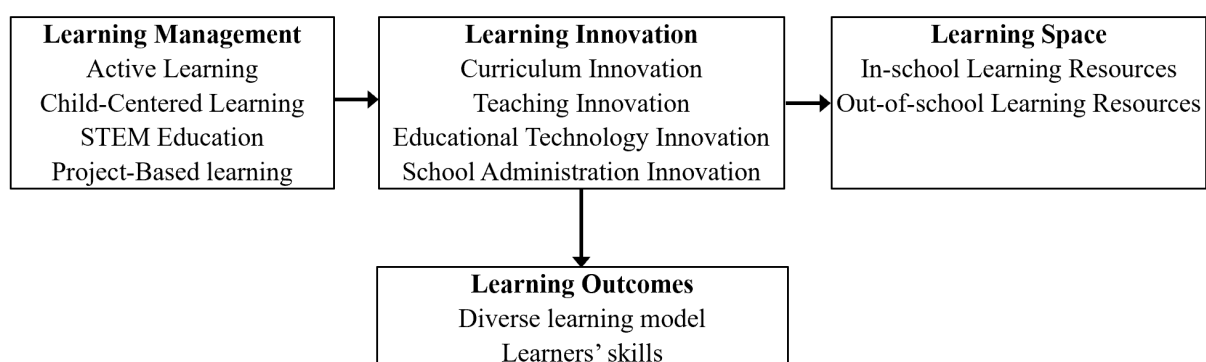
The theoretical proposition derived from this study suggests that learning management serves as a fundamental condition for the development of learning innovations and the creation of learning spaces, which together lead systematically to improved learning outcomes for primary school students. The model primary schools employed diverse learning management approaches, including active learning that emphasizes hands-on practice and learner participation; learner-centered learning that positions students as central agents in learning activities; STEM-based learning that integrates multiple disciplines; and project-based learning that promotes learning through planning, implementation, presentation, and evaluation processes. These approaches stimulate analytical thinking, problem-solving, and creativity, which form the foundation for classroom innovation.

Under these learning management conditions, schools developed learning innovations across multiple dimensions—curriculum, instruction, educational technology, and educational management. These innovations transformed classrooms into flexible learning spaces, enabled learners to select learning methods aligned with their interests, and expanded learning spaces from classrooms to community and digital environments. The creation of learning spaces both within schools and in community contexts functions as a supportive condition that enhances access to learning, reduces resource constraints, and promotes educational equity.

Appropriately designed learning spaces directly influence learning outcomes by supporting diverse learning modalities and the development of essential learner skills, including academic knowledge, analytical thinking, collaboration, and responsibility for self-directed learning. These outcomes demonstrate the effectiveness of the model primary schools in fostering holistic learner development, as illustrated in Figure 1.

Figure 1

A Model of Innovative Learning Management for Creating Learning Spaces for Primary School Students



Discussion

Learning management approaches—including Active Learning, learner-centered learning, STEM-based learning through interdisciplinary integration, and project-based learning—serve as key drivers of curriculum innovation. These approaches lead to the development of integrated curricula, individualized curricula, activity- and experience-based curricula, local curricula, and curricula for excellence. In addition, they foster innovations in instructional management aimed at holistic learner development, including the enhancement of basic life skills, self-directed learning skills, analytical thinking skills, systematic learning, and the

application of best practices. This is because learner-centered learning management, particularly Active Learning and project-based learning, encourages teachers to design instructional methods that accommodate diverse learning styles and respond effectively to learners' needs. Learning management that emphasizes hands-on practice, collaboration, and problem-solving supports the creation of learning innovations that promote analytical thinking and self-directed learning.

Moreover, learning management increasingly integrates the use of technology in instruction, including digital media, online learning platforms, and technological tools for creative production. The development of learning innovations through technology supports flexible and accessible learning environments, stimulates learners' interest, and enhances learner engagement by making learning more interactive and enjoyable. Furthermore, learning management that emphasizes interdisciplinary knowledge integration gives rise to learning innovations that address the need to connect knowledge across multiple subject areas. Such innovations enable learners to understand and apply knowledge in real-life contexts and to engage in learning activities linked to their everyday experiences, thereby enhancing the relevance and meaningfulness of learning. These findings are consistent with Muhammad et al. (2024), who reported that physical, virtual, and blended learning spaces enhance student interaction and learning motivation, and that well-designed learning spaces foster more engaging learning environments.

The findings further indicate that learning management approaches including Active Learning, learner-centered learning, STEM-based learning, and project-based learning contribute to the development of learning innovations across multiple domains, including curriculum, instructional methods, educational technology, and school management. These innovations support the development of learning resources that enhance access to learning opportunities and promote the development of learners' skills. Moreover, the results demonstrate that learning innovation has a statistically significant effect on learning spaces. This relationship can be explained by the central role of learning innovation in transforming and enhancing learning environments in terms of instructional practices, spatial organization, and learner outcomes. Learning innovations drive the adaptation of learning environments to better support innovative pedagogical practices and respond to learners' diverse needs. This includes the design of flexible classroom learning spaces that accommodate a wide range of learning activities, as well as the utilization of community resources to expand learning opportunities connected to real-life experiences.

In addition, learning innovations emphasize community participation and the use of local resources in learning management, thereby extending learning spaces beyond the classroom and strengthening connections between learning and students' real-life contexts. This expansion enhances the meaningfulness of learning experiences and fosters stronger relationships between learners and their communities. These findings align with Kotlyarova (2023), who found that creative learning spaces support diverse instructional approaches that stimulate creativity and learner engagement, with interaction playing a critical role in the effective development of educational environments. Consequently, learning spaces both within and beyond educational institutions—are created and enriched through innovative practices and contemporary instructional approaches, including project-based and experiential learning.

Furthermore, the findings reveal that the learning space model for primary school students emphasizes learning innovation across multiple dimensions. Curriculum innovation involves the development of new learning curricula; instructional innovation focuses on the creation of

new teaching methods; educational technology innovation entails the application of new technologies to enhance learning experiences; and school management innovation involves the adoption of innovative technologies and practices for educational administration. Collectively, these forms of innovation play a significant role in creating flexible learning environments, fostering learner engagement, and positioning students as active participants in the learning process through hands-on practice, creative production, and real-life problem-solving. In addition, they promote community involvement in the development of learning resources and ensure that learners from diverse backgrounds have equitable access to a variety of learning modalities.

Research Recommendations

The Importance of Learning Innovation for Learning Spaces

The findings of this study indicate that learning innovation plays a critical role in the development and enhancement of learning spaces. Educational institutions should therefore integrate educational technologies with the intentional design of learning spaces in ways that support creative, interactive, and participatory learning. Such integration enables learners to access information and diverse learning resources equitably, promotes active engagement in self-directed inquiry, and supports the development of essential competencies among primary school students, including collaboration, analytical thinking, and creative thinking skills. Well-designed learning spaces that are grounded in learning innovation thus function as enabling environments that foster inclusive, meaningful, and high-quality learning experiences.

The Importance of Learning Management for Learning Innovation

This study further highlights the importance of learning management as a foundational condition for the development of learning innovation. Educational institutions should encourage teachers to design flexible and open learning environments that support the effective use of technology and the creation of classroom innovations. Flexible and adaptive learning management practices stimulate learners' creativity and problem-solving abilities by allowing them to explore, experiment, and engage in diverse learning activities. Teachers play a crucial role in designing learning experiences that are engaging and motivating, while cultivating an open and supportive classroom atmosphere that encourages learners to experiment with, reflect on, and present new ideas.

Such learning environments promote active learner participation and provide the conditions necessary for the emergence of learning innovations. These innovative learning experiences contribute to the development of essential competencies required in the digital era, including self-directed learning, collaboration, and creative problem-solving. In addition, sustained professional development and institutional support are essential to enhance teachers' competencies in the use of modern media, digital tools, and innovative instructional strategies. By strengthening teachers' capacities in these areas, schools can ensure the effective implementation of learning management practices that integrate technology and innovation, thereby enhancing meaningful and high-quality learning experiences for primary school students.

Conclusion

This study examined an innovative learning management model for creating learning spaces for elementary school students, with the aim of promoting equity in learning and enhancing learner quality. The findings indicate that effective learning spaces are not merely physical or virtual environments, but rather the outcomes of systematic integration among learning management, learning innovation, and learning space design. Learning management approaches such as Active Learning, learner-centered learning, STEM-based learning, and project-based learning function as foundational conditions that stimulate the development of learning innovations aligned with learners' needs and real-life contexts.

Learning innovation plays a critical mediating role in transforming traditional classrooms into flexible, inclusive, and learner-responsive learning spaces. Innovations in curriculum, instructional practices, educational technology, and school management expand learning opportunities and extend learning spaces beyond the classroom to include virtual platforms and community-based resources. These innovations enhance accessibility, promote learner engagement, and support diverse learning modalities that accommodate individual differences among learners. The creation of learning spaces both within and beyond school settings directly contributes to improved learning outcomes by fostering academic achievement, analytical thinking, collaboration, and learners' responsibility for their own learning.

Overall, the proposed model underscores a dynamic and interdependent relationship in which learning management drives learning innovation, which in turn enables the creation of effective learning spaces that lead to meaningful and sustainable learning outcomes. This integrated approach offers practical guidance for educational institutions seeking to enhance educational equity and support holistic learner development in primary education, particularly in contexts characterized by increasing diversity and rapid technological change.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that Grammarly, an AI-assisted writing software, was used in proofreading and refining the language used in the manuscript. The usage was limited to correcting grammatical and spelling errors and rephrasing statements for accuracy and clarity. The author further declares that, apart from Grammarly, no other AI or AI-assisted technologies have been used to generate content in writing the manuscript. The ideas, design, procedures, findings, analyses, and discussion are originally written and derived from appropriate and systematic conduct of the research.

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Contact email: Nopporncu@gmail.com