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Strategies for developing learning ecosystems to promote lifelong learners in private schools

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Abstract

This mixed-methods research aimed to (1) examine learning ecosystem conditions in best-practice private schools, (2) analyze environmental factors affecting learning ecosystem development, and (3) formulate strategies for developing learning ecosystems that promote lifelong learners. The study employed a three-phase design: Investigating learning ecosystem conditions across seven large and extra-large private schools n = 470, conducting environmental analysis through in-depth interviews with nine experts using SOAR Analysis framework, and engaging 21 qualified experts in strategy formulation through workshops.
Results revealed: (1) Learning environment as the primary influential factor ($\bar{x}$ = 4.41, SD = .55), followed by policy and strategy ($\bar{x}$ = 4.40, SD = .58), stakeholder engagement ($\bar{x}$ = 4.38, SD = .50), curriculum and learning management ($\bar{x}$ = 4.33, SD = .54), and digital technology access ($\bar{x}$ = 4.33, SD = .58). (2) The paired factor analysis revealed two key dimensions. The Strategic Inquiry identified crucial development areas including educational excellence, management flexibility, organizational culture, and technological integration. The Appreciative Intent analysis highlighted essential outcomes focusing on sustainable collaboration, self-directed learning capabilities, and innovative teaching approaches. Environmental analysis further revealed six strategic advantages, six challenges, and five opportunities. (3) The study culminated in six key strategies: Enhancing organizational environment, strengthening stakeholder relationships, elevating learning management quality, improving digital technology accessibility, fostering innovation value, and advancing sustainable organizational management. These findings contribute to the theoretical understanding of learning ecosystem development and provide practical implications for private educational institutions promoting lifelong learning.

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Introduction

The digital revolution has fundamentally redefined the boundaries of learning, transforming education into a continuous and borderless process. This transformation, driven by ubiquitous access to technology and information, has enabled learning to transcend traditional constraints of time and space (Organisation for Economic Co-operation and Development, 2017). The proliferation of digital platforms and collaboration tools necessitates fundamental changes in how educational structures facilitate knowledge acquisition and skills development. As lifelong learning becomes essential in contemporary education, developing critical competencies—particularly agility, adaptability, and critical thinking—is crucial for navigating our rapidly evolving global landscape. However, despite growing recognition of its importance, implementing effective lifelong learning remains challenging, especially in systems still transitioning toward digital transformation (Ab Jalil et al., 2022). Addressing this challenge requires developing comprehensive learning ecosystems that systematically integrate diverse educational components to foster continuous learning and competency development in an increasingly dynamic world.

Learning ecosystems represent an innovative approach to educational management that emphasizes the interconnection of diverse stakeholders through collaborative interactions, technological integration, and resource sharing to create learning experiences responsive to societal needs. As a comprehensive framework, learning ecosystems integrate various educational components—including curriculum, teaching methods, technology infrastructure, and stakeholder engagement—into a cohesive and dynamic environment (Otto & Kerres, 2023). This concept fundamentally differs from traditional educational systems across six key dimensions: (1) learner-centered focus, (2) promotion of lifelong learning, (3) expansion of learning spaces to diverse resources, (4) flexible and personalized learning management, (5) alignment with societal and entrepreneurial needs, and (6) participatory management from various sectors (Turbot & Duncan-Bauné, 2022). However, developing effective learning ecosystems requires careful consideration of multiple factors, including environmental conditions, stakeholder needs, and institutional capabilities (Redmond & Macfadyen, 2020). In this regard, private schools present a particularly promising context for implementing learning ecosystems due to their relatively greater autonomy in adopting innovative educational approaches. Specifically, private schools in Thailand, with their flexibility in management and resource allocation, offer a unique opportunity to explore and enhance these learning ecosystems.

Although existing literature highlights the value of learning ecosystems in promoting lifelong learning, significant gaps remain in understanding their application within the education sector, particularly in developing countries. Research has identified several key challenges including insufficient resource integration, limited community engagement, and inadequate digital technology utilization, which have hindered the full potential of learning ecosystems (Kozyreva et al., 2022). Moreover, there is limited empirical research on strategic frameworks that effectively align learning ecosystem components to address schools' unique needs (Turbot & Duncan-Bauné, 2022). In Thailand's context, the Lifelong Learning Index 2020 was developed across three dimensions: (1) learning ecosystems that promote lifelong learning, (2) characteristics and skills of lifelong learners, and (3) educational outcomes manifested in health, financial, civic, and environmental competencies. The findings revealed critical challenges in the learning ecosystem dimension, which scored the lowest at .33 out of 1.00 among all three dimensions. Detailed analysis of indicators showed concerning scores: adequacy of learning spaces (.38), accessibility of learning opportunities (.44), and most critically, stakeholder participation in organizing learning ecosystems (.17). These metrics highlight an urgent need to enhance multi-stakeholder participation in developing learning ecosystems that promote lifelong learning (Office of the Education Council, 2021). From this educational landscape, significant empirical gaps and practical challenges emerge, necessitating targeted research examining both the structural elements and broader sociocultural implications of learning ecosystems. Private schools present optimal environments for implementing Distributed Learning Ecosystems (DLEs), offering the operational flexibility required to transcend traditional pedagogical boundaries and facilitate continuous, lifelong learning aligned with global sustainability objectives. These learning ecosystems foster inclusivity through the creation of accessible educational spaces where learners actively co-construct knowledge and engage with diverse resources. Without comprehensive understanding and strategic implementation, however, such initiatives risk fragmentation and diminished efficacy, potentially compromising their capacity to support sustainable educational development (Otto & Kerres, 2023). This research explores how private schools can strategically leverage Learning Ecosystems to enhance learner agency, democratize educational access, and cultivate resilient educational frameworks that respond dynamically to emerging challenges.

Therefore, this study aims to address these gaps by examining how learning ecosystems can be strategically

developed within private schools. The research objectives are: (1) to study the learning ecosystems in best-practice private schools, (2) to analyze the environmental factors affecting learning ecosystem development, and (3) to develop strategies for enhancing learning ecosystems that promote lifelong learners. The significance of this study lies in its potential to inform policy and practice in private education, particularly in promoting lifelong learning through well-designed learning ecosystems. The findings are expected to provide valuable insights for educational administrators, policymakers, and researchers interested in enhancing educational quality through systematic ecosystem development.

Literature Review

Learning Ecosystem Framework

Learning ecosystems are conceptualized as dynamic networks of interrelated components that enhance learning experiences through the integration of individuals, resources, and processes. Otto and Kerres (2023) describe learning ecosystems as dynamic frameworks that incorporate biotic and abiotic elements in adaptive educational environments. Hecht and Crowley (2019) emphasize their function as relational processes evolving through stakeholder interactions. These ecosystems address 21st-century educational challenges, with Spencer-Keyse et al. (2020) noting their role in fostering lifelong learning and adaptability. Turbot and Duncan-Bauné (2022) highlight their potential for bridging educational gaps through partnerships, while Kozyreva et al. (2022) emphasize their importance in promoting educational equity and sustainability. Based on a comprehensive literature review of 27 academic sources, this study synthesized five key components of learning ecosystems. A detailed analysis and consolidation of these components is presented in Table 1.

Furthermore, the evolution of these ecosystems requires careful consideration of local contexts and resources. Kozyreva et al. (2022) highlighted the importance of strategic planning focused on digital transformation and stakeholder engagement. However, as noted by Redmond and Macfadyen (2020), implementation challenges persist, particularly regarding resource distribution and technological integration, necessitating robust frameworks for sustainable development in emerging educational contexts.

Table 1 Synthesis of learning ecosystem components

Variables	Frequency	Percentage	Consolidated Variables	Component
Students	18	66.67	Student Learning	Stakeholder Engagement
Peers	7	25.93		
Teachers / Coaches	18	66.67	Facilitating Teacher	
Facilitators	12	44.44		
Academics / Educators	9	33.33		
Experts / Scholars	8	29.63		
Advisors / Mentors	7	25.93		
Administrators	7	25.93		
Parents / Families	14	51.85	Parental Support	
Support Providers	12	44.44		
Technology / Platforms	20	74.04	Platform and Educational Software	Digital Access
Software Access	5	18.52		
Internet	7	25.93	Internet Infrastructure	
Technology Devices	1	3.70	Technology Devices	
Curriculum / Content	17	62.96	Curriculum and Content Design	Curriculum and Learning Management
Learning Activities	11	40.74	Learning Activity Management	
Evaluation / Assessment	3	11.11		
Goals/Direction	15	55.56	Educational Goal and Direction	Policies and Strategies
Culture	7	25.93	School Culture and Values	
Values	3	11.11		
Commanding / Participation	8	29.63	Governance and Participation	
Climate	14	51.85	Building Learning Climate	Learning Environment
Facilities	8	29.63	Educational Facilities	
Classroom Settings	3	11.11		
Spaces / Resources	11	40.74	Managing Learning Resources	

Lifelong Learning

Lifelong learning is a continuous and dynamic process of acquiring knowledge, skills, and competencies to adapt to the complexities of a rapidly changing world. Fleming (2021) defines lifelong learning as encompassing formal education, non-formal training, and informal learning experiences that transcend traditional educational boundaries. This comprehensive approach reflects the evolving nature of learning in contemporary society. The concept of lifelong learning operates across multiple levels, as outlined by Akther (2020). At the micro level, it involves family-based learning and personal development. The meso level encompasses community initiatives and organizational learning programs, while the macro level addresses broader societal and global educational needs. Each level contributes to creating a comprehensive learning ecosystem that supports continuous development across different life stages. Office of National Higher Education, Science, Research, and Innovation Policy Council (2020), alongside Poquet and de Laat (2021), emphasizes the crucial role of inclusive learning systems. These systems must accommodate diverse demographic groups and learning contexts, from early childhood to senior education. Digital technologies and artificial intelligence are increasingly central to this vision, enabling personalized learning experiences through adaptive learning platforms, virtual reality simulations, and AI-powered tutoring systems. Empirical research demonstrates lifelong learning's significant impact on society and economy. Eschenbacher and Fleming (2020) document how digital learning platforms and virtual communities fostered educational resilience during the COVID-19 pandemic, enabling continuous learning despite physical restrictions. Similarly, Akther (2020) highlights UNESCO's initiatives in promoting digital literacy and online learning resources for underserved populations, effectively reducing educational disparities. In Thailand's context, lifelong learning is recognized as a key strategy for addressing societal challenges. The Office of National Higher Education, Science, Research, and Innovation Policy Council (2020) emphasizes its role in enhancing workforce adaptability and reducing socioeconomic inequalities. This involves developing flexible learning pathways, integrating technology-enhanced learning solutions, and fostering partnerships between educational institutions and industry stakeholders.

To advance lifelong learning, researchers and policymakers advocate advancing lifelong learning through fostering self-directed learning cultures and personalized curricula within collaborative ecosystems. Private educational institutions are especially positioned to establish flexible, inclusive learning environments that align foundational education with lifelong learning principles. This strategic approach is essential for building resilient educational systems that meet evolving societal and global economic demands.

Strategic Management

Strategic management is a fundamental concept enabling organizations to achieve long-term objectives through systematic planning, execution, and evaluation. As Shetti and Kumari (2022) states, strategic management encompasses the evaluation of organizational goals, the development of actionable plans, and the effective allocation of resources. In educational institutions, strategic management plays a crucial role in designing and implementing effective learning ecosystems that respond to stakeholder needs and environmental changes. According to Rattanaphan (2013), strategic management involves comprehensive planning, implementation, and assessment of strategies to align organizational efforts with stakeholder needs and institutional goals. While traditional tools like SWOT Analysis have been widely used for strategic planning, this study employs SOAR Analysis (Strengths, Opportunities, Aspirations and Results), which offers a more positive and forward-looking approach to organizational development. Mahsun et al. (2022) define SOAR Analysis as a strategic planning framework derived from Appreciative Inquiry methodology, emphasizing positive, forward-looking organizational transformation. SOAR differentiates itself by leveraging organizational strengths and external opportunities while fostering stakeholder collaboration. Its focus on shared aspirations and measurable outcomes enables organizations to develop inspiring strategies that drive meaningful, sustainable change. SOAR's distinctive advantage lies in its positive organizational approach and ability to engage stakeholders across all hierarchical levels. Unlike SWOT analysis, which typically highlights weaknesses and threats, SOAR enhances creativity, boosts organizational morale, and promotes strength-based strategic thinking. Waitayapanich (2020) emphasizes that SOAR's collaborative and strength-based methodology enable the creation of innovative and sustainable learning ecosystems. Its application provides an effective framework for strategic development in educational institutions, particularly when complemented by other analytical tools and stakeholder input. This study employed SOAR Analysis using qualitative data collected from key stakeholders involved in developing learning ecosystems within private schools. Through thematic analysis, researchers identified critical elements across all SOAR dimensions—Strengths, Opportunities, Aspirations, and Results. These findings were synthesized to determine strategic directions by analyzing Strategic Advantages, Challenges, and Opportunities, ultimately generating strategies for developing learning ecosystems that cultivate lifelong learners in private education contexts. The overall conceptual framework derived from this process is illustrated in Figure 1.

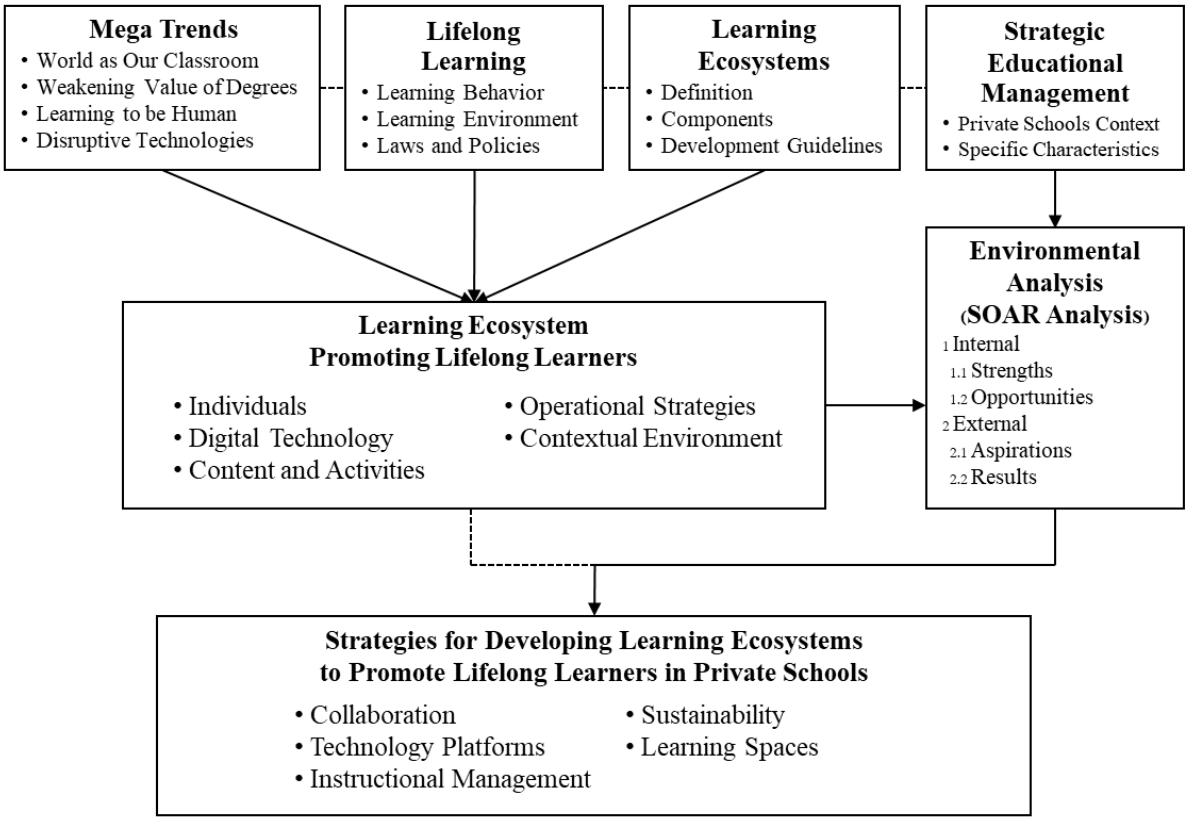


Figure 1 Conceptual model of the study

Methodology

This research employed a mixed-methods design conducted in three phases: Phase 1 focused on examining the current state of the learning ecosystem; Phase 2 involved analyzing the environmental factors affecting learning ecosystem development; and Phase 3 centered on developing strategic approaches for learning ecosystem enhancement in private basic education institutions. The study was conducted with approval from the Chiang Mai University Research Ethics Committee on February 6, 2024 (CMUREC No. 66/389 COA No. 022/67).

Participants

The research involved multiple stakeholder groups across its three phases. In Phase 1, data were collected from 470 participants, including administrators, teachers, and parents from seven large and extra-large private schools, chosen through stratified random sampling based on school size and geographical distribution to ensure representativeness. Selection criteria also included recognition for excellence, prioritizing institutions that had received prestigious national or international awards relevant to learning ecosystem components. Selected schools had earned accolades such as the Royal School Awards, international certification for educational quality, or outstanding achievement awards in areas related to learning ecosystem development. Phase 2 involved 9 experts with a minimum of three years of experience in educational administration or current involvement in educational policy implementation. These experts, selected through purposive sampling, comprised: Two basic education policy steering committee members, two university professors with relevant academic publications or research experience, and five school-level policy implementation committee members or qualified representatives from best-practice model schools. Phase 3 comprised 21 qualified experts selected through purposive

sampling: Three school-level policy steering committee members, six school administrators or qualified representatives from best-practice model schools, eight teachers from best-practice model schools, and four parents.

Research Instruments

Phase 1 employed a questionnaire examining the learning ecosystem status across five dimensions: stakeholder engagement, digital technology access, curriculum and learning management, policies and strategies, and learning environment. The questionnaire utilized a five-point Likert scale and underwent content validity assessment through the Index of Item Objective Congruence (IOC) evaluation by five experts, yielding IOC values ranging from .60 to 1.00. The reliability was established through a pilot study with 30 participants, using Cronbach's Alpha Coefficient, which yielded an overall reliability coefficient of .968. Phase 2 utilized a semi-structured interview protocol focusing on learning ecosystem development. The interview framework was structured around the SOAR analysis approach: Strengths, Opportunities, Aspirations, and Results, aligned with the learning ecosystem components, along with recommendations. The interview protocol underwent content validity assessment through IOC evaluation by five experts, achieving IOC values between .60 and .80. A pilot study was conducted with three participants who possessed similar characteristics to the target group. Phase 3 involved workshop documentation for developing learning ecosystem strategies for private basic education institutions. These materials were reviewed and refined based on research advisors' recommendations prior to implementation.

Data Collection

Multiple data collection methods were employed across phases. Phase 1 data collection was conducted via Google Forms with mandatory user authentication, allowing only one response per account to ensure data integrity. The data collection period spanned 47 days, from March 4 to April 19, 2024, yielding responses from 470 participants. Phase 2 involved in-depth interviews conducted through both face-to-face meetings and internet-based video conferencing platforms. Data collection for this phase extended over 54 days, from May 20 to July 12, 2024, with each interview session lasting approximately 40–60 min. Phase 3 culminated in a one-day strategy development workshop held on November 14, 2024, with coordinated participation from the target group.

Data Analysis

The analysis framework integrated both quantitative and qualitative approaches across phases. Phase 1 utilized statistical software for descriptive analysis, including percentage, mean, and standard deviation (S.D.). Phase 2 employed content analysis following the SOAR Analysis framework (Strengths, Opportunities, Aspirations, Results) and research objectives. The analysis involved pairing SO data to identify Strategic Inquiry and AR data to determine Appreciative Intent. Additionally, strategic aspects were analyzed, including Strategic Advantage, Strategic Challenge, and Strategic Opportunities. The SOAR analysis process and strategic analysis were validated by five experts. Phase 3 utilized content analysis with narrative description to develop draft strategies, which were subsequently evaluated for feasibility and appropriateness by five experts. The expert feedback was incorporated to finalize the learning ecosystem development strategies for private basic education institutions.

Results

The analysis of learning ecosystem strategic development in private schools promoting lifelong learners revealed the following findings across three dimensions:

Results from Examining Learning Ecosystems

Analysis of learning ecosystem factors in private schools revealed comprehensive findings across five key aspects. The Learning Environment emerged as the most influential factor ($\bar{x}$ = 4.41, *SD* = .55), closely followed by the Policies and Strategies ($\bar{x}$ = 4.40, *SD* = .58), the Stakeholder Engagement ($\bar{x}$ = 4.38, *SD* = .50), the Curriculum and Learning Management ($\bar{x}$ = 4.33, *SD* = .54), and the Digital Access ($\bar{x}$ = 4.33, *SD* = .58).

Within the Learning Environment, creating positive learning atmospheres and fostering constructive interactions demonstrated the highest score ($\bar{x}$ = 4.44, *SD* = .61), while providing self-directed learning resources registered the lowest ($\bar{x}$ = 4.37, *SD* = .68). For Policies and Strategies, enabling teacher autonomy in designing diverse learning activities ranked highest ($\bar{x}$ = 4.44, *SD* = .65), with parental involvement in learning oversight registering the lowest ($\bar{x}$ = 4.33, *SD* = .71). In Stakeholder Engagement, teachers' provision of guidance across various learning needs achieved the highest rating ($\bar{x}$ = 4.46, *SD* = .65), while learners' ability to set and

plan their learning goals registered the lowest ($\bar{x}$ = 4.23, *SD* = .69). The Curriculum and Learning Management dimension revealed strong performance in teachers' organization of diverse, content-aligned activities ($\bar{x}$ = 4.47, *SD* = .58), with learner autonomy in content selection registering the lowest ($\bar{x}$ = 4.19, *SD* = .76). Digital Access findings indicated high accessibility to internet-based learning ($\bar{x}$ = 4.44, *SD* = .69), with individualized learning platforms registering the lowest score ($\bar{x}$ = 4.19, *SD* = .80). The findings reveal strengths in the learning environment factors, while highlighting areas requiring enhancement in learner autonomy, personalized digital platforms, and stakeholder participation.

Results from SOAR Analysis

The analytical framework of learning ecosystems in private schools applied SOAR Analysis (Strengths, Opportunities, Aspirations, and Results) through two dimensions: (1) Strategic Inquiry—examining relationships between strengths and opportunities to identify ecosystem enhancement strategies; (2) Appreciative Intent—exploring connections between aspirations and measurable results to determine desired outcomes. The findings from the interviews were validated through member checking procedures with the target participants. The analytical framework underwent validation through expert review by five specialists in educational administration and learning ecosystem development, whose feedback was incorporated to enhance the framework. The comprehensive findings are presented in Table 2.

Table 2 Results of the strategic inquiry and appreciative intent analysis

Dimension	Paired Factor Analysis (Strengths + Opportunities)	
Strategic Inquiry	SO1	Developing educational excellence for lifelong learning
	SO2	Enhancing management flexibility and sustainability
	SO3	Developing organizational culture focused on lifelong learning
	SO4	Building self-value and growth mindset with moral principles
	SO5	Developing stakeholder relationships for lifelong learning participation
	SO6	Developing wellness and conducive learning environments
	SO7	Developing teacher roles and informal learning design
	SO8	Developing learner competencies for self-directed learning
	SO9	Utilizing modern technology for diverse learning activities
	SO10	Developing responsive curricula with diverse assessment methods
Appreciative Intent	AR1	Efficient lifelong learning management with sustainable collaboration
	AR2	Conducive environment with effective learning support facilities
	AR3	Collaborative networks supporting diverse learning needs
	AR4	Goal-oriented self-learning with continuous self-development
	AR5	Learning organization with moral principles and well-being
	AR6	Efficient learning platforms and communication channels
	AR7	Expert teachers designing effective individualized learning
	AR8	Modern curricula with continuous learner development assessment
	AR9	Innovative teaching and management for lifelong learning
	AR10	Digital technology competency for effective lifelong learning
	AR11	Efficient technology equipment supporting lifelong learning

The strategic analysis of learning ecosystem development, derived from contextual assessment and findings in Table 2, revealed the following advantages, challenges, and opportunities for promoting lifelong learning in private schools: Strategic Advantages comprise (1) highly capable teachers with continuous learning management skill enhancement, (2) learners with self-directed learning foundations and learning accessibility readiness, (3) diverse, globally-recognized curricula responsive to global changes, (4) digital infrastructure supporting continuous and lifelong learning, (5) management flexibility with external collaborative networks, and (6) multiple channels for lifelong learning innovation development. Strategic Challenges include (1) fostering a lifelong learning organizational culture with a happy learning atmosphere and moral principles, (2) developing teachers' expertise in designing individualized competency-focused learning, (3) developing quality curricula and educational systems for lifelong learning, (4) establishing academic and professional networks to support diverse learning needs, (5) enhancing facilities and implementing modern digital technology to support learning, and (6) increasing efficient learning and communication channels, including digital school management. Strategic Opportunities encompass (1) developing curricula and learning innovations using modern technology for diverse learning channels, (2) developing personnel through internal and external learning exchange networks, (3) adapting educational management for lifelong learning with flexible administration focusing on sustainable development, (4) revitalizing and developing relationships among learners, teachers, and stakeholders for participatory lifelong learning education management, and (5) establishing schools as community lifelong learning centers with constant readiness for change.

Results from Strategy Development

The strategic development for enhancing learning ecosystems that promote lifelong learners in private schools established a vision of "Institute for Lifelong Learner Development through Learning Ecosystem Approaches." This vision is supported by six strategic objectives encompassing learning environment creation, stakeholder relationship building, curriculum development, digital technology advancement, innovation fostering, and sustainable educational management.

The comprehensive strategic framework consists of six main strategies with corresponding supporting strategies, validated for appropriateness and feasibility by five experts in educational administration and learning ecosystem development. Their recommendations were incorporated to refine all strategies, as follows: The first strategy focuses on developing organizational environments conducive to lifelong learning by promoting wellness and facilitating education while enhancing learning spaces for diverse opportunities. The second strategy emphasizes strengthening relationships and stakeholder engagement through fostering connections among learners, teachers, and parents, elevating participatory roles through learning partnerships, and developing effective monitoring systems. The third strategy addresses learning management enhancement, focusing on developing curricula that foster lifelong learning competencies, promoting self-directed learning skills, and supporting continuous monitoring of learning outcomes. Digital technology integration forms the fourth strategy, emphasizing the development of digital platforms and applications, expanding learning opportunities, and promoting technological integration in management through digital transformation. Innovation value strengthening constitutes the fifth strategy, supporting both the development and utilization of educational innovations for lifelong learning while enhancing community-based learning management. The final strategy focuses on organizational management for sustainable development, addressing economic stability, organizational capacity, growth mindset culture, and alignment with sustainable development goals.

This strategic framework was developed based on findings from a study of exemplary private schools, focusing specifically on their learning ecosystem components. The framework incorporates results from an environmental analysis conducted using the SOAR methodology, which identified key strategic directions categorized as Strategic Advantages, Strategic Challenges, and Strategic Opportunities. These elements collectively informed the formulation of strategic objectives that subsequently guided the development of targeted strategies aligned with the established vision, as illustrated in Figure 2.

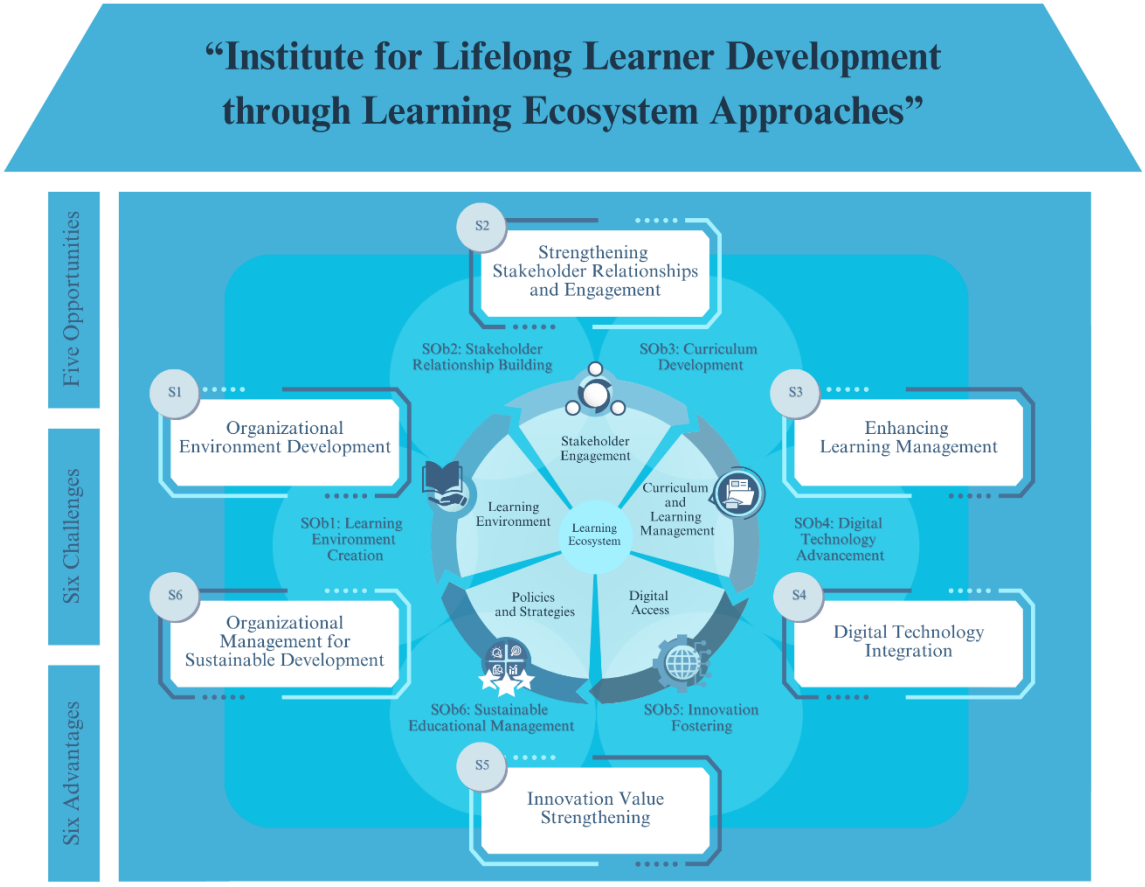


Figure 2 Strategies for developing learning ecosystems to promote lifelong learners in private schools

Discussion

Key Factors of Learning Ecosystems

This study illuminates the critical role of learning ecosystems in cultivating lifelong learning within Thai private schools**.** The analysis reveals five interconnected dimensions that collectively shape educational effectiveness in fostering sustainable learning practices**.** These findings represent a significant advancement in understanding the complex dynamics of educational ecosystems in the Thai context**.**

Learning Environment emerges as a cornerstone factor, particularly in fostering positive atmospheres and constructive interactions. This aligns with Hecht and Crowley (2019), who emphasized that learning ecosystems must prioritize relational processes among stakeholders to enhance overall ecosystem vitality. However, the findings reveal opportunities for strengthening self-directed learning resources, resonating with Spencer-Keyse et al. (2020), who underscored the significance of empowering learners through adaptive resources. Notably, Thai private schools have established strong foundational environments but must now focus on developing more sophisticated self-directed learning tools to truly excel.

Policies and Strategies demonstrate the significance of teacher autonomy in designing diverse learning activities. As Otto and Kerres (2023) articulated, empowering educators to design contextually relevant activities constitutes a fundamental element of thriving learning ecosystems. Nevertheless, the results indicate a need to enhance parental involvement, supporting Turbot and Duncan-Bauné's (2022) assertion that community engagement strengthens learning ecosystems. This represents a critical gap in current practice, as meaningful parental engagement remains underdeveloped despite its established importance.

Stakeholder Engagement reveals robust teacher guidance across diverse learning needs, supporting Kozyreva et al.'s

(2022) argument that effective ecosystems thrive on collaborative engagement. However, the findings suggest opportunities to enhance learner agency in goal-setting and planning, aligning with Redmond and Macfadyen's (2020) emphasis on personalization and learner-driven objectives. This disparity between teacher-led and student-led approaches represents one of the most significant challenges facing Thai private education.

Curriculum and Learning Management shows teachers' proficiency in organizing diverse, content-aligned activities, reinforcing Cuong et al.'s (2024) emphasis on innovative teaching practices. However, the findings indicate room for enhancement in learner autonomy regarding content selection, corresponding with Redmond and Macfadyen's (2020) argument for learner-centered approaches. This reflects a broader cultural tension between traditional educational values and contemporary learning paradigms.

Digital Access demonstrates strong internet-based learning accessibility, reflecting schools' technological readiness. However, the results suggest opportunities for enhancing individualized learning platforms, aligning with Otto and Kerres's (2023) assertion that digital technologies should facilitate adaptive, personalized learning environments. Technological infrastructure alone is insufficient without corresponding pedagogical transformation.

Factors Enabling School Management for Lifelong Learning

This study highlights Thai private schools' distinctive capacity to exemplify lifelong learning models, attributed to their enhanced management capabilities and educational innovation commitment.

Strategic Inquiry demonstrates systematic leveraging of institutional strengths to advance educational excellence and lifelong learning cultures. The integration of modern curricula with digital technology for diverse learning experiences aligns with Poquet and de Laat's (2021) assertion regarding technology's crucial role in facilitating personalized learning. Moreover, the emphasis on organizational culture and moral principles resonates with Fleming's (2021) perspective that lifelong learning transcends skill development to encompass values and social equity. Appreciative Intent reveals institutional aspirations toward efficient learning management and supportive environmental development. These findings correspond with the Office of National Higher Education, Science, Research and Innovation Policy Council (2020), emphasizing inclusive, adaptive educational systems. The results also support Eschenbacher and Fleming's (2020) observations on developing resilient learning environments during crisis periods. The present research extends these perspectives by revealing how private schools in Thailand exhibit remarkable adaptability in crisis management while maintaining educational continuity—a capability that warrants further exploration as a model for educational resilience. The study identifies significant challenges in cultivating lifelong learning cultures and implementing personalized, competency-focused experiences. This aligns with Akther's (2020) identification of barriers in addressing diverse learner needs across systemic levels. Additionally, the imperative to enhance pedagogical expertise and modernize learning platforms reflects Fleming's (2021) discussion of educational adaptation to technological advancement. Strategic opportunities emerge in developing participatory management approaches and establishing community learning centers. These findings support UNESCO's emphasis on inclusive learning networks prioritizing equitable access, as discussed by Akther (2020). The research demonstrates that successful implementation requires deliberate structural change and stakeholder engagement beyond superficial programmatic adjustments—a consideration often neglected in educational reform initiatives.

The findings demonstrate the necessity of accelerating learning ecosystem development in private schools, integrating technological innovation, stakeholder collaboration, and value-based education. This comprehensive approach positions private institutions as exemplars of lifelong learning advancement within Thailand's educational landscape.

Strategic Development of Learning Ecosystems

The strategic approach to learning environment development emphasizes wellness and diverse learning spaces, aligning with Hecht and Crowley's (2019) emphasis on dynamic environments that promote interaction. This ecosystem perspective reflects Spencer-Keyse et al.'s (2020) view of environment as a central enabler for lifelong learning. Stakeholder relationship strategies focus on strengthening engagement among learners, teachers, and parents. This approach resonates with Kozyreva et al.'s (2022) and Ekkarat and Charoenkul's (2024) emphases on collaborative partnerships for improved educational outcomes. Curriculum development prioritizes lifelong learning competencies and self-directed learning, supporting Redmond and Macfadyen's (2020) argument for personalization and learner agency. Digital technology integration focuses on platform development and expanded learning opportunities, reflecting technology's role in creating flexible learning environments. This strategy supports Spencer-Keyse et al.'s (2020) emphasis on technological

accessibility. Innovation development promotes community-based learning management, aligning with Cuong et al.'s (2024) and Raipiam et al.'s (2017) emphases on contextually embedded innovation and adaptive educational ecosystems.

These frameworks, while theoretically sound, face significant implementation challenges within Thailand's educational context. Private schools must navigate complex tensions between traditional educational values and progressive pedagogical approaches, particularly when prioritizing learner agency. The emphasis on technological integration, while necessary, risks creating digital divides if not implemented equitably across diverse socioeconomic contexts. Additionally, the research reveals an underlying assumption that organizational structures can readily adapt to ecosystem principles despite institutional barriers such as centralized decision-making processes and established assessment paradigms. The strategic framework would benefit from more explicit recognition of these contextual challenges and the power dynamics that influence educational transformation. Furthermore, the interplay between market-driven educational approaches and lifelong learning principles requires careful navigation to ensure that educational outcomes are not subordinated to competitive market positioning. These critical considerations suggest that successful ecosystem development requires not only strategic planning but also deep systemic and cultural transformation.

Conclusion and Recommendation

This study examines learning ecosystem development in Thai private schools, identifying key factors that shape effective educational environments. The research reveals how learning environment quality, stakeholder engagement, curriculum management, and digital integration dynamically interact to create sustainable platforms for lifelong learning. The findings highlight private schools' unique capacity to implement innovative educational approaches through enhanced management capabilities and strategic resource deployment. The research presents a strategic framework demonstrating how schools can systematically develop learning ecosystems by integrating environmental considerations, stakeholder relationships, and technological advancement. Results indicate that successful learning ecosystem development requires a comprehensive approach balancing institutional capabilities, stakeholder needs, and technological innovation. This integrated perspective positions Thai private schools as models for educational innovation while emphasizing sustainable development principles. The study concludes by highlighting the importance of developing adaptive, inclusive learning environments responsive to evolving educational demands.

The Implications of this Research

For Educational Authorities

1.Developing clear policies and guidelines for lifelong learning education: Authorities should create specific policy frameworks that recognize private schools' unique governance structures. These policies should outline clear implementation pathways with measurable outcomes while allowing flexibility for private schools to adapt according to their institutional vision. For example, authorities might develop accreditation standards specifically for lifelong learning programs in private education contexts.

2. Allocating sufficient resources and budget for sustainable program implementation: Funding mechanisms should be established to support private schools in developing learning ecosystem infrastructure. This includes dedicated grants for innovative learning spaces, technology integration, and teacher professional development. Authorities should consider tax incentives for private educational institutions that demonstrate excellence in lifelong learning implementation.

3. Creating support networks and establishing dedicated units: A specialized division focusing on private school learning ecosystems should be established within educational authorities. This unit would facilitate knowledge sharing among institutions, provide specialized consultation services, and coordinate partnerships between private schools and industry stakeholders to enhance learning opportunities.

4. Implementing monitoring and evaluation systems: Develop comprehensive assessment frameworks specifically designed for private school contexts, recognizing their operational differences from public institutions. These systems should measure not only academic outcomes but also lifelong learning competencies, incorporating regular institutional self-assessment with external verification mechanisms.

For Educational Institutions

1. Establishing dedicated lifelong learning committees: Private schools should form specialized teams comprising administrators, teachers, parents, and community representatives to oversee learning ecosystem implementation. These committees should have clear authority to make

decisions, allocate resources, and align initiatives with the school's strategic vision and market positioning.

2. Providing targeted professional development programs: Design customized training programs that address the specific needs of private school educators, focusing on innovative pedagogies, technological integration, and personalized learning approaches. These programs should include international best practices in lifelong learning while remaining contextually relevant to Thai private education settings.

3. Building strategic community partnerships: Private schools should leverage their networks to establish mutually beneficial relationships with businesses, higher education institutions, and cultural organizations. These partnerships should be structured to provide authentic learning experiences for students while enhancing the school's reputation and market differentiation.

4. Creating sustainable funding mechanisms: Develop diversified funding streams beyond tuition fees to support ecosystem initiatives, including alumni engagement programs, corporate sponsorships, and social enterprise models. Private schools should establish investment priorities that balance immediate educational needs with long-term ecosystem development.

5. Fostering distinctive organizational cultures: Cultivate institutional identities that emphasize lifelong learning as a core competitive advantage. This involves integrating lifelong learning principles into institutional branding, redefining success metrics beyond traditional academic achievement, and actively involving all stakeholders in the cultural transformation process.

For Teachers and Learners

1. Implementing contextualized personalized learning approaches: Design learning experiences that reflect both individual student needs and the distinctive value proposition of private education. This includes creating customized learning pathways that align with the school's educational philosophy while addressing diverse learning styles and future skill requirements.

2. Creating premium learning environments: Develop high-quality physical and emotional learning spaces that distinguish private education offerings from alternatives. These environments should incorporate flexible design principles, facilitate collaborative learning, and exemplify the school's commitment to educational excellence.

3. Integrating cutting-edge technological tools: Implement advanced digital resources that enhance learning experiences while demonstrating technological leadership. Private schools should strategically select technologies that support their educational vision, ensure appropriate staff training, and establish systems for continuous evaluation of technological effectiveness.

4. Establishing comprehensive assessment systems: Develop sophisticated approaches to student assessment that measure progress in lifelong learning competencies while satisfying stakeholder expectations for accountability. These systems should balance traditional evaluation methods with innovative approaches that capture the broader objectives of lifelong learning.

For Future Research

1. Longitudinal studies of learning ecosystem implementation: Conduct extended research tracking private schools' implementation of learning ecosystems over 3–5 years to identify sustainable practices, adaptation patterns, and long-term impact on student outcomes and institutional development.

2. Comparative studies of private vs. public school ecosystems: Investigate the distinctive features, implementation challenges, and outcomes of learning ecosystems across different educational sectors to identify transferable practices and sector-specific considerations.

3. Assessment tools for learning ecosystem effectiveness in private education: Develop and validate specialized measurement instruments that accurately capture the quality and impact of learning ecosystems within private school contexts, considering their unique stakeholder expectations and operational parameters.

Conflict of Interest

The author declares that there is no conflict of interest.

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