Bridging the Gap: The Need for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.)

Kunlayanee Bunyaraksh
Major of Educational Administration and Leadership, The College of Educational Innovation, Saint John's University, Thailand
Email: ilovekb31@gmail.com

Anutsara Suwanwong
Major of Educational Administration and Leadership, The College of Educational Innovation, Saint John's University, Thailand
Email: ilovekb31@gmail.com

Received: April 19, 2026	Revised: May 25, 2026	Accepted: June 01, 2026

Abstract
This study adopts the Gap Analysis Framework and the Modified Priority Needs Index (PNIModified), conceptually derived from the needs assessment approach of Witkin and Altschuld (1995). Data were collected during the Academic Year 2025. The contribution of this study lies in identifying AI needs within kindergarten administration, a context distinct from K–12 and higher education because AI implementation must balance pedagogical support, child development, ethical safeguards, and parent engagement. This working paper investigates the need for applying Artificial Intelligence (AI) in private kindergarten administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). Using a quantitative research design grounded in the Gap Analysis Framework, the study examines discrepancies between current and desired conditions across six administrative dimensions: Administrative Efficiency, Data Management and Analytics, Communication and Engagement, Instructional Support, Quality Assurance and Compliance, and Change Readiness and Professional Development. Data were collected from 175 administrators and analyzed using descriptive statistics and the Priority Needs Index ($PNI_{Modified}$). The findings reveal a substantial gap between current implementation ($\bar{x} = 2.55$) and desired conditions ($\bar{x} = 4.58$), indicating a strong demand for systematic AI integration. Instructional Support emerged as the highest priority ($PNI_{Modified} = 1.01$), followed by Quality Assurance and Compliance (0.98) and Data Management and Analytics (0.97). The results suggest that AI is perceived not merely as a tool for efficiency, but as a strategic mechanism for enhancing pedagogical quality, strengthening governance, and enabling data-driven decision-making. The study highlights the need for systemic alignment, infrastructure development, and professional capacity building to support sustainable AI adoption in early childhood education administration. The contribution of this study lies in identifying AI needs within kindergarten administration, a context that differs substantially from K–12 and higher education settings because AI implementation must balance administrative efficiency with child development principles, ethical safeguards, and parent engagement. The findings, therefore, contribute not only to educational administration literature but also to emerging policy discussions concerning responsible AI integration in early childhood education.
Keywords: Artificial Intelligence (AI); Educational Administration; Early Childhood Education; Gap Analysis; $PNI_{Modified}$; Thailand

Introduction

Artificial Intelligence (AI) has emerged as a transformative force in the 21st century, significantly influencing educational systems worldwide. It plays a crucial role in enhancing administrative management, instructional support, communication systems, and data-driven decision-making within educational institutions (Chen et al., 2022; Igbokwe, 2023). Artificial intelligence (AI) enables schools to process large volumes of data, identify patterns, and generate insights that support more efficient and accurate decision-making. Rather than replacing human roles, AI enhances the capabilities of administrators and educators, contributing to improved organizational performance and student outcomes (Igbokwe, 2023). In Thailand, this transformation aligns with national policies such as the National Education Plan (2017–2036), which emphasizes quality education, lifelong learning, and the development of learners as competent digital citizens. As educational institutions strive to meet these goals, integrating AI into school management has become increasingly important for improving efficiency, responsiveness, and innovation. Although the National Education Plan (2017–2036) emphasizes digital transformation, it provides limited operational guidance regarding AI governance and implementation in early childhood settings, thereby creating a policy gap that necessitates context-specific research. Although the National Education Plan (2017–2036) strongly advocates digital

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

transformation and technological innovation, current policy frameworks remain relatively broad and provide limited operational guidance concerning AI governance, ethical standards, and implementation mechanisms in early childhood education settings. Existing policy directions tend to focus on general digital literacy and educational technology adoption without explicitly addressing AI-specific administrative practices, data governance protocols, or safeguards for young learners. This limitation creates a policy void in which school administrators are encouraged to modernize educational systems but are provided with insufficient guidance for responsible AI adoption. Consequently, context-specific empirical studies are necessary to inform future policy development and establish practical frameworks for AI implementation in early childhood administration.

In the context of early childhood education, private kindergartens under the Office of the Private Education Commission (OPEC) play a vital role in delivering quality education to diverse groups of learners. However, administrators face growing challenges, including increasing parental expectations for transparency, personalized communication, and the integration of modern technologies, alongside responsibilities such as academic supervision, personnel management, and regulatory compliance. Traditional administrative approaches are often insufficient to address these complex demands. AI offers potential solutions by improving administrative efficiency, supporting data management and analysis, enhancing communication, and facilitating instructional support. Despite these advantages, the adoption of AI in private kindergarten administration in Thailand remains limited due to a lack of knowledge, skills, and clear implementation guidelines among administrators (Office of the Education Council, 2020). Additionally, variations in administrators' backgrounds and experiences may influence their readiness and attitudes toward AI adoption, further highlighting the need to understand their actual needs and priorities. The limited adoption of AI presents significant risks for private kindergartens under the Preschool Education Association of Thailand (P.E.A.T.). In an increasingly competitive educational market, institutions that fail to integrate digital and AI-supported administrative systems may experience reduced operational efficiency, slower decision-making processes, and diminished responsiveness to parental expectations. Furthermore, as educational governance increasingly emphasizes digital transformation and evidence-based management, schools lacking AI readiness may struggle to align with evolving expectations promoted by the Office of the Private Education Commission (OPEC) and broader national reform agendas. Consequently, the inability to bridge this technological gap may undermine institutional competitiveness, organizational sustainability, and educational quality in the long term.

The six administrative dimensions employed in this study were selected based on their alignment with systems-oriented educational administration and organizational change perspectives, as well as their relevance to OPEC-related school management responsibilities. Administrative Efficiency, Data Management and Analytics, Communication and Engagement, Instructional Support, and Quality Assurance and Compliance reflect core operational and governance functions within educational institutions, while Change Readiness and Professional Development represent the human and organizational capacity necessary for sustainable innovation adoption. Collectively, these dimensions are consistent with Systems Theory, which conceptualizes schools as interconnected organizational systems, and Change Management perspectives emphasizing leadership, readiness, and coordinated transformation. Their inclusion, therefore, strengthens the construct validity of the study and provides a comprehensive framework for examining AI integration in kindergarten administration. Therefore, this study aims to bridge the gap between current practices and desired conditions in applying AI in private kindergarten administration in Bangkok under the Preschool Education Association of Thailand under Royal Patronage (P.E.A.T.). Using a Gap Analysis Framework, the study examines six key administrative dimensions: administrative efficiency, data management and analytics, communication and engagement, instructional support, quality assurance and compliance, and change readiness and professional development. The findings are expected to identify priority needs through the PNIModified method and provide evidence-based recommendations for policy development, administrative planning, and professional development. Ultimately, this research seeks to support the effective integration of AI in early childhood education administration and enhance the overall quality and sustainability of private kindergarten management in Thailand.

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

Objectives

1. To examine the current conditions and desired conditions for applying Artificial Intelligence (AI) in private kindergarten administration in Bangkok under the Preschool Education Association of Thailand under Royal Patronage (P.E.A.T.).

2. To analyze priority AI needs in private kindergarten administration using the $PNI_{Modified}$ method and determining which administrative dimension demonstrates the highest urgency for development.

3. To propose strategic recommendations and implementation guidelines for applying AI in private kindergarten administration under P.E.A.T.

Literature Review

This literature review is interpreted through Systems Theory, Change Management Theory, and the Gap Analysis Framework. Furthermore, AI use in early childhood education raises ethical concerns related to screen time, privacy of minors, algorithmic bias, and pedagogical displacement.

1. Global and Policy Context of AI in Education

Artificial Intelligence (AI) has increasingly been recognized as a transformative force in education systems worldwide. International organizations such as the OECD and the World Bank emphasize that AI enhances administrative efficiency, supports data-driven decision-making, and improves educational quality through adaptive systems and predictive analytics. In Thailand, national frameworks, including the National Education Plan (2017–2036) and the AI National Strategy, further reinforce the importance of integrating digital technologies into education to prepare learners for the demands of the 21st century. These policies position AI not merely as a technological tool, but as a key mechanism for improving governance, equity, and learning outcomes. Although the National Education Plan (2017–2036) emphasizes digital transformation, it provides limited operational guidance regarding AI governance and implementation in early childhood settings, thereby creating a policy gap that necessitates context-specific research.

2. AI in Educational Administration

Within educational administration, the literature consistently demonstrates that AI contributes to improving efficiency and effectiveness across multiple functions. AI can automate routine administrative tasks, enhance the accuracy and efficiency of data management, and support strategic decision-making through advanced analytics. Empirical studies (Ahmad et al., 2022; Obona et al., 2024; Ogunode & Gregory, 2025) indicate that AI reduces workload and increases administrative productivity. However, most of these studies are situated in general or higher education contexts, with limited attention given to early childhood education. This indicates a significant gap in understanding how AI can be effectively applied in private kindergarten administration. Existing literature presents both supportive and critical perspectives concerning AI implementation in educational administration. Proponents argue that AI enhances automation, improves organizational efficiency, and strengthens evidence-based decision-making through predictive analytics and real-time monitoring systems. Conversely, critics caution that technological adoption without adequate governance structures may exacerbate privacy concerns, deepen digital inequality, and create overdependence on automated systems. These contrasting perspectives suggest that successful AI implementation is not solely determined by technological availability but also by organizational readiness, ethical safeguards, and contextual appropriateness. This synthesis reinforces the need for empirical investigation within early childhood settings, where administrative efficiency and child-centered educational values must be carefully balanced.

3. AI in Teaching and Learning (Instructional Support)

A substantial body of literature highlights the role of AI in enhancing teaching and learning processes. AI enables personalized learning pathways, provides real-time assessment and feedback, and supports the identification of individual learner needs. These capabilities are particularly important in early childhood education, where learners exhibit diverse developmental patterns (Chen et al., 2021; Liu et al., 2023). Despite this potential, the integration of AI in instructional processes remains limited, particularly in developing contexts. This limitation reflects a gap between theoretical potential and practical implementation, which aligns with the findings of this study, where instructional support emerges as the highest priority need.

4. Data Management and AI-Driven Decision-Making

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

AI plays a critical role in transforming educational data into actionable insights. The World Bank (2024) highlights that AI enables predictive analytics, performance monitoring, and evidence-based planning, while Wang and Li (2023) emphasize its contribution to transparency and accountability through real-time data visualization. However, effective implementation depends on the availability of data infrastructure, governance systems, and the digital literacy of administrators. In many educational institutions, including those in Thailand, these foundational conditions remain underdeveloped, thereby limiting the potential of AI in supporting data-driven decision-making.

5. Communication and Stakeholder Engagement

AI has also been widely applied in communication systems, particularly in enhancing interactions between schools and stakeholders. Technologies such as chatbots and automated messaging systems improve the timeliness, personalization, and responsiveness of communication. Research by Tan and Kaur (2023) indicates that AI-enabled communication strengthens parental engagement and improves institutional responsiveness. This is especially relevant in private kindergarten contexts, where parental expectations are high and effective communication plays a crucial role in building trust and institutional reputation.

6. Quality Assurance and Governance

Another important area in the literature is the role of AI in quality assurance and governance. AI systems can automate reporting processes, monitor institutional performance, and support compliance with educational standards. The OECD (2021) highlights that AI enhances transparency and accountability through real-time monitoring systems. However, many educational institutions still rely on manual processes, resulting in inefficiencies and inconsistencies. This indicates a need for more integrated and technology-supported governance systems.

7. Theoretical Foundations

This study is grounded in several key theoretical frameworks. Systems Theory conceptualizes schools as interconnected systems, suggesting that effective AI integration requires coordination across multiple organizational components (Bertalanffy, 1968). Change Management Theory emphasizes that successful AI adoption depends on leadership, organizational readiness, and structured transformation processes (Kotter, 1996). Additionally, the Gap Analysis Framework provides a systematic approach to identifying discrepancies between current and desired conditions, enabling the prioritization of development needs. Together, these frameworks support the interpretation that AI integration is not merely a technical issue, but a process of systemic transformation.

While AI offers significant opportunities for improving educational administration and instructional support, its application in early childhood education introduces unique ethical and developmental concerns. Unlike higher education or secondary school contexts, kindergarten learners require educational environments that prioritize socio-emotional interaction, play-based learning, and age-appropriate engagement. Excessive dependence on AI-supported systems may contribute to concerns regarding increased screen exposure, reduced human interaction, and potential pedagogical displacement, where technology unintentionally substitutes rather than supports educator roles. Furthermore, AI systems frequently depend on extensive data collection, raising concerns regarding privacy, parental consent, data ownership, and algorithmic bias involving minors. Scholars, therefore, emphasize that AI implementation in early childhood education should be guided by ethical governance principles that preserve human-centered pedagogy and protect children's rights while utilizing technology as a complementary rather than replacement mechanism.

8. Research Gap

Despite extensive literature on AI in education, several critical gaps remain. First, there is a contextual gap, as research on AI applications in early childhood education, particularly in private kindergarten administration, is limited. Second, an empirical gap exists due to the lack of studies comparing current and desired conditions of AI implementation. Third, there is a strategic gap, as insufficient attention has been given to identifying priority areas for development across different administrative dimensions. These gaps highlight the need for more context-specific and data-driven research.

Overall, the literature suggests that while AI has strong potential to transform educational administration, its implementation remains uneven and context-dependent. The key issue is not the lack of awareness, but the lack of systemic integration. Therefore, this study addresses these gaps by

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

applying the Gap Analysis Framework and $PNI_{Modified}$ to identify priority areas for AI development in private kindergarten administration.

Methodology

This study employed a quantitative research design grounded in the Gap Analysis Framework to examine the needs for applying Artificial Intelligence (AI) in private kindergarten administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). The research aimed to identify discrepancies between the current conditions (D) and the desired conditions (I) of AI application across six key administrative dimensions, including Administrative Efficiency, Data Management and Analytics, Communication and Engagement, Instructional Support, Quality Assurance and Compliance, and Change Readiness and Professional Development.

The population of this study consisted of 320 school administrators, including school license holders/managers, school directors, and deputy directors of private kindergartens in Bangkok under P.E.A.T. A sample of 175 administrators was selected based on the Krejcie and Morgan (1970) sample size table, ensuring a 95% confidence level with a ±5% margin of error. The sampling process applied inclusion criteria to ensure that participants held relevant administrative roles, had sufficient experience in school management, and were directly involved in decision-making related to educational innovation. The sampling strategy followed inclusion-based selection with representation across administrative roles; future studies may adopt stratified random sampling. The five IOC experts included specialists in educational administration, AI in education, and early childhood leadership. The Modified Priority Needs Index was calculated as PNI_Modified = (I - D)/D. where *I* represents the desired condition and *D* represents the current condition. This formula enables the assessment of developmental urgency by comparing the discrepancy relative to the current baseline. Although the sample size was determined using the Krejcie and Morgan (1970) table, the sampling procedure emphasized representation across key administrative positions and eligibility criteria relevant to AI-related decision-making. Given the diversity among private kindergartens in terms of institutional size, financial capacity, and technological readiness, stratified random sampling could potentially provide greater methodological rigor by ensuring proportional representation across school characteristics. Therefore, while the present approach ensured adequate representation of relevant administrative roles, future studies may further strengthen generalizability through stratification procedures.

The primary research instrument was a structured questionnaire consisting of two main sections: demographic information and AI needs across six administrative dimensions. Each dimension was measured using a five-point Likert scale to assess both current practices and desired conditions. The instrument was developed based on a comprehensive review of relevant literature and validated by five experts using the Index of Item-Objective Congruence (IOC), with all items achieving a value of 1.00, indicating strong content validity. A pilot study was conducted with 30 administrators outside the main sample to assess reliability, resulting in a Cronbach's Alpha coefficient of 0.969, indicating a high level of internal consistency. The IOC validation process involved five experts with interdisciplinary expertise, including two specialists in Artificial Intelligence and educational technology, two specialists in educational administration, and one specialist in early childhood educational leadership. This multidisciplinary expert composition strengthened the content validity process by ensuring that the instrument reflected technological, administrative, and developmental considerations relevant to kindergarten contexts.

Data collection was conducted during the 2025 academic year through both paper-based and online questionnaires. All responses were reviewed for completeness and accuracy before analysis. The data were analyzed using descriptive statistics, including frequency, percentage, mean ($\bar{x}$), and standard deviation (S.D.), to describe the characteristics of the sample and the levels of AI application. To identify priority needs, the study applied the Modified.

Priority Needs Index ($PNI_{Modified}$), calculated by comparing the difference between desired and current conditions relative to the current condition. This method enabled the ranking of administrative dimensions based on the urgency of development needs.

Overall, this methodological approach provides a systematic and evidence-based framework for identifying gaps in AI applications and determining priority areas for development in private kindergarten administration.

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

Results

1. Results of the Analysis of Respondents' Demographic Information

The analysis of demographic characteristics from a total of 175 respondents reveals several key patterns. In terms of gender, the majority of participants were female (76.60%), while males accounted for only 23.40%, indicating a strong female representation in the sample.

Regarding work experience, most respondents had relatively limited experience, with 61.10% reporting 1–10 years of work. Participants with 11–20 years of experience comprised 28.00%, while those with 21–30 years represented the smallest group (10.90%). This suggests that the sample was largely composed of early- to mid-career professionals.

In terms of generation heirs, employees constituted the largest group (38.86%). Among family successors, second-generation heirs accounted for 28.57%, followed by first-generation heirs (25.70%), while third-generation heirs were the least represented (6.87%). This indicates a diverse mix of organizational roles, with a stronger presence of non-heir employees.

For educational background, more than half of the respondents held a Master's degree (52.60%), followed by Bachelor's degree holders (42.30%), and a small proportion with doctoral degrees (5.10%). Overall, the sample was highly educated, with a strong emphasis on postgraduate qualifications.

Finally, the distribution of respondents by position was relatively balanced. School Directors represented the largest proportion (35.40%), followed closely by School License Holders/Managers (34.90%), and School Deputy Directors (29.70%). This balance suggests that perspectives were collected from various levels of school administration.

In summary, the respondents were predominantly female, relatively early in their careers, highly educated, and evenly distributed across key administrative positions, providing a comprehensive perspective for the study.

2. The analysis of the current and desired conditions for applying AI in the administration of private kindergartens.

The analysis of the desired conditions for applying AI needs in the administration of private kindergartens in Bangkok was conducted to examine the level of importance that administrators place on AI integration across the six administrative dimensions. The findings are presented using mean scores ($\bar{x}$) and standard deviations (S.D.) to reflect the perceived importance of AI needs in each area. The results of the analysis are shown in the following table.

Table 1: Overview of Desired Conditions for AI Needs Across Six Dimensions.

Six Dimensions	$\bar{x}$	S.D.	Interpretation
1. Administrative Efficiency	4.54	0.75	Very High
2. Data Management and Analytics	4.54	0.81	Very High
3. Communication and Engagement	4.58	0.88	Very High
4. Instructional Support	4.54	0.87	Very High
5. Quality Assurance and Compliance	4.53	0.82	Very High
6. Change Readiness and Professional Development	4.72	0.61	Very High
Total	**4.58**	**0.79**	**-**

Table 1 shows the overall analysis of the desired conditions across the six administrative dimensions, which reveals a very high level of expectation for AI implementation ($\bar{x}$ = 4.58, S.D. = 0.79). Among the six dimensions, the highest mean score was found in Change Readiness and Professional Development ($\bar{x}$ = 4.72, S.D. = 0.61), ranking first. The second-highest mean score was observed in Communication and Engagement ($\bar{x}$ = 4.58, S.D. = 0.88). In contrast, the lowest mean score was identified in Quality Assurance and Compliance ($\bar{x}$ = 4.53, S.D. = 0.82), ranking last among the six dimensions. However, despite being the lowest, this value still falls within a very high level. Similarly, Administrative Efficiency ($\bar{x}$ = 4.54, S.D. = 0.75), Data Management and Analytics ($\bar{x}$ = 4.54, S.D. = 0.81), and Instructional Support ($\bar{x}$ = 4.54, S.D. = 0.87) all reflect consistently very high expectations across dimensions. The consistently very high ratings across all desired-condition dimensions may

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

reflect a ceiling effect, suggesting that administrators perceive AI as broadly desirable regardless of functional area. Notably, Change Readiness and Professional Development achieved the highest desired-condition score, potentially indicating that administrators are psychologically prepared and receptive to innovation even though technical systems and implementation capacity remain underdeveloped. This finding suggests that readiness for change may precede technological readiness, highlighting a favorable environment for future AI integration initiatives.

3. The analysis of the needs for development in applying AI in private kindergartens

This analysis compares the desired conditions (I) with the current conditions (D) across the six administrative dimensions in order to identify the gaps between what administrators expect and what is currently implemented. The Priority Needs Index ($PNI_{Modified}$) was calculated to determine the level of development required in each dimension and to rank the components according to urgency.

Table 2 : Overview comparison of Current and Desired Conditions and $PNI_{Modified}$ across six administrative dimensions

Rank	Dimension	$\bar{x}$ (D)	S.D.	$\bar{x}$ (I)	S.D.	$PNI_{Modified}$
1st	Instructional Support	2.26	1.02	4.54	0.87	1.01
2nd	Quality Assurance & Compliance	2.29	0.83	4.53	0.82	0.98
3rd	Data Management & Analytics	2.30	0.88	4.54	0.81	0.97
4th	Administrative Efficiency	2.59	0.84	4.54	0.75	0.75
5th	Communication & Engagement	2.72	0.96	4.58	0.88	0.68
6th	Change Readiness & Professional Development	3.15	0.99	4.72	0.61	0.50
	Total	**2.55**	**0.92**	**4.58**	**0.79**	**0.81**

The overall Modified Priority Needs Index ($PNI_{Modified}$) across the six administrative dimensions was 0.81. When using this value as a benchmark for comparison, three dimensions were found to have $PNI_{Modified}$ values higher than the overall average. These include Instructional Support ($PNI_{Modified}$ = 1.01), Quality Assurance and Compliance ($PNI_{Modified}$ = 0.98), and Data Management and Analytics ($PN_{Modified}I$ = 0.97).

In contrast, three dimensions were found to have $PNI_{Modified}$ values lower than the overall average of 0.81. These include Administrative Efficiency ($PNI_{Modified}$ = 0.75), Communication and Engagement ($PNI_{Modified}$ = 0.68), and Change Readiness and Professional Development ($PNI_{Modified}$ = 0.50). The comparatively lower PNI values suggest relatively smaller gaps between current and desired conditions in these areas.

The analysis of development needs for applying Artificial Intelligence (AI) in private kindergarten administration reveals a substantial gap between current conditions and desired conditions across all six administrative dimensions. The overall Modified Priority Needs Index (PNIModified) was 0.81, indicating a relatively high level of need for development. This suggests that while AI implementation is currently limited, administrators have strong expectations for its future integration.

Among the six dimensions, Instructional Support showed the highest level of need (PNIModified = 1.01), followed by Quality Assurance and Compliance (0.98) and Data Management and Analytics (0.97). These findings indicate that the most urgent areas for development relate to enhancing teaching and learning processes, improving quality assurance systems, and utilizing data more effectively. In particular, the use of AI for personalized learning, automated feedback, data analysis, and report preparation was identified as a critical priority.

In contrast, Administrative Efficiency (0.75), Communication and Engagement (0.68), and Change Readiness and Professional Development (0.50) showed lower PNIModified values, indicating relatively smaller gaps between current and desired conditions. However, these areas still require improvement. Key needs include the use of AI to reduce administrative workload, deliver personalized communication, and enhance staff training and digital competencies.

At the item level, the most critical needs include applying AI to analyze school data for insights (PNIModified = 1.21), supporting report preparation for evaluations (1.14), improving transparency and performance tracking (1.10), and enabling personalized student learning (1.18). Meanwhile, areas

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

with lower priority needs involve staff attitudes toward AI and routine communication tasks, suggesting these aspects are comparatively more developed.

In summary, the findings highlight that AI development in private kindergarten administration should prioritize instructional improvement, data-driven decision-making, and quality assurance processes, while simultaneously strengthening administrative systems, communication strategies, and professional development to ensure sustainable and effective implementation.

Discussion

The relatively low PNI for Change Readiness suggests that the 'unfreezing' stage of organizational change may already be occurring (Lewin, 1947). Bangkok's competitive educational market and stronger access to technology may also elevate desired expectations compared with rural contexts. Although Instructional Support demonstrates the highest PNI, AI adoption in early childhood education should avoid pedagogical displacement and preserve play-based, high-touch learning. A notable paradox emerges from the findings. Instructional Support demonstrated the highest PNIModified value while simultaneously reporting the lowest current-condition score. This pattern suggests that administrators recognize substantial potential for AI-assisted teaching and learning but currently lack the systems and competencies required for implementation. However, AI integration in early childhood settings must be approached cautiously. Kindergarten education traditionally emphasizes play-based learning, emotional interaction, and high-touch pedagogy. Consequently, AI should be positioned as a supportive mechanism for teachers rather than a substitute for human interaction, thereby avoiding pedagogical displacement and preserving developmentally appropriate learning environments.

The findings of this study demonstrate a clear disparity between the current and desired conditions of Artificial Intelligence (AI) application in private kindergarten administration. The current condition was found to be at a moderate level, indicating that AI implementation remains at an early stage, particularly in instructional support, data management, and quality assurance. In contrast, the desired condition was consistently rated at a very high level across all dimensions, reflecting strong expectations among administrators for AI to enhance educational quality, decision-making, and institutional effectiveness. The findings can be further interpreted through Systems Theory and Change Management perspectives. From a systems perspective, the uneven distribution of PNI scores suggests that AI adoption cannot occur within isolated administrative functions but requires coordinated transformation across interconnected organizational components. Furthermore, the comparatively low PNI value for Change Readiness and Professional Development may indicate that the initial "unfreezing" stage proposed by Lewin has already begun, with administrators demonstrating openness toward technological innovation. Consistent with Kotter’s perspective, this readiness may provide a critical foundation for establishing institutional vision, developing implementation coalitions, and supporting sustainable organizational transformation. The Bangkok context may also influence the findings. As Thailand’s capital city, Bangkok is characterized by stronger technological infrastructure, greater institutional competition, and higher parental expectations regarding educational quality and innovation. These conditions may elevate administrators’ desired expectations toward AI implementation compared with schools located in provincial or rural contexts where technological access and competitive pressures differ. Therefore, caution should be exercised when generalizing these findings nationally, and comparative studies across regions are recommended.

The results indicate that while human readiness—especially in terms of openness to change and professional development—is relatively high, the actual implementation of AI systems remains limited. This imbalance suggests that the primary barriers to AI integration are structural rather than attitudinal, including insufficient infrastructure, lack of integrated data systems, and limited strategic frameworks. The Priority Needs Index (PNIModified) further highlights that the most urgent development areas are Instructional Support, Quality Assurance and Compliance, and Data Management and Analytics. These dimensions are directly linked to improving teaching quality, strengthening governance systems, and enabling data-driven decision-making. Meanwhile, Administrative Efficiency, Communication and Engagement, and Change Readiness and Professional Development serve as supporting dimensions that facilitate effective AI implementation.

Overall, the findings emphasize that AI in private kindergarten administration is fundamentally pedagogy-driven rather than administration-driven. AI is not merely perceived as a tool for operational

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

efficiency but as a transformative mechanism to enhance personalized learning, improve instructional practices, and support holistic child development. The study also highlights the importance of adopting a systemic approach, integrating technology, human capacity, and policy frameworks to ensure sustainable and ethical AI implementation. Although this study primarily employed descriptive statistics, demographic variations such as work experience, educational background, and organizational succession status may influence perceived AI development needs. Younger administrators or successor generations, for example, may exhibit different expectations and digital orientations compared with veteran school leaders. Future studies employing inferential analyses or cross-tabulation techniques may therefore provide deeper insights into subgroup differences affecting AI adoption priorities.

Suggestions

1. Suggestions for Policy

1.1 OPEC and P.E.A.T. should establish AI governance standards, digital infrastructure support, and professional development policies.

2. Suggestions for Practice

2.1 School owners and administrators should pilot AI systems incrementally and ensure ethical safeguards and stakeholder participation.

3. Suggestions for Future research

3.1 Future research should adopt mixed-method approaches by combining quantitative data with qualitative methods such as interviews, focus groups, and case studies. This would provide deeper insights into the underlying reasons for the significant gaps observed, particularly in Instructional Support, Quality Assurance and Compliance, and Data Management and Analytics.

3.2 Comparative studies should be conducted across different geographical areas, school sizes, educational networks, and resource contexts to enhance the generalizability of findings and determine whether the patterns identified in Bangkok are consistent in other educational settings.

3.3 Future studies should employ research and development (R&D) designs to pilot and evaluate specific AI applications in real-world private kindergarten contexts. These may include AI-based child progress monitoring systems, automated reporting tools, quality assurance platforms, and school–family communication systems.

3.4 Future research should explore trust and acceptance of AI among stakeholders, including school administrators, teachers, parents, and the wider community, as trust will play a critical role in the long-term sustainability of AI adoption.

Reference

Ahmad, M., Tan, C. S., & Abdullah, N. (2022). AI in school administration: Enhancing efficiency through data analytics. *Journal of Educational Innovation, 8*(3), 215–229.

Bertalanffy, L. von. (1968). *General system theory: Foundations, development, applications*. George Braziller.

Chen, L., Zhang, S., & Wei, P. (2022). Artificial intelligence in educational management: Opportunities and challenges. *Educational Review, 74*(4), 602–618.

Chen, X., Li, L., Li, X., & Li, J. (2021). A review of personalized learning based on artificial intelligence. *International Journal of Emerging Technologies in Learning, 16*(4), 35–47.

Igbokwe, I. C. (2023). Application of artificial intelligence (AI) in educational management. *International Journal of Scientific and Research Publications, 13*(3), 300–307. https://doi.org/10.29322/IJSRP.13.03.2023.p13536

Kotter, J. P. (1996). *Leading change*. Harvard Business School Press.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Lewin, K. (1947). Frontiers in group dynamics. *Human Relations, 1*(2), 143–153. https://doi.org/10.1177/001872674700100201

Liu, M., Ren, Y., Nyagoga, L. M., Stonier, F., Wu, Z., & Yu, L. (2023). Future of education in the era of generative artificial intelligence: Consensus among Chinese scholars on applications of ChatGPT in schools. *Future in Educational Research, 1*(1), 72–101. https://doi.org/10.1002/fer3.10

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.

Obona, E. E., Madukwe, E. C., Osha, M. I., & Willie, T. B. (2024). Artificial intelligence (AI) in school administration: Application, benefits, and challenges. *SJCIE, 5*(1), 251–256.
OECD. (2021). *Artificial intelligence in education: Challenges and opportunities*. OECD Publishing.
Office of the Education Council. (2017). *National education plan (2017–2036)*. Ministry of Education.
Office of the Education Council. (2020). *AI for learning development*. Office of the Education Council.
Office of the Private Education Commission. (2020). *Guidelines for private school quality assurance*. Ministry of Education.
Ogunode, N. J., & Gregory, D. M. (2025). Artificial intelligence in educational administration. *Open Access Journal of Educational Innovation, 11*(4), 66–78.
Preschool Education Association of Thailand. (2023). *Mission and organizational roles in early childhood education*. Author.
Tan, J., & Kaur, P. (2023). AI-based communication tools in education. *Computers & Education, 188*, 104600. https://doi.org/10.1016/j.compedu.2022.104600
Wang, X., & Li, J. (2023). AI-driven analytics and administrative transparency in preschool education. *Computers & Education, 194*, 104736.
Witkin, B. R., & Altschuld, J. W. (1995). *Planning and conducting needs assessments*. Sage Publications.
World Bank. (2024). *The AI revolution in education: Building data-informed systems for the future*. World Bank Publications.

Citation: Bunyaraksh, K., & Suwanwong, A. (2026). Bridging the Gap: The Needs for Applying Artificial Intelligence (AI) in Private Kindergarten Administration in Bangkok under the Preschool Education Association of Thailand (P.E.A.T.). International Journal of Development Administration Research, 9 (2), 35-44.