

ADMINISTRATIVE LEADERSHIP'S STRATEGIC PLANNING FOR AI INTEGRATION IN PUBLIC SECONDARY SCHOOLS: A QUALITATIVE STUDY IN KUALA LUMPUR

*Perancangan Strategik Kepimpinan Pentadbiran untuk Integrasi AI dalam Sekolah Menengah Awam:
Satu Kajian Kualitatif di Kuala Lumpur*

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ABSTRACT

The aim of this qualitative study is to examine how administrative leaders in public secondary schools in Kuala Lumpur approach strategic planning for artificial intelligence (AI) integration in education. Three consolidated research objectives guided the inquiry: (1) to explore administrators' understanding and strategic planning of AI integration, (2) to identify challenges and barriers in AI integration planning, and (3) to examine stakeholder engagement and leadership support required for successful AI integration. Through semi-structured interviews with ten experienced school administrators, including principals, senior assistants, and heads of departments, and employing reflexive thematic analysis, the study revealed five major themes: infrastructural and resource considerations, pedagogical transformation and teacher preparedness, ethical and equity concerns, stakeholder engagement strategies, and adaptive leadership approaches. Findings indicate that while administrators recognize AI's transformative potential, strategic planning remains fragmented, resource-constrained, and lacking systematic frameworks. The study underscores the critical need for multilevel support systems to ensure equitable and effective AI adoption in Malaysian secondary education. These encompass clear policy guidelines aligned with Malaysia's national AI agenda, collaborative governance models, and continuous professional development addressing AI literacy and ethical reasoning. Comprehensive planning must also account for teacher competencies, infrastructure, and dedicated budgetary provisions. Crucially, all implementation strategies must be culturally responsive and contextually grounded within Malaysia's diverse educational landscape.

Keywords: *AI in education, educational leadership, strategic planning, AI integration, Malaysian education*

ABSTRAK

Tujuan kajian kualitatif ini adalah untuk mengkaji bagaimana pemimpin pentadbiran di sekolah menengah kebangsaan di Kuala Lumpur mendekati perancangan strategik bagi pengintegrasian kecerdasan buatan (AI) dalam pendidikan. Tiga objektif kajian yang disatukan membimbing penyelidikan ini: (1) meneroka pemahaman dan perancangan strategik pentadbir terhadap pengintegrasian AI, (2) mengenal pasti cabaran dan halangan dalam perancangan pengintegrasian AI, dan (3) mengkaji penglibatan pemegang taruh dan sokongan kepimpinan yang diperlukan bagi kejayaan pengintegrasian AI. Melalui temu bual separa berstruktur bersama sepuluh pentadbir sekolah berpengalaman, termasuk pengetua, penolong kanan, dan ketua panitia, serta menggunakan analisis tematik refleksif, kajian ini mendedahkan lima tema utama: pertimbangan infrastruktur dan sumber, transformasi pedagogi dan kesediaan guru, kebimbangan etika dan ekuiti, strategi penglibatan pemegang taruh, serta pendekatan kepimpinan adaptif. Dapatan kajian menunjukkan bahawa walaupun pentadbir mengakui potensi transformatif AI, perancangan strategik masih bersifat

berfragmen, terkekang oleh sumber, dan kurang rangka kerja yang sistematik. Kajian ini menekankan keperluan kritikal terhadap sistem sokongan pelbagai peringkat bagi memastikan pengintegrasian AI yang saksama dan berkesan dalam pendidikan menengah di Malaysia. Ini merangkumi garis panduan dasar yang jelas selaras dengan agenda AI nasional Malaysia, model tadbir urus kolaboratif, serta pembangunan profesional berterusan yang menangani literasi AI dan penaakulan etika. Perancangan yang komprehensif juga perlu mengambil kira kompetensi guru, infrastruktur, dan peruntukan bajet yang khusus. Yang paling penting, semua strategi pelaksanaan mestilah responsif secara budaya dan berasaskan konteks dalam landskap pendidikan Malaysia yang pelbagai.

Kata kunci: AI dalam pendidikan, kepimpinan pendidikan, perancangan strategik, integrasi AI, pendidikan Malaysia.

INTRODUCTION

The global education landscape is experiencing unprecedented technological transformation, with artificial intelligence (AI) emerging as a catalyst for reimagining teaching, learning, and administrative processes. AI technologies, ranging from intelligent tutoring systems and automated assessment tools to predictive analytics, generative AI, and personalized learning platforms, hold significant promise for addressing longstanding educational challenges, including differentiated instruction, administrative efficiency, and data-driven decision-making (Crompton & Burke, 2023; Ouyang & Jiao, 2021). However, successful AI integration requires strategic leadership, comprehensive planning, and careful consideration of pedagogical, ethical, and organizational implications.

In Malaysia, AI in education has assumed national strategic importance. The Malaysia Education Blueprint (PPPM) 2013–2025 established ambitious goals for technology-enhanced learning and 21st-century competencies, with Thrust 3 explicitly targeting full connectivity and a 1:1 student device ratio in schools (Ministry of Education Malaysia, 2013). More recently, the Dasar Pendidikan Digital Kementerian Pendidikan Malaysia (KPM) has intensified efforts toward building a digitally competent teaching force and integrating digital tools into the national curriculum. At the national level, Malaysia's National Artificial Intelligence Roadmap (AI-RMAP) 2021–2025 identifies education as one of five priority sectors for AI deployment, emphasizing the need to cultivate AI talent and embed AI literacy across all educational levels (Ministry of Communications and Multimedia Malaysia [MCMC], 2021). These policy developments signal a strong institutional commitment to positioning Malaysia as an AI-ready nation, making it imperative that school administrators translate national ambitions into ground-level implementation strategies.

Public secondary schools in Kuala Lumpur, as urban educational institutions serving diverse student populations, represent critical sites for examining AI integration planning. These schools face unique challenges, including technological infrastructure disparities, varying levels of digital literacy among educators, and the need to balance innovation with equity concerns. Despite growing policy attention to educational technology, empirical research examining how school administrators strategically plan for AI integration remains limited, particularly in Southeast Asian contexts (Chen et al., 2020). Most existing Malaysian studies have focused on teachers' technology acceptance or students' learning outcomes, leaving a significant gap in understanding how school administrators who hold ultimate decision-making authority conceptualize, plan, and lead AI integration efforts (Ghavifekr et al., 2016; Yusof et al., 2019).

Administrative leaders, including principals, senior assistants, and heads of departments, play pivotal roles in shaping technology adoption trajectories, allocating resources, building institutional capacity, and fostering organizational cultures conducive to innovation. Understanding their strategic planning approaches, decision-making processes, and perceived challenges is essential for developing effective implementation frameworks suited to the Malaysian educational context.

Research Problem

Despite the Malaysian government's articulated aspirations under PPPM 2013–2025, the Dasar Pendidikan Digital KPM, and the national AI-RMAP, a substantial implementation gap persists between policy intent and school-level practice. Nationally, while some 10,000 secondary schools have received various degrees of digital infrastructure investment, AI-specific readiness remains inconsistent, with many urban schools still grappling with bandwidth limitations, insufficient hardware, and a lack of qualified technical support (Yusof et al., 2019). Existing Malaysian studies document teacher level challenges in ICT adoption (Ghavifekr et al., 2016) but provide little evidence of how school administrators strategically plan, resource, and lead AI integration.

School administrators in Kuala Lumpur must navigate complex technological, pedagogical, organizational, and ethical considerations without clear strategic frameworks or adequate preparation for AI-specific leadership demands. Current literature provides limited empirical evidence regarding how educational leaders in Malaysian contexts conceptualize AI integration, develop strategic plans, engage stakeholders, and address implementation barriers. This gap hinders the development of contextually appropriate policies, leadership training programs, and implementation models aligned with Malaysia's national digital education agenda.

Research Objectives

This study was guided by three research objectives:

1. To explore administrators' understanding of AI integration and the strategic planning approaches they employ in public secondary schools.
2. To identify the challenges and barriers that educational leaders perceive in planning for AI implementation.
3. To examine how administrators approach stakeholder engagement, capacity building, and the leadership support systems required for effective AI integration.

Research Questions

The study addressed three research questions:

1. How do administrative leaders conceptualize AI integration and what strategic planning approaches do they employ?
2. What challenges and barriers do educational leaders perceive in planning for AI implementation?
3. How do administrators approach stakeholder engagement, capacity building, and what leadership support systems do they identify as necessary for effective AI integration?

Significance of the Study

This qualitative study holds substantial significance for multiple stakeholders in Malaysian education. For school administrators, the findings provide actionable insights for navigating AI integration complexities, reducing uncertainty when pioneering technological innovation. For policymakers, the study illuminates ground-level realities that can inform comprehensive AI integration frameworks, resource allocation strategies, and regulatory guidelines aligned with the Dasar Pendidikan Digital and AI-RMAP. For professional development providers, it identifies critical competency gaps in AI literacy, ethical reasoning, and strategic planning. Finally, the research foregrounds equity and social justice dimensions by highlighting concerns about digital divides and resource disparities, supporting advocacy for equitable distribution and culturally responsive implementation strategies.

Scope of the Study

This research is bounded by clearly defined parameters. Geographically, it was conducted exclusively in public secondary schools in Kuala Lumpur and does not represent rural schools or other Malaysian

states. The participant scope focused on ten administrative leaders, principals, senior assistants, and heads of departments, with a minimum of five years' leadership experience, deliberately excluding teachers, students, parents, and ministry officials to maintain concentrated attention on administrative perspectives. The cross-sectional design captured data between March and June 2024 during early stage AI planning rather than advanced implementation. Conceptually, the study examined strategic planning processes, perceived challenges, stakeholder engagement, and leadership competencies for AI integration, focusing on planning rather than implementation outcomes. Methodologically, this qualitative study employed semi-structured interviews within an interpretivist paradigm, seeking rich understanding rather than statistical generalization.

Limitations of the Study

Several important limitations affect the interpretation of findings. The sample of ten administrators from urban Kuala Lumpur restricts broad generalization to rural contexts, other Malaysian regions, or international settings. Most participants were in preliminary planning rather than active implementation, providing anticipatory rather than experience-based perspectives. The exclusive focus on administrative perspectives limits holistic understanding by excluding teachers, students, parents, and policymakers. Reliance on self-reported interview data means potential social desirability bias and inability to verify alignment between stated and actual practices.

Gaps in the Study

The research reveals significant gaps warranting future investigation. Implementation gaps exist as the study examined planning but not actual implementation practices or effectiveness. Multi stakeholder gaps persist with missing perspectives from teachers, students, parents, and ministry officials. Longitudinal gaps limit understanding of how perspectives evolve over time. Contextual gaps emerge from the urban focus, with no examination of rural schools or international contexts. Technology specific gaps result from examining AI broadly rather than focusing on specific applications. Finally, ethical framework gaps remain as the study identified concerns but did not develop or test practical data governance tools.

Theoretical Framework

This study integrated three complementary theoretical lenses to provide a holistic understanding of AI integration planning in Malaysian schools, beginning with Transformational Leadership Theory (Bass & Riggio, 2006), which was selected because AI integration constitutes a profound organisational change requiring leaders who can inspire, motivate, and build capacity for innovation. The four dimensions of transformational leadership, idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration, map directly onto the competencies needed to champion AI adoption, model AI literacy, and nurture a culture of experimentation, making this theory particularly apt in the Malaysian context where hierarchical school cultures may resist disruptive technological change.

The Technology Acceptance Model (TAM) (Venkatesh & Bala, 2008) was chosen because administrators' decisions to adopt and champion AI tools are shaped by their perceptions of usefulness and ease of use. Understanding how leaders evaluate these dimensions helps explain why some schools advance AI integration while others stall and highlights the importance of targeted professional development to improve AI competency perceptions.

The Technology Organization Environment (TOE) Framework (Tornatzky & Fleischer, 1990) was incorporated because AI adoption in schools is not merely a technical decision but is mediated by organizational capacities (human resources, leadership structures, school culture) and environmental pressures (government mandates, community expectations, competitive benchmarking). Combining

TOE with transformational leadership and TAM allows the study to capture the multi-level, systemic nature of AI integration planning, providing a richer analytical lens than any single theory affords.

LITERATURE REVIEW

AI in Education: Opportunities and Challenges

Artificial intelligence applications in education span a broad spectrum, including intelligent tutoring systems, automated grading and feedback, learning analytics, adaptive learning environments, and, more recently, large language model-based tools such as ChatGPT (Crompton & Burke, 2023; Ouyang & Jiao, 2021). Research consistently demonstrates AI's potential for enhanced personalization, immediate formative feedback, increased learner engagement, and significant administrative efficiency gains. Generative AI has transformed the pedagogical landscape by enabling students to receive on demand explanations, draft writing assistance, and dynamic content interaction (Kasneci et al., 2023).

This study aligns with growing scholarly attention to AI integration in education, where studies have highlighted the transformative yet complex nature of embedding AI tools within school systems. For instance, Zawacki-Richter et al. (2019) found that AI applications in education span intelligent tutoring, personalised learning, and administrative automation, yet their effective implementation demands strong institutional leadership and readiness. Similarly, Holmes et al. (2022) cautioned that without ethical frameworks and pedagogical vision, AI risks reinforcing existing inequalities rather than bridging them. In the Asian context, Chai et al. (2021) demonstrated that teachers' AI literacy and leadership support are decisive factors in determining the success of AI integration initiatives, underscoring the centrality of transformational leadership in navigating these challenges.

However, realizing these opportunities is contingent on addressing substantial challenges. Infrastructure requirements remain prohibitive in resource-constrained settings. Pedagogical alignment is non-trivial: AI tools must be integrated thoughtfully into existing curricula rather than added as supplementary novelties. Ethical concerns are especially acute, encompassing student data privacy, algorithmic bias, the risk of perpetuating educational inequities, and questions of academic integrity in the era of generative AI (Akgun & Greenhow, 2022). AI literacy — both for teachers and students — has emerged as a critical competency domain, requiring schools to move beyond basic ICT skills toward understanding how AI systems function, make decisions, and may err (Long & Magerko, 2020).

Educational Leadership and Technology Integration

School administrators play critical roles in technology integration, with leadership consistently identified as essential for successful implementation (Scherer et al., 2019). Effective technology leaders exhibit digital leadership competencies that go beyond personal device use to encompass strategic vision, change management, and the cultivation of collaborative learning cultures (Sheninger, 2019). In the Malaysian context, the principal's role as instructional leader and technology champion is particularly salient, as school-level decisions about resource allocation, professional development, and infrastructure investment are heavily influenced by leadership priorities (Yusof et al., 2019).

AI presents distinctive challenges beyond traditional educational technology. The complexity of algorithmic decision-making, the opacity of machine learning systems, and the autonomous capabilities of generative tools raise novel governance questions that earlier technology integration frameworks, such as SAMR or TPACK, were not designed to address. Recent studies suggest many educational leaders feel unprepared for AI-specific challenges, lacking technical knowledge, strategic frameworks, and clear policy guidance (Moorhouse & Kohnke, 2021). Change management approaches adapted for AI must account for heightened teacher anxiety, ethical uncertainty, and the rapid obsolescence of specific tool knowledge.

Strategic Planning in Educational Organizations

Effective strategic planning in education requires inclusive stakeholder engagement, systematic environmental scanning, goal alignment, and continuous evaluation mechanisms (Bryson, 2018). For technology integration, planning must incorporate needs assessment of current infrastructure, human capital readiness, and alignment with broader organizational priorities. While models such as SAMR have guided technology implementation planning, these were developed for earlier generation tools and may not fully address AI-specific considerations such as algorithmic accountability, adaptive system behavior, data governance, and generative content risks (Ouyang & Jiao, 2021).

Design based implementation research (DBIR) offers a promising alternative framework for AI integration planning, enabling iterative, evidence-informed cycles of design, implementation, and refinement. DBIR's emphasis on collaborative problem solving across organizational levels aligns well with the incremental, experimental approaches Malaysian administrators favor (Fishman et al., 2013). The integration of systematic evaluation from the outset, rather than as an afterthought, is essential for schools to generate transferable knowledge about what works in their particular contexts.

AI Integration in Malaysian Education

Malaysia's educational technology landscape has evolved considerably. The PPPM 2013–2025 committed the government to providing universal internet access and deploying digital content platforms across all schools (MoE, 2013). The Dasar Pendidikan Digital KPM subsequently outlined specific targets for digital competency development among teachers and students, emphasizing computational thinking and digital citizenship. At the national level, AI-RMAP 2021–2025 allocated investments in AI talent development, with education identified as a priority sector for AI-enabled transformation (MCMM, 2021).

Despite these policy commitments, implementation outcomes have been mixed. Urban schools in Kuala Lumpur and other major cities generally possess better infrastructure, while rural and peri-urban institutions continue to experience significant digital divides (Ghavifekr et al., 2016). Studies examining teachers' ICT adoption in Malaysian secondary schools document persistent gaps in digital competency, resistance to change, and insufficient support (Yusof et al., 2019). Empirical research specifically examining how secondary school administrators approach AI integration planning remains notably absent, representing a significant gap that this study addresses.

METHODOLOGY

Research Design

This study employed a qualitative methodology utilizing semi-structured individual interviews to explore administrative leaders' strategic planning for AI integration. The interpretivist paradigm guided the research, recognizing that administrators' strategic planning approaches are socially constructed, contextually situated, and shaped by individual experiences, institutional histories, and organizational cultures (Creswell & Poth, 2018). Qualitative methodology was chosen over quantitative or mixed methods designs because the study aimed to understand the depth, meaning, and complexity of administrators' lived experiences rather than to measure variables or test hypotheses.

Participants and Sampling

Participants comprised ten experienced school administrators from public secondary schools in Kuala Lumpur. Purposive sampling identified information rich cases, administrators with relevant decision-making authority and direct responsibility for technology planning. Inclusion criteria required participants to: (a) hold administrative positions with strategic planning responsibilities, (b) have a minimum of five years of leadership experience, (c) work in public secondary schools within Kuala Lumpur, and (d) demonstrate willingness to discuss AI integration planning in depth.

The sample of ten participants was considered adequate for the study's qualitative purpose. As Creswell and Poth (2018) note, sample sizes between 5 and 25 participants are appropriate for semi-structured interview based qualitative studies that prioritize depth of insight over breadth. Data collection continued until thematic saturation was achieved, a point at which no substantially new themes or conceptual categories emerged across additional interviews (Braun & Clarke, 2021). The sample included six principals, two senior assistants, and two heads of departments. Leadership experience ranged from 5 to 18 years ($M = 9.8$ years), representing schools of 800 to 2,100 students with varied technological infrastructure levels.

Table 1 presents the participant profile.

Table 1
Participant Profile

Participant	Position	Experience (Years)	School Size (Students)	Infrastructure Level
P1	Principal	18	2,100	High
P2	Principal	15	1,800	High
P3	Principal	12	1,500	Moderate
P4	Principal	10	1,400	Moderate
P5	Principal	9	1,200	Moderate
P6	Principal	8	1,000	Low Moderate
P7	Senior Assistant	11	1,600	Moderate
P8	Senior Assistant	7	900	Low Moderate
P9	Head of Department	6	800	Low
P10	Head of Department	5	850	Low

Note. Infrastructure levels assessed based on device-to-student ratio, internet bandwidth, and availability of dedicated ICT support staff.

Data Collection

Data collection occurred between March and June 2024 through semi-structured individual interviews covering five thematic domains: (a) conceptualizations of AI in education, (b) strategic planning processes, (c) perceived challenges and barriers, (d) stakeholder engagement approaches, and (e) leadership competencies and support needs. A semi-structured format was selected to allow flexible exploration of emergent topics while maintaining thematic consistency across participants. Interviews were conducted in participants' preferred language Malay or English and ranged from 60 to 90 minutes in duration ($M = 72$ minutes). With participants' informed consent, all interviews were audio recorded and supplemented with researcher field notes capturing nonverbal cues and contextual observations.

Data Analysis

Data analysis followed Braun and Clarke's (2021) six phase reflexive thematic analysis approach, which was chosen for its rigorous yet flexible framework suited to interpretivist inquiry. The analytic process unfolded across six distinct phases. In the first phase, familiarisation, audio recordings were transcribed verbatim, producing approximately 550 pages of transcript data, and these transcripts were read multiple times in full in order to achieve deep immersion in the dataset. In the second phase, initial coding,

systematic coding was conducted line by line using NVivo 14 software, generating approximately 1,200 initial codes that captured both semantic and latent meanings across the dataset.

In the third phase, generating themes, related codes were grouped into candidate themes that represented patterned meaning across multiple participants and data extracts. In the fourth phase, reviewing themes, the candidate themes were reviewed against the coded extracts and the full dataset in order to assess their internal coherence and external distinctiveness, a process that resulted in the consolidation and refinement of the overall thematic structure. In the fifth phase, defining and naming themes, each theme was defined through a clear analytic narrative, and descriptive names were assigned to reflect the essence of the patterned meaning it captured.

In the sixth and final phase, producing the report, the findings were written up with rich participant quotations that were carefully selected to illustrate and support the analytic claim underpinning each theme. Through this iterative analytical process, the initial 1,200 codes were consolidated into 23 candidate themes, which were subsequently refined further until five final themes were reported

Trustworthiness and Ethics

Trustworthiness was established through multiple strategies: credibility via prolonged engagement with the data, member checking with six participants who reviewed emergent themes, and peer debriefing with a doctoral colleague; transferability through thick description of context and participant profiles; dependability through systematic documentation of all analytical decisions in an audit trail; and confirmability through reflexive bracketing of researcher assumptions throughout the analysis process. The research received ethics approval from the university's Institutional Review Board and Malaysia's Ministry of Education. All participants provided written informed consent, and confidentiality was protected through participant pseudonyms and secure encrypted data storage.

RESULTS

Reflexive thematic analysis revealed five major themes reflecting administrators' approaches to strategic planning for AI integration. These themes are organized below according to the three research objectives to facilitate clear alignment between the study's aims and findings.

Research Objective 1: Administrators' Understanding and Strategic Planning of AI Integration

Themes 1 and 2 address how administrators conceptualize AI integration and the planning approaches they employ.

Theme 1: Infrastructural and Resource Considerations

All participants identified infrastructure and resources as foundational concerns comprising three subthemes: technological infrastructure readiness, financial constraints, and technical support systems.

Technological Infrastructure Readiness

Administrators described varying infrastructure levels that critically shaped their planning horizons. While most schools possessed computer laboratories and basic internet connectivity, widespread concerns emerged about capacity to support AI applications requiring high bandwidth and modern processing power.

"We have computers, yes, but many are outdated. If we talk about AI applications — sophisticated systems that need processing power and reliable internet — we're not ready." (Principal A)

"Internet bandwidth is our constant challenge. During peak hours, even basic applications struggle. How can we implement AI tools requiring real-time data processing?" (Principal C)

Financial Constraints and Resource Allocation

Financial limitations emerged as significant constraints. Administrators described competing budget demands and considerable uncertainty about AI-specific costs, including software licensing, hardware upgrades, and ongoing professional development.

"Budget is always limited, and we must prioritize. Do we invest in AI tools when we still need basic classroom resources?" (Senior Assistant H)

"Even if we secure initial funding, can we sustain costs year after year? Subscription models, maintenance, upgrades — these create ongoing financial obligations." (Principal B)

Technical Support and Maintenance Systems

Participants consistently emphasized the inadequacy of current technical support infrastructure for supporting complex AI systems.

"We have one ICT coordinator for the entire school. This person already handles basic technical issues. Adding complex AI systems without additional support staff seems unrealistic." (Principal D)

Theme 2: Pedagogical Transformation and Teacher Preparedness

Administrators recognized that effective AI integration requires pedagogical transformation, not merely technology addition. Three subthemes emerged: shifting pedagogical paradigms, teacher professional development needs, and concerns about pedagogical authenticity.

Shifting Pedagogical Paradigms

Participants described AI as potentially transformative but requiring fundamental rethinking of teaching approaches and professional identities.

"AI challenges traditional teaching methods. Teachers become designers of learning experiences, interpreters of data, guides rather than sole knowledge sources. This represents a paradigmatic shift requiring careful planning." (Principal A)

"We understand AI enables personalization, but what does this look like practically? How do teachers balance AI-driven instruction with group learning, social development, character education?" (Head of Department I)

Teacher Professional Development Needs

All administrators identified comprehensive professional development as essential but currently inadequate, pointing to varying technology competencies, limited AI literacy, and change resistance.

"Some teachers embrace technology; others remain skeptical or anxious. Without proper preparation, AI implementation will fail. Teachers need not just technical training but pedagogical guidance." (Principal B)

"Teachers already feel overwhelmed. Adding AI training without reducing other demands creates resistance." (Principal C)

Concerns About Pedagogical Authenticity

Several administrators expressed concern about preserving human-centered educational values amid technological change.

"Education is fundamentally about human relationships, character development, critical thinking. My concern is that AI focus might overshadow these essentials." (Principal D)

Research Objective 2: Challenges and Barriers in AI Integration Planning

Theme 3 directly addresses the challenges and barriers administrators perceive in AI planning.

Theme 3: Ethical and Equity Concerns

Administrators expressed substantial ethical and equity concerns across four subthemes: data privacy and security, algorithmic bias and fairness, digital divide implications, and parental concerns.

Data Privacy and Security

Data privacy emerged as a primary and recurring concern among participants.

"AI systems need student data to function — performance records, learning behaviors, personal information. How do we ensure this data is secure? What happens if there's a breach?" (Principal A)

"I know data privacy matters, but I lack expertise to evaluate vendor claims or establish proper safeguards. We need clear guidelines from the ministry." (Principal C)

Algorithmic Bias and Fairness

Several administrators demonstrated awareness of potential algorithmic bias, though most acknowledged limited capacity to address it practically.

"If AI systems are trained on data from different contexts, will they work fairly for our students? Our students have unique characteristics, learning styles, cultural backgrounds." (Principal B)

"I understand the concept of bias in AI, but how do we actually test for it or prevent it? This seems beyond our expertise." (Head of Department I)

Digital Divide Implications

Administrators worried that AI integration could entrench and exacerbate existing educational inequities.

"Not all schools have equal resources for AI implementation. If some schools advance with AI while others lag, we risk creating a two-tiered system." (Principal E)

"Some students have devices and internet at home to extend AI-assisted learning; others don't. How do we prevent AI from advantaging already-privileged students?" (Principal D)

Parental Concerns and Consent

Administrators anticipated significant parental concerns, particularly around data privacy, screen time, and culturally appropriate technology use.

"Parents already question excessive device use in schools. Introducing AI might amplify these concerns, especially if parents don't understand what AI is or how it's used." (Principal C)

"Some parents are very protective about their children's information and skeptical of technology driven approaches. We need culturally sensitive ways to explain AI benefits and address concerns." (Principal B)

Research Objective 3: Stakeholder Engagement and Leadership Support

Themes 4 and 5 address how administrators approach stakeholder engagement, capacity building, and the support they identify as necessary.

Theme 4: Stakeholder Engagement Strategies

Administrators described various engagement approaches across three subthemes: collaborative planning processes, communication and transparency, and building school culture for innovation.

Collaborative Planning Processes

Most participants endorsed collaborative, bottom-up planning approaches involving teachers and administrative teams.

"Technology decisions shouldn't be top-down. We form committees with teacher representatives to evaluate needs, explore options, plan implementation. This builds buy-in and ensures diverse perspectives." (Principal F)

Communication and Transparency

Participants emphasized transparent, multi-directional communication as essential for managing change anxiety.

"When introducing new technology, we hold briefings explaining rationale, expected benefits, implementation plans. Transparency reduces anxiety and rumors." (Principal E)

"It's not just us communicating to teachers and parents. We need channels for them to express concerns, ask questions, provide feedback." (Principal D)

Building School Culture for Innovation

Several administrators discussed deliberate cultural change efforts to foster innovation readiness before deploying specific AI tools.

"Before implementing specific AI tools, we need a culture that embraces innovation, experimentation, continuous learning. This means celebrating pilot projects, learning from failures, encouraging teacher initiatives." (Principal F)

Theme 5: Adaptive Leadership Approaches

Administrators described leadership approaches characterized by adaptation, iterative learning, and navigation of uncertainty, across four subthemes.

Learning Leadership Stance

Participants frequently and explicitly positioned themselves as co-learners alongside their staff.

"I don't pretend to be an AI expert. I'm learning alongside teachers, seeking information, asking questions. This learning stance makes me more credible and approachable." (Principal D)

"Our planning for AI can't be rigid because we're discovering as we go. We plan, implement small steps, learn, adjust. It's an iterative process." (Senior Assistant H)

Incremental and Experimental Approaches

Nearly all administrators favored incremental, pilot-based approaches over comprehensive immediate implementation.

"We'll start with small pilot projects — perhaps one subject area or grade level. This allows us to learn, identify problems, refine approaches before scaling up." (Principal B)

Balancing Innovation with Stability

Administrators described an ongoing and sometimes difficult tension between embracing innovation and maintaining stable educational environments.

"We must innovate to remain relevant and serve students well. But we also have responsibility to maintain stability — established programs, proven practices, predictable environments. Finding balance is a constant challenge." (Principal F)

Need for Policy Guidance and Support

Administrators consistently and emphatically expressed desire for clearer national policy guidance and systemic support.

"We need concrete direction from the Ministry — not just general encouragement for innovation, but specific guidelines about AI integration, approved tools, implementation standards. Current ambiguity creates uncertainty and inconsistency across schools." (Principal A)

"We're willing to lead AI integration, but we need resources — funding, training, technical support, exemplar models. Leadership without support sets us up to fail." (Principal C)

Table 2

Summary of Themes: Administrators' Strategic Planning for AI Integration

RO	Theme	Title	Subthemes	Key Findings
1	1	Infrastructural and Resource Considerations	Technological Infrastructure Readiness; Financial Constraints; Technical Support Systems	Infrastructure and resources identified as foundational barriers. Outdated technology, insufficient bandwidth, budget competition, and single person ICT support constrain AI planning across schools.
1	2	Pedagogical Transformation and Teacher Preparedness	Shifting Pedagogical Paradigms; Professional Development Needs; Concerns About Authenticity	AI requires fundamental pedagogical shifts. Administrators recognize the need for comprehensive professional development addressing both technical and pedagogical dimensions, and worry about preserving human-centered values.
2	3	Ethical and Equity Concerns	Data Privacy; Algorithmic Bias; Digital Divide; Parental Concerns	Data governance, algorithmic fairness, equity across schools and students, and anticipated parental resistance constitute major unresolved challenges. Limited administrator expertise for practical mitigation exists.
3	4	Stakeholder Engagement Strategies	Collaborative Planning; Communication and Transparency; Innovation Culture Building	Collaborative, bottom-up planning endorsed, though constrained by time and competing demands. Transparent multi-directional communication and deliberate culture building prioritized before tool deployment.
3	5	Adaptive Leadership Approaches	Learning Leadership; Incremental Experimentation; Innovation Stability Balance; Policy Guidance Needs	Leaders adopt learning stances and favor pilot-based experimentation. Strong, consistent calls for national policy guidance, funded support infrastructure, and exemplar implementation models.

Note. RO = Research Objective. Source: Qualitative Study on AI Integration in Kuala Lumpur Secondary Schools (n = 10 administrators, 2024).

DISCUSSION

Administrators' Understanding and Strategic Planning of AI Integration

Findings indicate that administrators hold cautiously optimistic views of AI's educational potential, emphasizing personalization, administrative efficiency, and data-driven decision-making. Yet conceptualizations remain relatively abstract, with limited specificity about concrete applications or implementation pathways. This aligns with research suggesting educational leaders often lack detailed AI literacy despite general technological familiarity (Akgun & Greenhow, 2022; Moorhouse & Kohnke,

2021). This finding is particularly significant in the Malaysian context, where the PPPM 2013–2025 and Dasar Pendidikan Digital KPM have established high level digital aspirations but have not yet translated these into AI-specific implementation guides for school administrators.

The absence of systematic strategic planning frameworks is concerning in light of Malaysia's AI-RMAP commitments. While the roadmap envisions AI-enabled schools by 2025, ground-level planning remains reactive and largely incremental (MCMM, 2021). Administrators' preference for pilot projects reflects prudent risk management aligned with innovation diffusion principles, but without systematic evaluation frameworks embedded within those pilots, the evidence base for scale up remains weak. Integrating design-based implementation research approaches, already advocated in international contexts (Fishman et al., 2013), could substantially strengthen Malaysian schools' capacity to generate transferable AI integration knowledge.

Challenges and Barriers in AI Integration Planning

Multiple intersecting challenges span technological, financial, human, ethical, and organizational dimensions. Infrastructure and resource constraints are consistent with findings from Malaysian digital divide studies (Ghavifekr et al., 2016; Yusof et al., 2019). These disparities risk undermining the equity commitments of PPPM Thrust 2, which explicitly targets narrowing the urban-rural divide.

Ethical concerns, particularly data privacy, algorithmic bias, and equity, reflect growing awareness but reveal a pronounced knowledge practice gap. Administrators understand the concepts but lack the tools, expertise, or policy frameworks to address them concretely. The absence of a national AI governance framework for schools, analogous to the European Union's AI Act or Singapore's AI Governance Framework, means Malaysian administrators must navigate these challenges largely without structured guidance. The Dasar Pendidikan Digital KPM's emphasis on data literacy and digital citizenship provides a partial foundation, but AI-specific ethical guidelines for school-level practice are urgently needed.

Teacher preparedness challenges are deeply rooted in systemic issues of educator workload, professional development access, and institutional inertia. The finding that teachers feel overwhelmed by competing demands echoes international research on change fatigue in education systems and underscores that AI professional development must be integrated into existing structures rather than imposed as an additional burden.

Stakeholder Engagement and Leadership Support

Varied stakeholder engagement practices reflect a broader tension between ideal collaborative governance and real-world time constraints. The endorsement of collaborative planning aligns with transformational leadership principles and is consistent with Malaysian school leadership literature emphasizing distributed leadership as a lever for educational improvement (Yusof et al., 2019). Building innovation-ready school cultures prior to tool deployment, as several principals described, is particularly consistent with the PPPM's emphasis on school culture transformation as a precondition for sustained educational change.

The unanimous call for national policy guidance and systemic support from the Ministry of Education is perhaps the most significant cross-cutting finding. This aligns with the strategic intent of AI-RMAP 2021–2025, which acknowledges that AI adoption in education cannot succeed without robust institutional scaffolding. Administrators are not reluctant to lead; they are constrained by the absence of policy clarity, dedicated funding streams, and accessible expertise. Addressing these systemic gaps is essential for translating Malaysia's national AI ambitions into equitable school-level practice.

IMPLICATIONS

For School Administrators

Findings suggest several actionable strategies: conducting systematic needs assessments examining technological infrastructure, human capacity, and pedagogical readiness; establishing inclusive planning committees with diverse stakeholder representation; prioritizing professional development

that addresses both technical and pedagogical AI competencies; adopting incremental, pilot-based approaches embedded with systematic evaluation; and proactively addressing ethical concerns through transparent communication and robust data governance protocols aligned with the Personal Data Protection Act 2010.

For Policymakers

Findings highlight urgent needs for the Ministry of Education to develop comprehensive AI integration policy frameworks. Specific recommendations include: developing clear guidelines about approved AI applications, student data governance, and ethical standards within the Dasar Pendidikan Digital KPM framework; allocating dedicated funding for infrastructure upgrades, professional development, and technical support aligned with AI-RMAP priorities; creating implementation resources including exemplar models, evaluation rubrics, and AI literacy curricula; establishing regional peer learning networks for school administrators; and ensuring equitable resource distribution to prevent AI from exacerbating the urban-rural educational divide that PPPM seeks to close.

For Professional Development Providers

Findings underscore the need for AI-specific leadership preparation programs addressing multiple competency domains: foundational AI literacy including understanding of educational applications, system limitations, and generative AI implications; ethical reasoning capacities for navigating data privacy, algorithmic bias, and equity concerns; strategic planning skills specific to AI integration within Malaysian policy contexts; and change management capabilities for navigating teacher resistance and organizational transformation. Programs should employ active, experiential learning methods including case studies, simulation, and authentic implementation projects grounded in Malaysian school contexts.

LIMITATIONS AND FUTURE RESEARCH

This study's limitations include the small purposive sample from a single urban context, the cross-sectional design capturing early stage planning perspectives, and the exclusive focus on administrative viewpoints. Future research should: examine AI integration planning across diverse Malaysian contexts including rural, semi urban, and private school settings; conduct longitudinal studies tracking planning, implementation, and outcome trajectories over time; incorporate multiple stakeholder perspectives through multi-site, multi stakeholder designs; employ mixed methods combining qualitative insights with quantitative implementation and outcome measures; and develop and empirically validate AI-specific strategic planning frameworks tailored to Malaysian educational policy contexts.

CONCLUSION

This qualitative study examined how administrative leaders in Kuala Lumpur public secondary schools' approach strategic planning for AI integration. Three research objectives guided the inquiry, and five themes emerged from reflexive thematic analysis of ten administrators' semi-structured interviews: infrastructural and resource considerations, pedagogical transformation and teacher preparedness, ethical and equity concerns, stakeholder engagement strategies, and adaptive leadership approaches.

While administrators recognize AI's transformative potential and aspire to align with Malaysia's national digital education agenda, as articulated in PPPM 2013–2025, the Dasar Pendidikan Digital KPM, and AI-RMAP 2021–2025, strategic planning remains emergent, resource-constrained, and lacking systematic frameworks. Administrators face multifaceted challenges spanning technological, financial, human, ethical, and organizational dimensions while possessing limited AI-specific expertise. The consistent call for policy clarity, dedicated funding, and systemic support underscores that school-level leadership, however adaptive and committed, cannot alone bridge the implementation gap without coordinated national investment.

This study contributes to the educational leadership literature by integrating Transformational Leadership Theory, TAM, and the TOE Framework to provide a holistic analytical lens on AI integration planning, and by generating empirical evidence within an underrepresented Southeast Asian context. As Malaysian education advances toward the AI-enabled future envisioned in its national roadmap, supporting the strategic leadership capacity of school administrators represents an essential and urgent investment in the quality and equity of education for generations to come.

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