

Fostering AI Integration in Public Education: Leadership Support, Teacher Readiness, and the Development of a Contextualized Support System

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ABSTRACT

This study examined the relationship between teachers perceived leadership support and their readiness to integrate artificial intelligence (AI) into instructional practices and used the findings to develop a contextualized support system. A descriptive-correlational, cross-sectional survey design was employed among 317 public secondary school teachers in the Division of Makati during School Year 2025–2026. Stratified random sampling was applied, and data were collected through a researcher-made, expert-validated questionnaire with excellent internal consistency (Cronbach's $\alpha = .91$). Weighted means, grand means, and Pearson product-moment correlation were used. Perceived leadership support was Moderate ($M = 2.70$), with resource allocation and encouragement for innovation obtaining

the highest dimension means ($M = 2.72$ each). Teacher AI readiness was also Moderate ($M = 2.70$), led by attitude and willingness ($M = 2.72$). The available source correlation table reported 19 positive and significant pairwise relationships between leadership-support and readiness dimensions ($r = .664-.734$, $p < .001$), with professional development and AI literacy showing the strongest association ($r = .734$). A six-component Leadership Support System for AI-Ready Instruction was proposed, with an estimated annual budget of ₱550,000. The system was rated Highly Acceptable ($M = 4.56$), and practical applicability received the highest rating ($M = 4.62$). The findings indicate that teacher AI readiness develops most effectively when school leaders provide coherent vision, enabling policies, job-embedded professional learning, equitable resources, ethical safeguards, and structured opportunities for innovation.

Keywords: *artificial intelligence, leadership support, teacher readiness, public education, digital transformation, support system*

INTRODUCTION

Artificial intelligence is expanding the possibilities for personalized learning, feedback, assessment, lesson design, and school decision-making. However, the educational value of AI depends less on tool availability than on the ability of institutions to align technology with pedagogy, ethics, equity, and human judgment. International guidance therefore emphasizes human-centered implementation, transparent governance, teacher capacity, and learner protection rather than uncritical adoption (UNESCO, 2023; United States Department of Education, Office of Educational Technology, 2023).

Public schools experience uneven readiness because connectivity, device access, policy clarity, technical assistance, and professional learning vary across contexts. AI can deepen inequity when systems introduce tools

without adequate infrastructure and safeguards. The World Bank (2024) identifies governance, infrastructure, human capacity, content, and data as interdependent readiness conditions, while the National Institute of Standards and Technology (2023) recommend governance, risk mapping, measurement, and management to address privacy, bias, safety, and accountability.

The Philippine policy context combines digital-transformation goals with legal and institutional responsibilities. The Basic Education Development Plan 2030 promotes governance strengthening, learning recovery, and digital transformation (Department of Education [Philippines], 2022). At the same time, the Data Privacy Act of 2012 and the Child Protection Policy require schools to protect personal information, uphold consent and safety, and prevent harm in technology-enabled learning environments (Congress of the Philippines, 2012; Department of Education [Philippines], 2012).

Leadership is consequently central to responsible AI adoption. Transformational leaders articulate direction and build motivation; distributed leadership broadens responsibility and expertise; and instructional leadership keeps curriculum, assessment, coaching, and learning outcomes at the center of technological change (Bass & Riggio, 2021; Hallinger, 2011; Spillane, 2006). These leadership practices shape the facilitating conditions that influence teachers' confidence and willingness to use new technologies (Venkatesh et al., 2012).

Teacher readiness is multidimensional. It includes technical competence, conceptual understanding of AI, the capacity to design instruction with AI, willingness to experiment, and awareness of privacy, bias, transparency, academic integrity, and human oversight. Reviews of AI in education have repeatedly identified educator capacity and pedagogy as underdeveloped areas compared with tool-focused research (Hwang et al., 2020; Zawacki-Richter et al., 2019).

This study addressed the leadership-readiness gap in the Division of Makati by assessing five dimensions of teachers perceived leadership support and five dimensions of teacher AI readiness. It examined the reported relationships among these dimensions, developed a contextualized support system, and assessed the system's relevance, feasibility, sustainability, content quality, and practical applicability.

Literature Review

Leadership Support for AI Integration

A shared vision gives technological change purpose and establishes clear priorities, timelines, responsibilities, and success indicators. The ISTE Standards for Education Leaders emphasize vision, systems design, equity, and collaborative culture, while implementation guidance stresses that innovations are more likely to succeed when leaders diagnose needs, sequence activities, and use evidence during improvement cycles (Education Endowment Foundation, 2022; International Society for Technology in Education, 2019).

Vision must be translated into policy and infrastructure. School leaders are responsible for acceptable-use rules, platform selection, data protection, connectivity, device access, technical support, and accountability. Ethical guidance also requires transparency, fairness, safety, accessibility, and human oversight in the use of AI and learner data (European Commission, 2022; UNESCO, 2021; UNICEF, 2021).

Professional development and resource allocation are visible indicators of support. Effective professional learning is sustained, collaborative, job-embedded, and connected with classroom artifacts and coaching rather than one-time tool demonstrations (Learning Forward, 2022; Trust & Prestridge, 2022). Leaders also need to provide time, licenses, devices, technical help, and safe opportunities for teacher-led experimentation.

Teacher Readiness for AI-Supported Instruction

Technical readiness includes operating AI-enabled platforms, troubleshooting common problems, managing digital workflows, and selecting tools appropriate to instructional needs. AI literacy goes further by requiring an understanding of capabilities, limitations, errors, bias, data use, and the distinction between automated functions and meaningful pedagogical decisions (Ng, 2022, 2023).

Instructional readiness is demonstrated when teachers align AI with curriculum standards, learning objectives, assessment validity, accessibility, and student thinking. AI should support differentiation, formative feedback, practice, and reflection while preserving teacher judgment. The literature therefore frames readiness as the integration of technical, pedagogical, and ethical competence rather than simple familiarity with applications (Hwang et al., 2020; United States Department of Education, Office of Educational Technology, 2023).

Attitude and willingness influence whether competence becomes actual use. Facilitating conditions, perceived usefulness, social influence, and effort expectations affect behavioral intention (Venkatesh et al., 2012). Positive attitudes are more likely to be sustained when teachers experience practical benefits, clear integrity rules, supportive peers, and leadership that permits low-risk experimentation.

Ethical and Human-Centered AI Governance

Ethical awareness is a core dimension of readiness because AI systems may expose learner data, reproduce bias, generate inaccurate information, or weaken academic integrity. The NIST AI Risk Management Framework offers a process for governing, mapping, measuring, and managing risks, while UNICEF (2021) emphasizes child rights, safety, privacy, inclusion, and accountability.

Human-centered implementation requires teachers to verify AI outputs, disclose appropriate use, protect confidential data, teach responsible attribution, and retain authority over instructional and assessment decisions. UNESCO (2023) similarly positions generative AI as a support for human learning and professional judgment, not a replacement for educators.

Local policy routines are essential because broad principles must become practical school procedures. These include approved-tool lists, consent and data-retention rules, incident reporting, bias review, accessibility checks, and protocols for AI-generated content. Leadership support and teacher readiness are therefore linked through a shared governance system.

Contextualized Support Systems and Program Acceptability

Support systems translate assessment findings into coordinated action. Effective systems combine vision and governance, professional learning, coaching, resource planning, innovation cycles, and monitoring. Implementation quality improves when activities are needs-led, responsibilities are explicit, and progress is reviewed through evidence rather than assumed from participation (Education Endowment Foundation, 2022; Learning Forward, 2022).

Acceptability is important because a technically sound program may fail when stakeholders consider it irrelevant, impractical, burdensome, or unsustainable. Feasible programs fit existing structures, schedules, staffing, and budgets. Sustainable programs are embedded in improvement plans, learning-action-cell routines, mentoring, monitoring, and resource decisions rather than operating as isolated projects.

Content quality and practical applicability determine whether the support system produces usable school artifacts. Vision templates, policy guides, coaching cycles, lesson-design tools, ethics checklists, and monitoring instruments make the system actionable and allow users to transfer learning into daily practice.

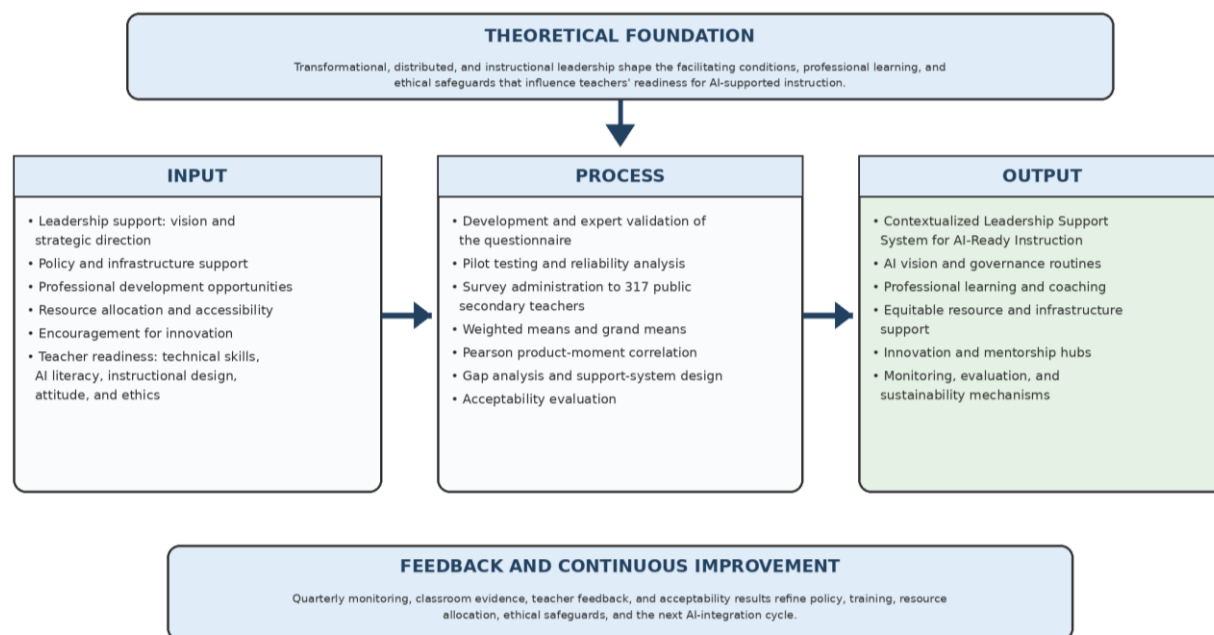


Figure 1. *Integrated input-process-output framework of the study*

METHODS

Research Design

The study used a quantitative descriptive-correlational, cross-sectional survey design. The descriptive component measured the levels of perceived leadership support, teacher AI readiness, and support-system acceptability. The correlational component examined the direction and strength of the relationships between leadership-support and readiness dimensions without manipulating the variables. The design supports association, not causal inference (Creswell & Creswell, 2018).

Research Locale

The study was conducted in public secondary schools in the Division of Makati during School Year 2025–2026. The division context included schools with varying infrastructure, connectivity, digital initiatives, and teacher professional-learning opportunities.

Participants and Sampling Technique

The respondents were 317 full-time public secondary school teachers. The target sample was determined through Slovin's formula using the known division population and a conventional margin of error. Stratified random sampling was employed to improve representation across school contexts, after which teachers were randomly selected within the identified strata.

Research Instrument

A researcher-made questionnaire contained three sections. The first measured leadership support through vision and strategic direction, policy and infrastructure support, professional development, resource allocation, and encouragement for innovation. The second measured technical skills, AI literacy, instructional design, attitude and willingness, and ethical awareness. The third assessed the proposed support system through relevance, feasibility, sustainability, content quality, and practical applicability. All items used a five-point Likert scale.

Validation and Reliability

Thirty subject-matter experts composed of school leaders, master teachers, and ICT coordinators reviewed the instrument for relevance, clarity, alignment, and contextual appropriateness. The revised questionnaire was pilot tested and obtained Cronbach's alpha of .91, indicating excellent internal consistency. The source manuscript did not report separate alpha coefficients for every dimension.

Data Gathering Procedure

After securing division and school approvals, the researcher coordinated with focal persons and administered the questionnaire through paper-based or secure online formats according to school connectivity. Respondents were informed of the purpose of the study and were given clear instructions. Completed responses were checked, encoded, and prepared for statistical analysis.

Data Analysis

Weighted means and grand means described each construct using the following interpretation: 4.20–5.00, Very High; 3.40–4.19, High; 2.60–3.39, Moderate; 1.80–2.59, Low; and 1.00–1.79, Very Low. Pearson product-moment correlation measured relationships between composite leadership-support and readiness dimensions. Coefficients were interpreted with attention to direction, magnitude, and p-values (Field, 2013; Schober et al., 2018). Weighted means summarized support-system acceptability.

Ethical Consideration

Participation was voluntary, and respondents were informed about anonymity, confidentiality, and data protection. Paper and electronic responses were restricted to the research team, stored on protected devices, and reported in aggregate. The procedures were aligned with the Data Privacy Act of 2012 and the source manuscript's commitment to minimal disruption and informed survey participation (Congress of the Philippines, 2012; Fowler, 2014). The source did not provide a formal institutional ethics-review approval number; therefore, no approval code is claimed here.

RESULTS AND DISCUSSION

Perceived Leadership Support for AI Integration

Table 1. *Summary of teachers perceived leadership support for AI integration*

Leadership-Support Dimension	Mean	Interpretation	Rank
Vision and strategic direction	2.68	Moderate	4.5
Policy and infrastructure support	2.70	Moderate	3
Professional development	2.68	Moderate	4.5
Resource allocation and accessibility	2.72	Moderate	1.5
Encouragement for innovation	2.72	Moderate	1.5
Overall	2.70	Moderate	

Teachers perceived a Moderate level of leadership support ($M = 2.70$). Resource allocation and encouragement for innovation received the highest means ($M = 2.72$ each), followed by policy and infrastructure support ($M = 2.70$). Vision and professional development obtained the lowest dimension means ($M = 2.68$ each). The narrow range indicates that support was developing across all areas but had not become strong or consistent.

The results suggest that some resources, platforms, and opportunities for experimentation were available, yet strategic direction and sustained capacity building remained episodic. This is important because a shared vision gives innovation coherence, while job-embedded professional learning helps teachers translate policy and tools

into instruction. The findings support leadership approaches that combine direction, shared responsibility, coaching, and continuous improvement (Bass & Riggio, 2021; Hallinger, 2011; Spillane, 2006).

Teacher Readiness to Integrate AI

Table 2. *Summary of teachers' readiness to integrate AI into instruction*

Readiness Dimension	Mean	Interpretation	Rank
Technical skills and competence	2.70	Moderate	2.5
AI literacy and conceptual understanding	2.68	Moderate	5
Instructional design with AI	2.70	Moderate	2.5
Attitude and willingness	2.72	Moderate	1
Ethical awareness	2.70	Moderate	2.5
Overall	2.70	Moderate	

Teacher AI readiness was Moderate ($M = 2.70$). Attitude and willingness ranked first ($M = 2.72$), showing openness to learning and experimentation. Technical skills, instructional design, and ethical awareness each obtained $M = 2.70$, whereas AI literacy received the lowest mean ($M = 2.68$).

The pattern indicates that motivation was slightly stronger than conceptual and practical capability. Teachers were interested in AI but still needed deeper understanding of how systems work, how outputs should be evaluated, how AI aligns with learning objectives, and how privacy, bias, and integrity should be addressed. This distinction is consistent with literature emphasizing that readiness requires repeated practice and pedagogical application rather than simple awareness (Ng, 2022, 2023; Trust & Prestridge, 2022).

Relationships between Leadership Support and Teacher AI Readiness

Table 3. *Positive correlations reported in the source correlation table*

Variables Correlated	r	p
Vision × technical skills	.693	< .001
Vision × AI literacy	.681	< .001
Vision × instructional design	.702	< .001
Vision × attitude and willingness	.678	< .001
Vision × ethical awareness	.664	< .001
Policy/infrastructure × technical skills	.710	< .001
Policy/infrastructure × AI literacy	.687	< .001
Policy/infrastructure × instructional design	.701	< .001
Policy/infrastructure × attitude and willingness	.692	< .001
Policy/infrastructure × ethical awareness	.685	< .001
Professional development × technical skills	.721	< .001
Professional development × AI literacy	.734	< .001
Professional development × instructional design	.716	< .001
Professional development × attitude and willingness	.703	< .001
Professional development × ethical awareness	.695	< .001
Resource allocation × technical skills	.688	< .001
Resource allocation × AI literacy	.677	< .001
Resource allocation × instructional design	.699	< .001
Resource allocation × attitude and willingness	.712	< .001

All 19 pairwise coefficients reported in the source table were positive and statistically significant, ranging from $r = .664$ to $r = .734$. The strongest association occurred between professional development and AI literacy ($r = .734$), followed by professional development and technical skills ($r = .721$) and professional development and instructional design ($r = .716$). The lowest reported association was between vision and ethical awareness ($r = .664$), which remained substantial and positive.

The results demonstrate that teacher readiness was closely associated with enabling leadership conditions. Professional learning had particularly strong connections with technical, conceptual, instructional, attitudinal, and ethical readiness. Policy, infrastructure, and resource access were also strongly associated with the ability to apply AI. These patterns are consistent with the view that facilitating conditions influence technology acceptance and use (Venkatesh et al., 2012).

The source table did not report one theoretically expected resource-allocation pairing with ethical awareness and did not include the five encouragement-for-innovation pairings. Consequently, the article reports the 19 available results without constructing or estimating the six missing coefficients. The cross-sectional design also means that the correlations do not demonstrate that leadership support causes readiness.

Contextualized Leadership Support System for AI-Ready Instruction

Table 4. *Components of the proposed support system*

Component	Objective	Core Activities	Time Frame
AI vision and strategic leadership orientation	Align AI with school goals, ethics, and digital transformation	Orientation, vision workshop, commitment charter	1st quarter
Policy and infrastructure development	Establish enabling policy, privacy safeguards, and adequate infrastructure	Policy review, gap analysis, AI-use and accountability guidelines	2nd quarter
Professional development and AI literacy	Build competence and confidence in instructional AI use	Modular training, lesson design, assessment, ethics, badge system	2nd–3rd quarters
Resource allocation and support	Sustain access to devices, platforms, and technical assistance	Budgeting, software access, professional resources, helpdesk	Continuous
Innovation and mentorship hubs	Promote teacher collaboration and localized innovation	AI LACs, peer mentoring, resource repository, showcases	3rd–4th quarters
Monitoring, evaluation, and sustainability	Institutionalize evidence-based improvement	Indicators, observations, readiness review, sustainability roadmap	Annual/quarterly review

The proposed system translates the moderate leadership and readiness findings into six interdependent components. It begins with vision and governance, proceeds through infrastructure and professional learning, and establishes resource support, teacher collaboration, and evidence-based monitoring. The system is intended to move schools from fragmented tool use toward coherent, ethical, and instructionally purposeful implementation.

The source identified performance targets that include improved AI literacy and instructional-design competence among at least 75% of teachers, implementation of school-based AI action plans by 80% of school heads, establishment of AI-use and data-governance guidance, functional innovation hubs, and observable improvements in learner engagement and digital fluency. These targets require baseline measures and verified follow-up evidence before effectiveness can be claimed.

Table 5. Estimated annual budget for the proposed support system

Program Component	Estimated Cost
AI vision and strategic leadership orientation	₱60,000
Policy and infrastructure development support	₱80,000
Professional development and AI literacy training	₱150,000
Resource allocation and support mechanisms	₱70,000

Innovation and mentorship hubs	₱100,000
Monitoring, evaluation, and sustainability	₱90,000
Total estimated budget	₱550,000

The estimated annual budget was ₱550,000. Professional development represented the largest allocation (₱150,000), followed by innovation and mentorship hubs (₱100,000) and monitoring, evaluation, and sustainability (₱90,000). The source proposed MOOE, division grants, and public-private partnerships as possible funding channels. Actual implementation should remain subject to DepEd budgeting, procurement, data-protection, and partnership rules.

Acceptability of the Proposed Support System

Table 6. *Acceptability of the contextualized support system*

Acceptability Dimension	Mean	Interpretation	Rank
Relevance	4.58	Highly Acceptable	2
Feasibility	4.46	Highly Acceptable	5
Sustainability	4.58	Highly Acceptable	2
Content quality	4.58	Highly Acceptable	2
Practical applicability	4.62	Highly Acceptable	1
Overall	4.56	Highly Acceptable	

The support system was Highly Acceptable ($M = 4.56$). Practical applicability received the highest rating ($M = 4.62$), while relevance, sustainability, and content quality each obtained $M = 4.58$. Feasibility was the lowest-rated dimension ($M = 4.46$) but remained Highly Acceptable.

The findings indicate that respondents considered the system timely, aligned with public-school realities, and useful for daily instructional and leadership work. The comparatively lower feasibility score points to the importance of realistic scheduling, workload management, infrastructure, funding, and phased implementation. High acceptability supports adoption readiness but does not substitute for an implementation evaluation of effectiveness, cost, or long-term sustainability.

CONCLUSION

Perceived leadership support and teacher readiness for AI integration were both at a Moderate level. Schools had begun to communicate AI-related direction, provide resources, support experimentation, and develop teacher capability, but these practices were not yet sufficiently coherent, reliable, or institutionalized. Teachers showed openness toward AI, while AI literacy, instructional design, technical competence, and ethical awareness still required systematic development.

The 19 reported correlations consistently showed that stronger leadership support was associated with higher teacher readiness. Professional development had the strongest reported relationship with AI literacy, reinforcing the importance of sustained, job-embedded learning. Policy, infrastructure, resources, and strategic direction also functioned as enabling conditions for technical, pedagogical, attitudinal, and ethical readiness.

The proposed Leadership Support System for AI-Ready Instruction offers a coherent response through vision, governance, professional learning, resource support, innovation hubs, and monitoring. Its high acceptability indicates strong contextual fit and practical promise. Nevertheless, the study's cross-sectional, self-report design and incomplete source correlation matrix limit causal and comprehensive interpretation. Implementation outcomes must be evaluated before the system is considered effective.

Recommendation

The Division of Makati and participating schools should pilot the proposed support system in phases, beginning with baseline readiness assessment, shared AI visioning, approved-use policies, privacy and ethics protocols, and infrastructure gap analysis. The pilot should be aligned with the School Improvement Plan and Annual Implementation Plan and should follow applicable DepEd, procurement, data-protection, and child-safeguarding requirements.

Professional learning should include sequenced workshops, AI Learning Action Cells, coaching, lesson-design practice, assessment and feedback applications, output verification, bias awareness, privacy, academic integrity, and human-in-the-loop decision-making. School leaders should provide protected time, equitable access to tools, technical assistance, peer mentoring, and structured opportunities to pilot and review AI-supported lessons.

Monitoring should use verified baseline and follow-up indicators for leadership practices, teacher competence, classroom implementation, learner protection, accessibility, and instructional outcomes. Future research should complete the missing correlation pairs, report respondent and school characteristics, compare subgroups, include classroom observations and qualitative evidence, and use longitudinal or experimental designs to evaluate the support system's effectiveness and sustainability.

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