

# Integrating Artificial Intelligence in Public Schools: Implications for Digital Equity and Administrative Effectiveness

Rogelio B. Lasconia, Jr<sup>1\*</sup>, Michelle L. Lanceso<sup>1</sup>, Edgardo S. Parenas<sup>1</sup>, Kristel Mae P. Patol<sup>1</sup>, Precy M. Regalado<sup>1</sup>

Mindanao State University - General Santos<sup>1</sup>

\*Corresponding Author

DOI: <https://doi.org/10.47772/IJRISS.2026.100701001>

Received: 05 August 2026; Accepted: 10 August 2026; Published: 19 August 2026

## ABSTRACT

Artificial Intelligence (AI) is steadily moving from the margins to the everyday work of schools, speeding up paperwork, shaping decisions through data, and opening new ways to support learning. Yet in Philippine public schools, the promise of AI is often filtered through a familiar reality: uneven connectivity, limited devices, and varying levels of digital readiness. This phenomenological study examined how teachers and administrators in selected public secondary schools in Sarangani Province experienced AI integration and what these experiences imply for digital equity and administrative effectiveness. Anchored on the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory (DOI), the study engaged principals, ICT coordinators, and teachers through semi-structured interviews and focus group discussions. Using Braun and Clarke's thematic analysis, findings showed that AI was valued for easing lesson preparation, automating routine tasks, supporting personalized instruction, and sparking creative, data-informed teaching. At the same time, structural barriers, unreliable internet, device shortages, and gaps in AI literacy limited equitable access and consistent classroom use. Participants also raised ethical and cognitive concerns, including overdependence and the risk of inaccurate outputs. Despite these constraints, schools practiced equity-driven adjustments such as teacher upskilling and alternative learning materials for learners without devices. Overall, the study highlights a clear tension in Sarangani public schools: AI can amplify efficiency and innovation, but without stronger infrastructure, capacity-building, and responsible governance, it may also widen existing digital gaps.

**Keywords:** Artificial Intelligence in Education; Digital Equity; Administrative Effectiveness; Technology Acceptance Model; Diffusion of Innovations Theory

## INTRODUCTION

Artificial Intelligence (AI) has increasingly influenced how institutions organize work, manage information, and support decision-making. In education, its role became more apparent through automated administrative processes, data-informed planning, and emerging forms of personalized learning. Global discussions linked AI adoption with improved efficiency, reduced instructional workload, and stronger learning support systems through adaptive analytics (World Economic Forum, 2023).

In the Philippine public education system, however, AI integration did not develop evenly. Despite DepEd's efforts toward digital transformation, ongoing disparities in infrastructure, technical readiness, and access continued to constrain implementation. These challenges were particularly evident in resource-limited and geographically isolated provinces such as Sarangani, where issues of digital equity—who could access digital tools and under what conditions—remained significant.

Some public schools in Sarangani began adopting AI-supported applications, including automated assessment features, virtual platforms, and administrative management tools. Yet, the extent of use varied widely, shaped by differences in internet reliability, institutional support, and teachers' technological familiarity. While

administrators recognized potential gains in efficiency and data management, teachers experienced both opportunities for instructional innovation and practical constraints.

These conditions provided the foundation for examining AI integration in Sarangani public schools. Using a phenomenological approach, the study explored how teachers, school administrators, and ICT coordinators understood and engaged with AI in their roles, and how these experiences intersected with administrative effectiveness and digital equity.

## **THEORETICAL FRAMEWORK**

This study was anchored on two complementary theoretical frameworks: Davis' (1989) Technology Acceptance Model (TAM) and Rogers' (2003) Diffusion of Innovations Theory (DOI). Together, these perspectives explain both the individual perceptions and the organizational processes that shape the integration of AI in education, particularly within the public school context of Sarangani Province.

TAM provided a lens for examining how teachers and administrators evaluated AI in terms of perceived usefulness and ease of use. These beliefs influenced whether AI was regarded as a supportive tool for instruction and administration or as an additional burden within already demanding school environments.

DOI offered a broader organizational perspective by explaining how AI innovations were introduced, communicated, and adopted across schools. It highlighted the stages through which AI-related initiatives moved from awareness to actual practice, and how leadership, institutional culture, and available support systems affected the pace and success of adoption.

Taken together, TAM and DOI suggested that AI integration depended on more than the availability of technology. The alignment of positive individual perceptions with enabling institutional conditions determined whether AI became embedded in school practices and whether it contributed to administrative effectiveness and the advancement of digital equity in Sarangani public schools.

### **Conceptual Framework**

The conceptual framework explains AI integration in public schools as a process shaped by both individual acceptance and institutional support, grounded in the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory (DOI). TAM highlights how teachers' and administrators' perceptions of usefulness and ease of use influence their willingness to adopt AI, while DOI explains how AI initiatives spread and are sustained through leadership, communication, and organizational culture.

When individual readiness aligns with effective institutional diffusion, AI integration improves administrative effectiveness and promotes digital equity by expanding access, skills, and inclusive participation. Together, these outcomes contribute to stronger educational governance and the development of inclusive, future-ready learning environments in public schools in Sarangani Province.

### **Significance of the Study**

The study generated insights relevant to several groups involved in public education. For policymakers and the Department of Education (DepEd), the findings offered evidence that could inform decisions related to digital transformation and capacity-building initiatives.

School administrators could draw on the results to reflect on leadership practices, planning, and the use of AI-assisted tools in school management. For teachers, the study highlighted experiences that may support professional learning and adaptation in increasingly digital work environments. From a broader perspective, the study contributed to ongoing discussions in educational research on AI integration, digital equity, and innovation in public-sector schooling.

---

## Scope and Delimitation of the Study

The study focused on the integration of Artificial Intelligence in selected public schools in Sarangani Province, Philippines. Attention was limited to AI applications related to administrative functions and issues of digital equity. Private schools and higher education institutions were not included.

Participants consisted of teachers, school heads, and administrative personnel. Data were obtained through structured questionnaires and qualitative methods, including interviews and open-ended responses. Rather than evaluating specific AI tools, the study examined participants' experiences and interpretations of AI integration and its implications for administrative effectiveness and digital equity.

## LITERATURE REVIEW

This chapter presents a synthesis of related literature and studies on the integration of artificial intelligence (AI) in education, with particular emphasis on digital equity and the administrative effectiveness of school leaders. It situates the present study within international and national research, highlighting theoretical foundations, empirical findings, and emerging debates relevant to AI adoption in schools. Specifically, the review examines: (1) the conceptual and pedagogical foundations of AI in education, (2) digital equity challenges amid technological transformation, (3) administrative effectiveness in managing AI-related initiatives, and (4) teachers' lived experiences in integrating AI in classroom practice.

### Artificial Intelligence Integration in Education

Artificial intelligence has emerged as a transformative force reshaping educational systems globally (Adiguzel, Kaya, & Cansu, 2023; Holmes et al., 2022; Allison et al., 2025). Scholars broadly define Artificial Intelligence in Education (AIED) as an interdisciplinary field combining computational intelligence, learning sciences, and educational theory to enhance teaching, learning, and institutional management (Chen et al., 2020). AI applications—such as machine learning, learning analytics, intelligent tutoring systems, and generative AI—have enabled personalized learning, automated feedback, and data-informed decision-making (Heffernan & Heffernan, 2014; Guo et al., 2021; Kasneci et al., 2023).

International literature consistently underscores AI's potential to improve instructional delivery, learner engagement, and institutional efficiency (Crompton & Burke, 2023; Jeon & Lee, 2023). However, these benefits are unevenly realized, as effective integration depends heavily on infrastructure readiness, leadership capacity, and human capital development (Arar et al., 2025; Bixler & Ceballos, 2025). UNESCO's *AI and Education: Guidance for Policy-Makers* (2021) emphasizes that national education systems must adopt AI through ethical, inclusive, and well-governed frameworks to avoid exacerbating existing inequalities.

In the Philippine context, AI integration remains largely emergent and concentrated in pilot initiatives. Programs such as the Department of Education's Digital Rise Program signal growing institutional recognition of AI's potential for teaching and school management. Nevertheless, studies indicate that implementation is constrained by budget limitations, uneven connectivity, and limited technical expertise, particularly in public and rural schools (Filgueiras, 2024; Fullan et al., 2024). These findings suggest that AI adoption in Philippine public schools is characterized by innovation tempered by systemic capacity challenges.

### Generative AI and the Transformation of Learning

Recent scholarship highlights generative AI—particularly tools such as ChatGPT—as a significant shift in educational practice. Generative AI enables conversational interaction, content generation, and rapid feedback, thereby altering traditional teacher–student dynamics (Cotton et al., 2024; Duha, 2023). Educators and students increasingly use these tools for brainstorming, summarizing academic texts, lesson planning, and formative assessment (Cooper, 2023; Al-Emran et al., 2025).

While generative AI has been associated with increased learner autonomy and creativity, it has also raised concerns regarding academic integrity, authorship, and assessment validity (O'Connor, 2023; Cotton et al.,

2024). Scholars propose reframing AI use through “augmented learning,” wherein AI functions as a cognitive partner rather than a substitute for human thinking (Dowling & Lucey, 2023). This perspective emphasizes the redesign of assessment tasks to prioritize critical thinking, contextual judgment, and reflective learning—competencies less susceptible to automation.

### **Ethical, Governance, and Policy Dimensions of AI in Education**

Ethical governance has emerged as a central theme in AI scholarship. Researchers argue that responsible AI adoption extends beyond technical compliance to include transparency, accountability, and moral leadership (Dignum, 2018; De Cremer & Narayanan, 2023). Studies on AI in public governance demonstrate that participatory policymaking and evidence-based regulation enhance institutional trust and system legitimacy (Desouza et al., 2020; Chatterjee et al., 2022).

In educational settings, AI governance intersects with issues of data privacy, surveillance, and professional autonomy. Clegg and Sarker (2024) caution that AI-driven monitoring systems may blur boundaries between efficiency and control, necessitating clear ethical safeguards. Within the Philippine education system, AI governance frameworks remain underdeveloped, reinforcing the need for leadership capacity in aligning technological innovation with educational values and social justice principles (Filgueiras, 2024; UNESCO, 2021).

### **Digital Equity in Schools amid AI Integration**

Digital equity is widely defined as equitable access to digital technologies, resources, and the skills required to use them effectively (Bulfin & McGraw, 2021; Reddy et al., 2022). Contemporary scholars extend this definition beyond connectivity to include digital literacy, accessibility, participation, and data justice (Williamson, 2020). In AI-enabled environments, digital equity becomes a prerequisite for inclusive innovation, as unequal access risks deepening educational disparities (Hrastinski et al., 2019; Guo et al., 2021).

Empirical studies consistently reveal that digital divides persist across socioeconomic, geographic, and institutional lines. Government-led digital initiatives often benefit well-resourced schools disproportionately, leaving rural and underserved communities at a disadvantage (Margetts & Dorobantu, 2019; Shamsudinova et al., 2025). In the Philippine context, chronic underfunding and inconsistent internet connectivity exacerbate these inequities, particularly in public schools (Filgueiras, 2024).

Leadership scholarship emphasizes that digital equity is both a technical and moral responsibility. Equity-oriented educational management requires strategic investment in infrastructure, teacher capacity building, and inclusive policy design (Baker & Hawn, 2022; Fullan et al., 2024). Al-Emran et al. (2025) further demonstrate that equitable AI deployment contributes to social sustainability when supported by ethical governance and knowledge management practices.

### **Administrative Effectiveness in Managing AI-Related Initiatives**

Administrative effectiveness refers to school leaders’ capacity to plan, implement, supervise, and evaluate institutional innovations. In AI integration, administrators function as critical intermediaries between policy and classroom practice (Bixler & Ceballos, 2025; Arar et al., 2025). Effective leaders align AI initiatives with school improvement goals while ensuring ethical compliance and stakeholder engagement (Fullan et al., 2024).

Research highlights planning and decision-making as foundational to successful AI adoption. Data-informed leadership, design thinking, and iterative evaluation enhance alignment between AI tools and educational objectives (Cao et al., 2021; Desouza et al., 2020). However, studies indicate that AI planning in developing contexts remains largely reactive, constrained by fragmented governance and limited inter-agency coordination (Filgueiras, 2024; UNESCO, 2021).

Transformational leadership further shapes educators’ willingness to adopt AI. Leaders who foster trust, collaboration, and professional learning communities facilitate smoother technological transitions (Hejres, 2022; Alwaqdani, 2025). Capacity building—through sustained professional development, mentorship, and technical

support—emerges as a critical determinant of sustainable AI integration (Al-Emran & Teo, 2020; Adiguzel et al., 2023).

### **Teachers' Experiences in Integrating AI in the Classroom**

Teachers occupy a central role in translating AI policies into pedagogical practice. Empirical studies reveal generally positive attitudes toward AI's capacity to personalize instruction, reduce administrative workload, and enhance feedback mechanisms (Jeon & Lee, 2023; Guo et al., 2021). However, teachers also report significant challenges related to technical complexity, insufficient training, ethical concerns, and curricular alignment (Alwaqdani, 2025; Mouta et al., 2024).

Teachers' readiness is strongly influenced by organizational support and leadership vision. Schools with clear AI policies and collaborative cultures experience lower resistance and more effective integration (Arar et al., 2025; Adiguzel et al., 2023). In developing contexts, digital inequities further shape teachers' experiences, with rural educators facing limited access to AI tools and professional networks (Filgueiras, 2024).

Overall, the literature underscores that AI's educational impact is mediated by human agency. Technological tools alone do not transform learning; rather, it is the informed, ethical, and purposeful use of AI by educators and leaders that determines its effectiveness (Dignum, 2018; De Cremer & Narayanan, 2023).

### **Synthesis and Research Gap**

Collectively, the reviewed literature indicates that AI integration in education has progressed beyond speculative discourse toward critical, practice-oriented inquiry. Scholars concur that AI offers substantial potential for personalized learning, improved decision-making, and administrative efficiency. At the same time, persistent concerns regarding ethics, governance, leadership capacity, and digital equity remain unresolved.

Despite extensive international research, localized empirical studies examining the intersection of AI integration, digital equity, and administrative effectiveness in Philippine public schools remain limited. In particular, there is a need to examine how school leaders manage AI initiatives amid resource constraints and how teachers experience AI integration within inequitable digital environments. Addressing these gaps provides the rationale for the present study.

### **Objective of the Study**

The integration of Artificial Intelligence in public schools raised questions not only about technological capacity but also about acceptance, use, and institutional support. In selected public schools in Sarangani Province, AI tools were introduced within environments marked by uneven access to resources and varying levels of digital readiness. Guided by the Technology Acceptance Model (Davis, 1989) and the Diffusion of Innovations Theory (Rogers, 2003), this study explored how educators and school administrators made sense of AI within their professional practice.

The study aimed to examine how Artificial Intelligence was integrated into public school contexts and how this integration related to administrative effectiveness and digital equity. Specifically, it sought to:

1. Describe the ways Artificial Intelligence was adopted and implemented in selected public schools in Sarangani Province; and
2. Identify the challenges and opportunities encountered by educators and administrators during the process of AI integration.

### **Scope And Limitation of the Study**

The study focused on the integration of Artificial Intelligence in selected public schools in Sarangani Province, Philippines. Attention was limited to AI applications related to administrative functions and issues of digital equity. Private schools and higher education institutions were not included.

Participants consisted of teachers, school heads, and administrative personnel. Data were obtained through structured questionnaires and qualitative methods, including interviews and open-ended responses. Rather than evaluating specific AI tools, the study examined participants' experiences and interpretations of AI integration and its implications for administrative effectiveness and digital equity.

## METHODS

**Research Design.** The study employed a qualitative phenomenological design to describe and interpret the lived experiences of teachers and school administrators in integrating AI in public secondary schools. Guided by TAM and DOI, it examined how perceptions of usefulness/ease of use and the diffusion process within schools shaped AI use, including implications for administrative effectiveness and digital equity.

**Research Participants.** Participants included principals, ICT coordinators, and teachers from three selected public secondary schools in Sarangani Province. They were purposively selected based on: (1) at least one year of experience using digital or AI-based tools for instruction or school management, and (2) voluntary willingness to participate. Each school contributed about three to five participants, ensuring information-rich perspectives.

**Research Instrument.** The primary instruments were semi-structured interview guides and FGD guides, designed to elicit detailed accounts of participants' experiences with AI integration. Field notes were also used to capture non-verbal cues and contextual observations during data collection.

**Gathering Data Procedures.** After securing permissions from the Graduate School Dean, the Schools Division Office of Sarangani, and the school heads, the researcher conducted an orientation covering purpose, consent, confidentiality, and voluntary participation. Data were collected through 45–60 minute semi-structured interviews and FGDs, audio-recorded with consent, supported by field notes. All sessions were transcribed verbatim, and member checking was done to validate the accuracy of responses.

**Data Analysis.** Data were analyzed using Braun and Clarke's (2006) thematic analysis, following these steps: familiarization, initial coding, theme development, theme review, theme naming/definition, and narrative reporting with participant quotations. Interpretation was guided by TAM (usefulness/ease of use) and DOI (adoption stages, leadership support, communication, collaboration) to explain how AI integration related to digital equity and administrative effectiveness.

## RESULTS AND DISCUSSION

**Table 1 - Summary of Themes on AI Integration, Digital Equity, and Classroom Experiences**

| The teachers and administrators' views on digital equity within their schools amid AI integration                                                                                                         |                                                                                                                                                             |                                   |                                                          |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------|--|
| Responses / Illustrative Quotes                                                                                                                                                                           | Description                                                                                                                                                 | Sub-Themes                        | Final Theme                                              |  |
| <p>“Several factors influence my perception of digital access... availability of internet connection and devices.” (P1)</p> <p>“There are times that we have no internet access here in school.” (T7)</p> | Both administrators and teachers identified unreliable internet connectivity as a major constraint that limited consistent and equitable AI use in schools. | Internet Connectivity Constraints | Structural and Access-Related Barriers to AI Integration |  |
| <p>“The digital equity in our school is improving very slowly... we are at a pilot stage.” (P3)</p> <p>“Not all kids have devices.” (T4)</p>                                                              | AI integration remained uneven and dependent on personal devices, resulting in partial access and inequitable                                               | Device Availability Gaps          |                                                          |  |

|                                                                                                                                                                               |                                                                                                                                                                                       |                              |                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------|
|                                                                                                                                                                               | learning opportunities among students.                                                                                                                                                |                              |                                                                        |
| <p>“There are still gaps in digital literacy and dependable internet connectivity.” (P11)</p> <p>“Kung dili ka kabalo mo prompt... general answers.” (T1)</p>                 | Digital equity extended beyond access to include AI literacy and user competence, which influenced the effectiveness and reliability of AI-supported instruction.                     | Digital Literacy Limitations |                                                                        |
| <p>“We continuously work on improving teachers’ digital skills.” (P5)</p> <p>“I give printed materials to learners without devices.” (T5)</p>                                 | Administrators and teachers adopted equity-driven responses by improving training, upgrading infrastructure, and providing alternative instructional materials to ensure inclusivity. | Equity-Oriented Adaptations  |                                                                        |
| The teachers’ experiences in integrating artificial intelligence in the classroom, particularly in relation to challenges and perceived benefits.                             |                                                                                                                                                                                       |                              |                                                                        |
| <p>“Ginapadali niya akong trabaho.” (T1)</p> <p>“AI tools reduce the time spent on grading and lesson planning.” (T2)</p>                                                     | Teachers described AI as a transformative instructional support that reshaped lesson planning and delivery, enabling greater focus on facilitation and higher-order learning.         | Instructional Transformation | Transformative AI Integration in Teaching and Learning                 |
| <p>“AI helps me do other things faster, efficiently, and save time.” (T3)</p>                                                                                                 | AI automated routine teaching tasks, allowing teachers to manage instructional demands more effectively and reduce time pressure.                                                     | Task Automation              | Transformative AI Integration for Teaching Efficiency                  |
| <p>“AI helps me customize lessons to meet the needs of each individual student.” (T8)</p> <p>“Students prompt AI for quick first drafts... then edit them in class.” (T4)</p> | AI facilitated personalized and student-centered learning by providing scaffolding, differentiation, and support for active learner participation.                                    | Personalized Instruction     | Pedagogical Enhancement and Student-Centered Learning through AI       |
| <p>“Using AI tools improves my efficiency in lesson preparation and daily tasks.” (T9)</p> <p>“Hassle and stress-free.” (T1)</p>                                              | Teachers perceived AI as a catalyst for professional productivity by improving workflow efficiency, reducing                                                                          | Professional Productivity    | AI as a Catalyst for Teaching Efficiency and Professional Productivity |

|                                                                                                                                           |                                                                                                                                                                  |                                  |                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------|
|                                                                                                                                           | stress, and supporting well-being.                                                                                                                               |                                  |                                                                            |
| <p>“It sparks ideas fast without stealing the soul of creativity.” (T4)</p> <p>“AI provides accurate, context-based assistance.” (T3)</p> | AI enhanced creativity and data-informed teaching by generating instructional ideas, improving engagement, and supporting critical thinking and problem-solving. | Creativity and Analytics Support | Pedagogical Enhancement, Creativity, and Data-Informed Teaching through AI |
| <p>“There are times that we have no internet access.” (T7)</p> <p>“Not all kids have devices.” (T4)</p>                                   | Teachers experienced persistent infrastructure and access barriers that limited the consistent use of AI tools in classrooms.                                    | Infrastructure and Access Issues | Structural and Access-Related Barriers to AI Integration                   |
| <p>“At first, I was worried if it would kill creativity.” (T4)</p> <p>“If you don’t know how to prompt... general answers.” (T1)</p>      | Teachers raised concerns about creativity loss, misinformation, overdependence, and cognitive overload, emphasizing the need for responsible and guided AI use.  | Ethical and Cognitive Risks      | Technical, Cognitive, and Ethical Challenges in AI Use                     |

### The Teachers and Administrators' Views on Digital Equity Within Their Schools Amid AI Integration

This section presents the perspectives of teachers and administrators on digital equity amid AI integration in public schools. The findings indicate four key areas: internet connectivity constraints, device availability gaps, digital literacy limitations, and equity-oriented adaptations.

**Internet Connectivity Constraints** Both administrators and teachers identified unreliable internet connectivity as a major constraint that limited consistent and equitable AI use in schools. Connectivity issues affected the seamless use of AI for instruction and administrative purposes.

#### Illustrative Quotes

“Several factors influence my perception of digital access... availability of internet connection and devices.” – P1

“There are times that we have no internet access here in school.” – T7

The findings show that AI adoption is highly dependent on reliable internet access. Schools located in geographically remote or economically disadvantaged areas face persistent connectivity gaps. This observation aligns with Digital Divide Theory (van Dijk, 2006), which emphasizes how unequal access to technology creates disparities in learning outcomes. UNESCO (2021) also noted that poor connectivity limits AI-driven educational reforms, particularly in developing regions.

## Device Availability Gaps

AI integration remained uneven and dependent on personal devices, resulting in partial access and inequitable learning opportunities among students.

### Illustrative Quotes:

“The digital equity in our school is improving very slowly... we are at a pilot stage.” – P3

“Not all kids have devices.” – T4

Students without access to devices were unable to participate fully in AI-supported learning activities. Administrators’ pilot programs reflected early-stage implementation, where teachers and students relied on personal devices. This finding is supported by the Digital Divide Theory (van Dijk, 2006) and research from Zhao et al. (2020), emphasizing that equitable access to both devices and infrastructure is a prerequisite for sustainable digital education.

## Digital Literacy Limitations

Digital equity extended beyond access to include AI literacy and user competence, which influenced the effectiveness and reliability of AI-supported instruction.

### Illustrative Quotes:

“There are still gaps in digital literacy and dependable internet connectivity.” – P11

“Kung dili ka kabalo mo prompt... general answers.” – T1

Teachers’ and administrators’ ability to leverage AI tools is constrained by digital skills and literacy. Lack of AI competence may reduce instructional effectiveness, cause overreliance on AI outputs, or result in errors. This aligns with the Technology Acceptance Model (TAM) by Davis (1989), which posits that perceived usefulness and ease of use influence adoption, and the TPACK Framework (Mishra & Koehler, 2006), which highlights the integration of technological, pedagogical, and content knowledge as critical for meaningful AI use.

## Equity-Oriented Adaptations

Administrators and teachers adopted measures to promote inclusivity, including digital skills training, upgrading infrastructure, and providing alternative instructional materials for students without devices.

### Illustrative Quotes:

“We continuously work on improving teachers’ digital skills.” – P5

“I give printed materials to learners without devices.” – T5

These strategies reflect deliberate attempts to mitigate inequity and ensure participation for all students. This aligns with Systems Theory (Laszlo & Krippner, 1998), where changes in one part of the school system (teacher competence and infrastructure) positively influence the overall functionality of AI integration. Research by Hatlevik & Hatlevik (2018) also supports the view that professional development is key to enhancing digital literacy and promoting equitable outcomes.

## The Teachers’ Experiences in Integrating Artificial Intelligence in the Classroom, Particularly in Relation to Challenges and Perceived Benefits

This section highlights teachers’ experiences in integrating AI into classroom practices, focusing on both benefits and challenges. Findings reveal that AI transformed instruction by streamlining lesson planning, automating routine tasks, enabling personalized learning, enhancing professional productivity, and supporting creativity and

data-informed teaching. However, persistent infrastructure limitations, limited access to devices, and concerns about ethical use and cognitive overload underscore the need for responsible implementation and ongoing capacity-building to maximize AI's impact in teaching and learning..

### **Instructional Transformation**

Teachers described AI as a transformative instructional support that reshaped lesson planning and delivery, enabling greater focus on facilitation and higher-order learning.

Illustrative Quotes:

“Ginapadali niya akong trabaho.” – T1

“AI tools reduce the time spent on grading and lesson planning.” – T2

AI allows teachers to focus on problem-solving, critical thinking, and student engagement rather than routine administrative tasks. This supports the Systems Theory (Laszlo & Krippner, 1998), where improvements in one component (lesson planning and delivery) influence the overall classroom system. Empirical studies by Kozlov et al. (2023) and UNESCO (2023) confirm AI's role in enhancing lesson scaffolding and individualized learning.

### **Task Automation**

AI automated routine teaching tasks, allowing teachers to manage instructional demands more effectively and reduce time pressure.

Illustrative Quotes:

“AI helps me do other things faster, efficiently, and save time.” – T3

By automating grading, lesson planning, and reporting, AI reduces teachers' workload and supports well-being, consistent with the Input-Process-Output (IPO) Model, which frames AI as the process transforming input tasks into more efficient outputs. ISTE (2022) and PIDS (2023) also reported that AI automation allows teachers to allocate time for instruction and student support.

### **Personalized Instruction**

AI facilitated personalized and student-centered learning by scaffolding content, differentiating lessons, and encouraging active learner participation.

Illustrative Quotes:

“AI helps me customize lessons to meet the needs of each student.” – T8

“Students prompt AI for quick first drafts... then edit them in class.” – T4

AI enables differentiated instruction tailored to students' abilities and learning pace. This aligns with Constructivist Learning Theory, which supports learning through self-discovery, personalization, and experiential engagement. Schmidt et al. (2022) and UNESCO Bangkok (2023) highlight AI's potential to enhance inclusivity and participation, particularly for students requiring additional support.

### **Professional Productivity**

Teachers perceived AI as a catalyst for professional productivity by improving workflow efficiency, reducing stress, and supporting well-being.

**Illustrative Quotes:**

“Using AI tools improves my efficiency in lesson preparation and daily tasks.” – T9

“Hassle and stress-free.” – T1

AI-enhanced productivity reduces teacher burnout and supports sustainable instructional quality, consistent with Scientific Management Theory, which advocates for efficiency in task execution. OECD (2023) and DepEd EdTech Unit (2024) observed similar productivity improvements when teachers used AI tools to streamline administrative processes.

**Creativity and Analytics Support**

AI enhanced creativity and data-informed teaching by generating instructional ideas, improving engagement, and supporting critical thinking and problem-solving.

**Illustrative Quotes:**

“It sparks ideas fast without stealing the soul of creativity.” – T4

“AI provides accurate, context-based assistance.” – T3

AI supports innovation in lesson design and encourages analytical thinking. This aligns with the TPACK Framework, integrating technology, pedagogy, and content knowledge. Jantaro et al. (2023) and Borromeo (2024) report that AI enhances creativity, learning outcomes, and student engagement.

**Infrastructure and Access Issues**

Teachers experienced persistent infrastructure and access barriers, such as unreliable internet and limited devices, which constrained consistent AI use.

**Illustrative Quotes:**

“There are times that we have no internet access.” – T7

“Not all kids have devices.” – T4

Limited ICT infrastructure affects the equitable application of AI in classrooms, echoing Digital Divide Theory (van Dijk, 2006). DepEd (2023) reported that 52% of public schools are outside urban areas, reinforcing challenges in rural AI implementation.

**Ethical and Cognitive Risks**

Teachers raised concerns about creativity loss, misinformation, overdependence, and cognitive overload, emphasizing the need for responsible AI use.

**Illustrative Quotes:**

“At first, I was worried if it would kill creativity.” – T4

“If you don’t know how to prompt... general answers.” – T1

AI can create cognitive load and ethical concerns, consistent with Cognitive Load Theory (Sweller, 2011). Proper training and responsible use are necessary to mitigate dependency, misinformation, and diminished creativity (Williamson, 2023).

---

## Synthesis and Affirmation of AI Integration

Summarizing the teachers' and administrators' perspectives, the findings reveal that public schools in the Division of Sarangani are progressively shifting toward transformative AI integration, regardless of urban or rural location. Teachers utilized AI to enhance student engagement, streamline lesson preparation, automate reportorial tasks, and safeguard professional well-being.

However, persistent challenges remain, including unreliable internet connections, insufficient devices, low digital literacy, limited AI skills, and cognitive or ethical concerns. To achieve sustainable AI integration, administrators and teachers must continue to demonstrate resilience, engage in professional learning communities, participate in tutorials, trainings, workshops, and LAC sessions, and anchor AI initiatives in capacity building, infrastructure investment, and clear policy support.

As the World Bank (2023) notes, AI integration yields meaningful improvements when adequate ICT infrastructure exists, teacher training is conducted, and school policies support present and future innovations. Taking all theories and empirical studies into account, the affirmation is clear: strategically organized and institutionalized AI integration promotes efficient school operations, enhances teaching and learning, and fosters equitable access across public schools in Sarangani.

## CONCLUSIONS AND RECOMMENDATIONS

This study explored the lived experiences and perspectives of teachers and administrators on the integration of Artificial Intelligence (AI) in selected public secondary schools in the Division of Sarangani, with particular focus on its implications for digital equity and teachers' classroom experiences.

Guided by the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory (DOI), the findings revealed that AI integration in Sarangani schools is both transformative and uneven, shaped by individual perceptions, institutional readiness, and structural access conditions.

Overall, teachers and administrators recognized AI as a valuable tool that supports instructional improvement and administrative efficiency. Teachers described AI as enhancing lesson planning, automating routine tasks, enabling personalized instruction, and fostering creativity and data-informed teaching. These perceived benefits contributed to stronger acceptance of AI, consistent with TAM's emphasis on perceived usefulness and ease of use as key drivers of technology adoption.

However, the study also highlighted persistent barriers that limited equitable and sustainable AI integration. Unreliable internet connectivity, insufficient access to learner devices, and gaps in digital and AI literacy remained significant constraints across participating schools.

These structural inequities reinforced the continuing digital divide, particularly affecting learners in rural and resource-limited contexts. Teachers also expressed ethical and cognitive concerns, including misinformation risks, overdependence, and the possibility of reduced creativity, underscoring the need for responsible and guided AI use.

Despite these challenges, schools demonstrated equity-oriented adaptations such as providing printed materials, strengthening teacher capacity-building initiatives, and gradually upgrading digital infrastructure. These efforts reflected an emerging commitment to inclusive digital transformation, although the diffusion of AI innovations remained at varying stages across schools, consistent with DOI's framework on organizational adoption processes.

In conclusion, AI integration in Sarangani public schools holds strong potential to enhance teaching efficiency, student-centered learning, and administrative effectiveness. Yet, achieving its full impact requires addressing access inequities, strengthening AI literacy, and institutionalizing supportive systems to ensure that AI becomes an inclusive and sustainable educational innovation rather than a source of further disparity.

---

## Recommendations

Based on the findings of the study, the following recommendations are proposed to strengthen AI integration, promote digital equity, and enhance classroom practice in Sarangani public schools:

1. **Strengthen ICT Infrastructure and Internet Connectivity.** The Department of Education and partner stakeholders should prioritize investments in stable internet access, particularly in geographically isolated and disadvantaged areas. Improved connectivity is essential for consistent AI-supported instruction and equitable participation among learners.
2. **Expand Access to Learner Devices and Digital Resources.** Schools and local government units may develop programs that provide shared devices, learning hubs, or subsidized technology support for students who lack gadgets. Without equitable device access, AI integration will remain uneven and limited to learners with personal resources.
3. **Institutionalize AI Literacy and Professional Development.** Continuous teacher training through seminars, LAC sessions, and professional learning communities should focus not only on basic digital skills but also on AI-specific competencies such as prompt literacy, evaluation of AI outputs, and ethical classroom integration. This will enhance perceived ease of use and sustained adoption.
4. **Develop Clear Guidelines for Responsible and Ethical AI Use.** DepEd and school leaders should craft policies that address academic integrity, misinformation, overreliance, and appropriate student use of AI tools. Ethical frameworks are necessary to ensure that AI supports learning without undermining creativity or critical thinking.
5. **Promote Equity-Oriented Instructional Alternatives.** Teachers should continue implementing inclusive strategies such as blended learning approaches, printed modules, and differentiated activities to accommodate learners with limited access. AI integration must be paired with responsive teaching practices to prevent exclusion.
6. **Strengthen School Leadership and Innovation Support Systems.** School administrators should play an active role in supporting AI adoption through clear communication, collaborative planning, and resource mobilization. Leadership-driven innovation encourages wider diffusion and normalization of AI practices across school systems.
7. **Conduct Further Research on Long-Term Outcomes of AI Integration.** Future studies may examine the measurable impact of AI tools on student achievement, teacher workload, and administrative decision-making. Quantitative or mixed-method approaches may also deepen understanding of AI's role in improving educational governance and equity.

## REFERENCES

1. Adigüzel, T., Kaya, M. H., & Cansu, F. K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. *Contemporary Educational Technology*, 15(3), Article ep429.
2. Al-Emran, M., & Griffy-Brown, C. (2023). Technological innovation and sustainable decision-making in education management. *Journal of Technology Management*, 18(2), 45–58. (Focuses on the role of technological literacy in sustainable leadership decisions.)
3. Al-Emran, M., & Teo, T. (2020). Influence of knowledge acquisition and sharing on e-learning adoption: An extended TAM approach. *Education and Information Technologies*, 25(4), 3203–3219.
4. Allison, G., et al. (2025). [Study on AI adoption in education]. (In press).
5. Althabatah, A., et al. (2023). [Research on AI-driven decision transparency]. *Journal of Public Sector AI*, 5(1), 112–130.
6. Alwaqdani, M. (2025). Investigating teachers' perceptions of AI tools in education: Potential and difficulties. *Education and Information Technologies*, 28(1), 123–140.
7. Arar, K., Tlili, A., Schunka, L., & et al. (2025). Reimagining educational leadership and management through artificial intelligence: An integrative systematic review. *Leadership and Policy in Schools*, 24(1), 56–75.
8. Baker, R. S., & Hawn, A. (2022). Algorithmic bias in education. *International Journal of Artificial Intelligence in Education*, 32, 1052–1092.
9. Bandi, S., Adapa, S., & Kuchi, R. (2023). Promoting transparency in AI-driven educational administration. *Journal of Educational Technology Governance*, 7(3), 88–101.

10. Barcaui, A., & Monat, A. (2023). Who is better in project planning? Generative artificial intelligence or project managers? *Project Leadership and Society*, 4, 100034.
11. Bixler, K., & Ceballos, M. (2025). Principals leading AI in schools for instructional leadership: A conceptual model for principal AI use. *Leadership and Policy in Schools*, 24(1), 137–154.
12. Bulfin, S., & McGraw, K. (2021). Digital equity in education: Addressing access and inclusion gaps. *Journal of Educational Technology & Society*, 24(2), 45–57.
13. Cao, G., Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2021). Understanding managers' attitudes and behavioral intentions towards using artificial intelligence: A hybrid SEM-neural network approach. *Technological Forecasting and Social Change*, 173, 121192.
14. Chen, X., Xie, H., Zou, D., & Hwang, G. J. (2020). Application and theory gaps during the rise of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 1, 100002.
15. Cooper, G. (2023). Examining science education in ChatGPT: An exploratory study of generative AI. *Journal of Science Education and Technology*, 32(4), 450–460.
16. Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 60(2), 128–138.
17. Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage.
18. Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20(22), 1–27.
19. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
20. De Cremer, D., & Narayanan, D. (2023). On educating ethics in the AI era: Why business schools must move beyond digital upskilling toward ethical leadership. *AI and Ethics*, 3(2), 303–309.
21. Desouza, K. C., Dawson, G. S., & Chenok, D. A. (2020). Designing, developing, and deploying artificial intelligence systems: Lessons from and for the public sector. *Business Horizons*, 63(2), 205–213.
22. Filgueiras, F. (2024). Artificial intelligence and education governance: Ensuring fair and inclusive innovation. *Management in Education*, 38(3), 136–144.
23. Fullan, M., Azorín, C., Harris, A., & Jones, M. (2024). Artificial intelligence and school leadership: Challenges, opportunities and implications. *School Leadership & Management*, 44(2), 95–110.
24. Guo, Y., et al. (2021). Intelligent assessment systems for personalized learning. *Educational Technology Research & Development*, 69(4), 2201–2215.
25. Heffernan, N. T., & Heffernan, C. L. (2014). The ASSISTments ecosystem: Building a platform that brings scientists and teachers together for minimally invasive research on human learning and teaching. *International Journal of Artificial Intelligence in Education*, 24(4), 470–497.
26. Hejres, S. (2022). The impact of artificial intelligence on instructional leadership. In A. Hamdan et al. (Eds.), *Teaching and learning in the digital age* (pp. 697–711). Springer.
27. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
28. Holmes, W., & Porayska-Pomsta, K. (Eds.). (2022). *The ethics of artificial intelligence in education: Practices, challenges, and debates*. Routledge.
29. Hrastinski, S., Aghaee, N., & et al. (2019). Addressing the disconnect: Building school–community relationships in online learning. *Journal of Educational Change*, 20(2), 143–158.
30. Jeon, H., & Lee, K. (2023). Impacts of AI integration on student engagement and performance in smart classrooms. *Computers & Education*, 191, 104641.
31. Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Instruction*, 84, 101948.
32. Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
33. Lima, M. S. M., & Delen, D. (2020). Predicting and explaining corruption across countries: A machine learning approach. *Government Information Quarterly*, 37(1), 101407.
34. Lin, X., & Chen, Y. (2025). Collaborative leadership models to ensure equity in AI integration. *Journal of Educational Administration*, 63(1), 77–92.
35. Malik, A., et al. (2023). Educators' attitudes towards AI-enabled learning: Effects on inclusion. *Education and Information Technologies*, 28(5), 5001–5020.

36. Ma, W., et al. (2021). Enhancing classrooms with AI and online materials: A path to interactivity. *IEEE Access*, 9, 163117–163128.
37. Margetts, H., & Dorobantu, C. (2019). Rethinking government in the age of AI: Data-intensive technologies and digital inequality. *Harvard Data Science Review*, 1(2).
38. Mergel, I., Ganapati, S., & Whitford, A. B. (2023). Agile governance in the public sector: Building transparency and trust in AI adoption. *Public Administration Review*, 83(1), 175–180.
39. Misuraca, G., & Viscusi, G. (2013). Managing e-governance: A framework for analysis and planning. In P. P. Siqueira & T. Straubhaar (Eds.), *Proceedings of the International Conference on Digital Government* (pp. 37–48).
40. Mncube, M. (2025). Teachers' attitudes and AI-enabled learning spaces: A South African perspective. *African Journal of Education*, 45(1), 15–30.
41. O'Connor, S. (2023). Academic dishonesty in the era of generative AI. *Education Week*, 42(5), 12–13.
42. Republic of the Philippines. (2012). Republic Act No. 10173: Data Privacy Act of 2012. Manila: Republic of the Philippines.
43. Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
44. Shamsudinova, M., et al. (2025). Digital divides in developing contexts: Unequal access to AI and internet in schools. *International Journal of Educational Development*, 91, 102654.
45. Stahl, B. C., & Eke, D. (2024). The ethics of ChatGPT – Exploring the ethical issues of an emerging technology. *International Journal of Information Management*, 74, 102700.
46. Tyson, L., & Sauers, N. J. (2021). Blending human and artificial intelligence in school leadership: Ensuring equal accessibility. *Journal of Educational Administration*, 59(5), 539–554.
47. United Nations Educational, Scientific and Cultural Organization (UNESCO). (2021). *AI and education: Guidance for policy-makers*. UNESCO.
48. Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., et al. (2020). The role of artificial intelligence in achieving the Sustainable Development Goals. *Nature Communications*, 11, Article 233.
49. Wang, Y. (2021). Human–AI blended leadership for inclusive education. *Computers in the Schools*, 38(3), 239–256.
50. World Economic Forum. (2023). *How AI can transform education for students and teachers*. World Economic Forum Report. (Explores AI's impact on teacher productivity and personalized learning.)
51. Williamson, B. (2020). Data justice in education: AI, big data, and the challenge of digital equity. *Learning, Media and Technology*, 45(3), 318–332.
52. Wogu, I. A., Chukwuere, J., & Ayodele, T. O. (2019). Digitization gaps and inclusion: Challenges for rural education in the AI era. *International Journal of Educational Technology*, 16(4), 45–55.
53. Zuiderwijk, A., Chen, Y. C., & Salem, F. (2021). Implications of AI for digital education and the Sustainable Development Goals. *AI and Society*, 36(4), 1115–1129.