

The Mediating Effect of Innovative Work Behavior to AI-Powered Leadership and Skill and Ethics Based Performances in Public Elementary Schools

Joyous D. Del Rosario^a, Delon A. Ching^b

^ajoyous.delrosario001@deped.gov.ph ^bdelon.ching@lspu.edu.ph

^aHead Teacher I, Binahain A Elementary School, Lopez, Quezon 4316, Philippines

^bAssociate Professor 5, Laguna State Polytechnic University, San Pablo City 4000, Philippines

Abstract

This research study examined the mediating effect of innovative work behavior on the relationship between AI-powered leadership and skill and ethics-based performance among 59 public elementary schools in Lopez, Quezon during academic year 2025-2026 with 235 respondents a combination of school heads and teachers. This study aims to explore the interrelationships among 5 variables and to examine whether innovative work behavior mediates and AI-competency moderate the impact of AI leadership to skill and ethics-based performance. It used the descriptive-correlational research design and quantitative method, the data gathered via combination of online survey using google form and paper and pencil survey through validated research-made survey questionnaire. The data was analyzed using mean, standard deviation, Pearson r, mediation and moderation analysis. The findings revealed that the AI-powered leadership, skill-based performance, ethics-based performance, innovative work behavior, and AI competency were all rated as a great extent. The AI-powered leadership was significantly related to innovative work behavior, skill and ethics-based performance. Also, innovative work behavior is significantly related to both skill and ethics-based performance. The relationship between AI-powered leadership and skill and ethics-based performance was significantly mediated by innovative work behavior. The relationship between AI-powered leadership and skill and ethics-based performance was significantly related to AI competency but not significant in their moderating effect. This research study concluded that AI-powered leadership supported better school performance and outcomes, especially when it encouraged innovative work behavior. It is confirmed that the ethical use of AI and strong leadership practices remained valuable in the public elementary schools. This research study concluded that AI-powered leadership supported better school performance and outcomes, especially when it encouraged innovative work behavior. It is confirmed that the ethical use of AI and strong leadership practices remained valuable in the public elementary schools.

Keywords: Artificial Intelligence (AI); AI-Powered Leadership; Innovative Work Behavior; AI Competency; Skill-Based Performance; and Ethics-Based Performance

1. Introduction

In the fast-changing technology world, most Artificial Intelligence (AI) is accepted and used in their work and daily lives; and it is already a part of many schools that assist in making decisions, organizing data, and improving the school task. AI tools are increasingly used to support the decision making, organize data and simplify the administrative works (Wang et al., 2024; Berkovich, 2025). Now a day, the school leaders are

expected not only manage people but also to understand and use technology wisely, ensuring that the AI supports the learning while protecting the fairness and safety (Akgün & Greenhow, 2021). At the national level, the Philippine programs and policies such as the 1987 Philippine Constitution's guarantee of the quality education (Philippine Constitution, 1987), the DepEd's Digital Rise Program, Philippine Professional Standards for School Heads (PPSSH) and DTI's National AI Strategy Roadmap underscore the importance of the digital competence and organized AI integration in the schools (DepEd, 2020; DTI, 2021; DepEd, 2022).

Furthermore, despite the AI growing presence, many school leaders, especially in the public and remote schools, face barriers to effective use. The common problem included the limited access to technology, lack of capacity building, scarcity of resources, and insufficient guidance on ethical use (Garzón et al., 2025; Irwanto et al., 2025). The Philippine Professional Standard for School Heads emphasized strong management and ethical leadership but does not clearly specify the AI-related skills, creating a gap between policy expectations and leaders' practical readiness (DepEd, 2020; Ughulu, 2024; Moreno, 2023). It is also unclear how AI affects innovative work behavior, skill-based performance, and ethics-based performance among the school heads, and how AI competency (Knowledge, Attitude, Skills) shapes these outcomes (De Jong & Den Hartog, 2010; Reyes et al., 2024; Yun, 2024).

This study examined how school heads in the Philippine public elementary schools can use AI to promote innovation, ethical decision making, professional growth, and improved school outcomes. It especially investigated relationships among AI-powered leadership, AI Competency, Innovative Work Behavior, Skill-Based Performance, and Ethics-Based Performance, and it aimed to inform a leadership development program that balances technical skills with ethical standards (Mahapatra et al., 2025; Escobal et al., 2023). By focusing the Philippine context and aligning with national legal and policy frameworks, the study sought to offer practical guidance for the leaders and policymakers to strengthen digital competence, equity, and inclusive practices in the school leadership (Garzón et al., 2025; DTI, 2021).

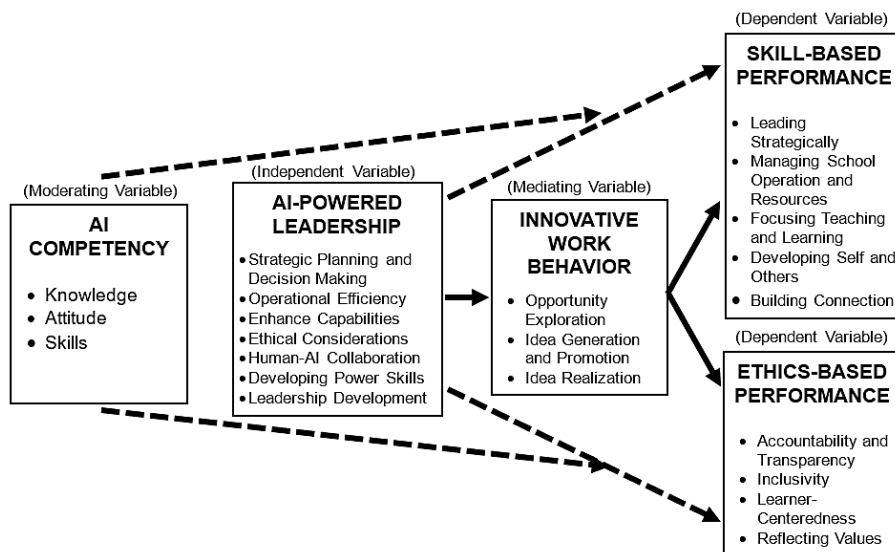
This study examined the interrelationships among AI-powered leadership, innovative work behavior, AI competency, and school head performance outcomes that aims to answer the following specific research questions:

1. What is the level of AI-Powered Leadership demonstrated by elementary school heads in terms of:
 - 1.1. Strategic planning and Decision Making;
 - 1.2. Operational Efficiency;
 - 1.3. Enhanced Capabilities;
 - 1.4. Ethical Considerations;
 - 1.5. Human-AI Collaboration;
 - 1.6. Developing Power Skills; and
 - 1.7. Leadership Development?
2. What is the level of Skill-Based Performance shown by elementary school heads in terms of:
 - 2.1. Leading Strategically;
 - 2.2. Managing School Operations and Resources;
 - 2.3. Focusing on Teaching and Learning;
 - 2.4. Developing Self and Others; and
 - 2.5. Building Connections?
3. What is the level of Ethics Based-Performance display by elementary school heads in terms of:
 - 3.1. Accountability and Transparency;
 - 3.2. Inclusivity;
 - 3.3. Learner-Centeredness; and
 - 3.4. Reflecting Values?
4. What is the level of Innovative Work Behavior exhibited by elementary school heads in terms of:

- 4.1. Opportunity Exploration;
- 4.2. Idea Generation and Promotion; and
- 4.3. Idea Realization?
5. What is the level of AI Competency display by elementary school heads in terms of:
 - 5.1. Knowledge
 - 5.2. Attitude
 - 5.3. Skills
6. Does Innovative Work Behavior in elementary school significantly mediates the relationship between AI-Powered Leadership and Skill-Based Performance?
7. Does Innovative Work Behavior in elementary school significantly mediates the relationship between AI-Powered Leadership and Ethics Based-Performance?
8. Does AI Competency in the public elementary school significantly moderates the relationship between AI-Powered Leadership and Skills-Based Performance?
9. Does AI Competency in the public elementary school significantly moderates the relationship between AI-Powered Leadership and Ethics-Based Performance?

2. Conceptual Framework

Figure 1. AI-Powered Leadership and Innovative Work Behavior toward Skill and Ethics-Based Performance: A Moderated Mediation Analysis of AI Competency



As shown in Figure 1 that the AI-Powered Leadership is the main factor that can improve school performance partly through Innovative Work Behavior. Revealing that the leaders in the elementary school use Artificial Intelligence technology and tools in planning, decision-making, and school operations. That school personnels become more creative, explore new ideas, and turn the good ideas into action. In turn, this can lead to better skill-based performance such as strategic work, managing resources, and improving professional work, as well as better ethics-based performance such as accountability, inclusivity, transparency, and reflecting values. This figure also shows that AI competency somehow affects these relationships, meaning what leaders'

level of knowledge, attitude, and skills in utilizing AI is not a big factor for enhancing skill and ethics performances.

Furthermore, figure 1 implies two practical claims that leadership alone is insufficient unless it activates the innovative behavior among all school personnel, especially teachers. Second, the effectiveness of the activation somehow depends on the leaders' AI competency, so that the interventions should combine the development of leadership with AI knowledge and skills building to maximize both skill and ethics outcomes in the school.

3. Methodology

The study employed a descriptive-correlational research design using quantitative research methods. The population of the study consisted of 2 districts, Lopez East with 32 elementary schools and Lopez West with 27 Elementary schools all in all 59 elementary schools with a combination of population size of 497 school heads and teachers in elementary level. This study used a random sampling technique using surveymonkey.com with confidence level of 95% and margin of error of 5, with 235 respondents from DepEd Lopez, Quezon.

The research survey instrument is researcher-made that validated both 5 internal and 5 external validators. In the pilot testing, there are 46 DepEd respondents outside Lopez, Quezon within the area of Division of Quezon, and all indicators interpretation is excellent. After securing the permit to conduct, researcher distributed the questionnaire both online using google survey form and hardcopy a traditional paper-pencil survey. After the data gathering procedure, researcher encode the result in the data matrix before sending to statistics center.

In the descriptive statistics, variables related to AI-powered leadership, innovative work behavior, AI-competency, skill-based performance, and ethics-based performance utilized mean and standard deviation to provide summary of data sets. Additionally, Pearson's correlation coefficient was used in the correlational analysis to find out the result of the relationships between the 5 variables of this study. Lastly, regression analysis was utilized to verify the mediation role of Innovative Work behavior and moderation role of AI competency to the relationship between AI-powered leadership to skill and ethics-based performance.

4. Results and Discussion

This chapter presents the results of this study in tabulated data based on the statistical treatment used. Then, followed by narrative analysis and interpretation with relate and support of the other literature and studies in narrative form.

Table 1. Summary of Perceived Level of AI-Powered Leadership Demonstrated by Elementary School Heads

Indicators	Mean	SD	Interpretation
1) Strategic Planning and Decision Making	4.21	.74	Great Extent
2) Operational Efficiency	4.25	.78	Great Extent
3) Enhanced Capabilities	4.23	.70	Great Extent
4) Ethical Considerations	4.32	.68	Great Extent
5) Human-AI Collaboration	4.26	.72	Great Extent
6) Developing Power Skills	4.28	.69	Great Extent
7) Leadership Development	4.29	.70	Great Extent
Overall	4.26	.66	Great Extent

Legend: 4.50-5.00 Very Great Extent, 3.50-4.49 Great Extent, 2.50-3.49 Moderate Extent, 1.50-2.49 Low Extent, 1.00-1.49 Very Low Extent

Table 1 reveal that the ethical considerations is the highest mean score of 4.32 and SD of .68 with verbal interpretation of “Great Extent” show that leaders focus more on the ethical use of AI especially maintaining the ethical practices like protecting and safeguarding the school data specially pupil’s information and upholding responsible and human-centered way. Schools are guided not only by the data but also by values, which helps build trust and confidence among all school personnel and stakeholders. Ethical awareness and strong leadership skills vital to become effective AI leadership (Wang et al., 2024; Berkovich, 2025).

However, the strategic planning and decision-making is the lowest mean score of 4.21 and SD of .74 with verbal interpretation of “Great Extent”. Indicating that use of AI technology in planning and decision-making process of the school head encounter challenges that must need improvement due to lack of training, internet connection and gadgets especially school in the remote area in the Lopez, Quezon. Garzón et al. (2025) and Bollaert (2025) state that to understand, analyze and apply the data is depends on leaders’ ability that the use of AI in the decision-making effectively. Some school heads may rely on the old or tradition methods that make slowdown in the adoption of AI in leadership. School leaders need to capacitate it to speed up adoption. Improving the school head’s knowledge, abilities, and skill to utilize AI is not only about managing school but also improving school outcomes.

Overall, the level of AI-powered leadership has a mean score of 4.26 and SD of .66 with verbal interpretation of “Great Extent”. Indicating that the AI-powered leadership is strongly embedded in the management practice of the elementary school. Reflecting the high level of acceptance and integration of AI-related works and innovation for enhancing school performance. That some elementary school used AI-assisted and other digital tools in crafting the Enhanced-School Improvement Plan to speed up the preparation and fast completion. Which help the school heads and school planning team to quick data gathering, processes, planning, and timely completion of the reports and programs.

Table 2. Summary of Perceived Level of Skill-Based Performance of Elementary School Heads

Indicators	Mean	SD	Interpretation
1) Leading Strategically	4.42	.69	Very Satisfactory
2) Managing School Operations and Resources	4.40	.70	Very Satisfactory
3) Focus on Teaching & Learning	4.43	.66	Very Satisfactory
4) Developing Self & Others	4.43	.66	Very Satisfactory
5) Building Connections	4.46	.67	Very Satisfactory
Overall Skills-Based Performance	4.43	.66	Very Satisfactory

Legend: 4.50-5.00 Very Great Extent, 3.50-4.49 Great Extent, 2.50-3.49 Moderate Extent, 1.50-2.49 Low Extent, 1.00-1.49 Very Low Extent

Table 2 revealed that the building connection is the highest mean score of 4.27 and SD of .66 with verbal interpretation of “Very Satisfactory”. Shows that heads in school have better performance in building and linking school to the stakeholders as a big role in the contribution of school programs, projects, and activities leading to the pupil’s development. When the heads of the school have better good connections to the stakeholder they create trust-based relationships and the support and communication becomes easy to achieve, and all the school programs are supported by the community. The effective collaboration develops school instructional and institutional strengths (Rosel et al., 2025; Ughulu, 2024).

However, the managing school operations and resources is lowest mean score of 4.40 and SD of .70 with verbal interpretation of “Very Satisfactory”. Shows that school leaders on managing school daily operation and resources are less effective among PPSSH Domain and need to establish clear and consistency in implementation of school programs, projects, and activities. According to Budianto et al. (2025), DepEd (2021), and Moreno (2023) stated that effective resource management varies on the proper accurate systems, effective training, and transparent use of resources. Strong management of school operations and resources experience smooth daily tasks, well-manage school resources especially in financial aspect, materials delivery is on time,

support always meet immediate needs.

Overall, summary perceived skill-based performance has mean score of 4.43 and SD of .66 with verbal interpretation of “Very Satisfactory” and all its indicators. Revealing that school leaders are better in building connections to the school stakeholders rather than at slight in managing school operations and resources. Both people skills and management skills are required to become leadership effectively. The leader in school needs to balance all leadership skills and its performance to further improve the better school operations.

Table 3. Summary of Perceived Level of Ethics Based-Performance of Elementary School Heads

Indicators	Mean	SD	Interpretation
1) Accountability and Transparency	4.43	.69	Great Extent
2) Inclusivity	4.48	.65	Great Extent
3) Learner-Centeredness	4.47	.65	Great Extent
4) Reflecting Values	4.47	.66	Great Extent
Overall Ethics Based-Performance	4.47	.65	Great Extent

Legend: 4.50-5.00 Very Great Extent, 3.50-4.49 Great Extent, 2.50-3.49 Moderate Extent, 1.50-2.49 Low Extent, 1.00-1.49 Very Low Extent

Table 3 shows that the inclusivity is the highest mean score of 4.48 and SD of .65 with verbal interpretation of “Great Extent” and it’s all indicators. Showing that the school leaders exercise ethics-based performance through inclusive action. Through fairness, compassion, and support for belonging in school system, the ethical leadership rise (Ancho & Villadiego, 2022; Da’as, 2023). School leaders always welcome the different types of people and value their status, participation, and cultural believes, the school become more respectful and supportive.

However, accountability and transparency is the lowest mean score of 4.43 and SD of .69 with verbal interpretation of “Great Extent”. Shows that school heads slightly less emphasize it among other ethical-based performances, that school leaders notice unethical behavior for very seldom moment. When the leaders show honesty, openness, and responsible action in the school, that ethical performance of the school head grows. Moreover, Garcia and Ching (2024) stated that public school heads in ethical leadership predict transparency and trust in the governance. Maximize the accountability and transparency that may give deeper understanding and boost trust that can affect collective responsibility and fluent school operation.

Overall, summary of perceived ethics-based performance has overall mean score of 4.47 and SD of .65 with the verbal interpretation of “Great Extent”. Revealing that school leaders need more attention in transparency and accountability. Both are important for ethics-based performance, with transparency that guarantee credibility and fairness, while inclusivity builds trust and collaboration. Additionally, ethical leadership builds up teachers’ engagement and trust that prove that both transparency and inclusivity make a balance and effective school culture and system. In the Philippine school, ethics-based leadership already turn stronger collaboration, boost morale, and a credible school governance, but needs a little bit of strengthening the clear reporting, open communication, and accountable decision making with ethical standard.

Table 4. Summary of Perceived Level of Innovative Work Behavior Exhibited by Elementary School Heads

Indicators	Mean	SD	Interpretation
1) Opportunity Exploration	4.38	.69	Great Extent
2) Idea Generation and Promotion	4.39	.67	Great Extent
3) Idea Realization	4.41	.69	Great Extent
Overall	4.39	.68	Great Extent

Legend: 4.50-5.00 Very Great Extent, 3.50-4.49 Great Extent, 2.50-3.49 Moderate Extent, 1.50-2.49 Low Extent, 1.00-1.49 Very Low Extent

Table 4 shows perceived summary of innovative work behavior and the idea realization is the highest mean score of 4.41 and SD of .69 with verbal interpretation of “Great Extent”. Indicating that school adopts a new trend to ease the workload in teaching and administrating using updated digital tools such AI and other platforms. And time goes by it use it to simplify the task until such new updated AI and other platforms were released to adopt to use in schoolwork.

However, the sub-variable opportunity exploration is the lowest mean score of 4.38 and SD of .69 with verbal interpretation of “Great Extent”. Indicating the school lead employing new realizing ideas that due to lack of resources fewer effort in actively looking and recognizing new opportunities. That influenced by constraint in resource limitation and centralized educational system (Salam, 2022; Hosseini et al., 2021).

Overall, level of Innovative Work Behavior has overall mean score of 4.39 and SD of .68 with verbal interpretation of “Great Extent” and its all indicators. Showing that most of the schools have strong in promoting ideas, but the opportunity exploration has constrained. Elementary teacher submit and present the new lesson-improvement idea in Mathematics during School-Based Learning Action Cell (LAC) session. The idea was best and recognized by the school. But there are no formal pilot approval process and no protected teacher planning time.

Moreover, school administration realigns the system addressing the needs of accurate support especially in creating and sustaining useful innovation. And capacity building for empowerment school programs that focus on abilities, skills and knowledge to point and pursue opportunities. Not just on realizing existing ideas but new ideas turn to action that led higher school performance and resulting better outcomes.

Table 5. Summary of Perceived Level of AI Competency Displayed by Elementary School Heads

Indicators	Mean	SD	Interpretation
1) Knowledge	4.25	.71	Competent
2) Attitude	4.31	.67	Competent
3) Skills	4.28	.71	Competent
Overall	4.28	.67	Competent

Legend: 4.50-5.00 Highly Competent, 3.50-4.49 Competent, 2.50-3.49 Moderate Competent, 1.50-2.49 Less Competent, 1.00-1.49 Incompetent

Table 5 shows that attitude is the highest mean score of 4.31 and SD of .67 with verbal interpretation of “Competent” implies that the strong positive attitude toward AI use adhere in the ethical guideline which already practice by the school. Leaders in the school are open to AI, accepted, and ready to apply for their work. The stronger predictor of AI acceptance is the positive attitudes, that the idea reinforcing by attitude is a critical starting point for effective AI integration (Silagan & Tumapon, 2025).

Moreover, knowledge is the lowest mean score of 4.25 and SD of .71 with verbal interpretation of “Competent”. Shows that school leaders have strong attitude in AI competency, but knowledge gaps could hinder the full transformation of leadership efforts into innovative practices, that unequal training, lack of exposure, limited resources and infrastructure may limit the full potential knowledge development (El-Banna et al., 2025). Low level of knowledge for more structured training and exposure to deepen their AI knowledge, understanding and better support innovation.

Overall, summary of perceived AI competency has overall mean score of 4.28 and SD of .67 with verbal interpretation of “Competent” and its all indicators. Indicate that effective readiness and willingness can make a good foundation for enhancing the AI competency. School head asked the administrative assistant to use appropriate AI tools to research effective conflict management. Administrative assistance gains understanding on how AI is used, and responsibility cross check the generated data and edit to align and infuse personal insight. Additionally, knowledge is for understanding and enable informed choices, attitude is the ethical awareness that working with responsibly, and the skills ensure and how to use the AI tools effectively;

together they create a strong AI Competency. Zeng et al, (2025) to fully gain the benefits of AI Competency, school leaders encourage openness to AI with sufficient tools, skill, attitude, and knowledge.

Furthermore, once the AI competency is established in knowledge, attitude, and skills, the school management system will become more responsible and have effective decision-making, and smoother incorporation of digital and AI tools in teaching and administration. This turns into improved effective, efficient, and innovation with ethical norms in school and educational process for the high level of performance for the all school personnel and pupils.

Table 6. Mediating Role of Innovative Work Behavior in the Relationship Between AI-Powered Leadership and Skill-Based Performance in Public Elementary School.

Mediation Estimates

Effect	Label	Estimate	SE	95% Confidence Interval		Z	p	% Mediation
				Lower	Upper			
Indirect	$a \times b$	0.650	0.078	0.497	0.803	8.331	<.001	80.888
Direct	c	0.154	0.083	-0.008	0.315	1.858	.063	19.112
Total	$c + (a \times b)$	0.803	0.038	0.730	0.877	21.370	<.001	100.000

Path Estimates

		Label	Estimate	SE	95% Confidence Interval		Z	p
					Lower	Upper		
AILEAD	→ InnWB	a	0.924	0.026	0.873	0.975	35.422	<.001
InnWB	→ SkiBPer	b	0.703	0.082	0.543	0.864	8.571	<.001
AILEAD	→ SkiBPer	c	0.154	0.083	-0.008	0.315	1.858	.063

Legend. AI-Powered Leadership (AILEAD), Innovative Work Behavior (InnWB), Skill-Based Performance (SkiBPer)

Table 6 revealed that the total effect of AI-Powered Leadership and Skill-Based Performance is statistically significant with estimate of 0.803, CI (0.730, 0.877), and $p < .001$. The indirect effect through the Innovative Work Behavior is statistically significant with estimate of 0.650, CI (0.497, 0.803), and $p < .001$, suggesting that the Innovative Work Behavior does explain the part of the relationship between the AI-Powered Leadership and Skill-Based Performance. However, the direct effect of AI-Powered Leadership on Skill-Based Performance, controlling for Innovative Work Behavior is non-significant with estimate of 0.154, CI (-0.008, 0.315), and $p = .063$. This indicates of full mediation with 80.888% of the total effect explained through the Innovative Work behavior.

Practically, this indicates that the AI-Powered Leadership enhance Skill-Based Performance through promoting the Innovative Work Behavior, so efforts to enhance performance should target the promotion of innovative performance alongside to an AI-driven performance. In elementary school system, school governance council created and utilize the school-based AI tools that the digital attendance monitoring and automated report generation that encourage both teachers and administrative staff to develop innovative ways of managing their task and improving the workflow smoothly and efficiently. That the teachers and administrative staff adopted and developed more innovative practice in their tasks such as the online submission of reports, protective school digital databank, and practicing the collaborative digital planning. The skill-based performance in school management and operations is improved. Showing that AI-Powered Leadership become more effective when it promotes innovative work behavior in school administration.

Table 7. Mediating Role of Innovative Work Behavior in the Relationship Between AI-Powered Leadership and Ethics-Based Performance Public Elementary School.**Mediation Estimates**

Effect	Label	Estimate	SE	95% Confidence Interval		Z	p	% Mediation
				Lower	Upper			
Indirect	$a \times b$	0.639	0.087	0.468	0.810	7.333	<.001	85.956
Direct	c	0.104	0.093	-0.078	0.287	1.124	.261	14.044
Total	$c + (a \times b)$	0.744	0.041	0.663	0.824	18.101	<.001	100.000

Path Estimates

		Label	Estimate	SE	95% Confidence Interval		Z	p
					Lower	Upper		
AILEAD	→ InnWB	a	0.924	0.026	0.873	0.975	35.422	<.001
InnWB	→ EthBPer	b	0.692	0.092	0.511	0.873	7.495	<.001
AILEAD	→ EthBPer	c	0.104	0.093	-0.078	0.287	1.124	.261

Legend. AI-Powered Leadership (AILEAD), Innovative Work Behavior (InnWB), Ethics-Based Performance (EthBPer)

Table 7 revealed that the total effect of the AI-Powered Leadership and Ethics-Based Performance is statistically significant with estimate of 0.744, CI (0.663,0.824), and $p < .001$. The indirect effect through the Innovative Work Behavior is statistically significant with estimate of 0.639, CI (0.468,0.810), and $p < .001$ indicating that the Innovative Work behavior does explain part of the relationship. However, the direct effect of AI-Powered Leadership on Ethics-Based Performance, controlling for the Innovative Work Behavior is non-significant with estimate of 0.104, CI (-0.078,0.287), and $p = 0.261$. This indicates of full mediation with 100.000% of the total effect explained through the Innovative Work behavior.

Practically, it indicates in the public elementary school, the AI-Powered Leadership strengthens the ethical performances mainly by encouraging the school staff and teachers to act more creatively and responsibly in their work, such as following fair and just procedures, making accountable and transparent decisions, and use digital tools to support honest and accountable school practices with dignity.

In elementary school, during the ranking for promotion, the school ranking committee used an AI-assisted evaluation system that all candidates are notified. That it uses during the ranking to organize the performance records, observation, training points and other criteria in a transparent digital dashboard accessible to the ranking committee and shows the result using applicant code to protect the identity. Due to this system, selection ranking committee and school operation became more innovative in ensuring the fairness such as digitalizing the supporting documents, openly validating scores and others which strengthened the ethical practices like transparency and accountability in the promotion process in the school.

Table 8. Moderating Role of AI Competency in the Relationship Between AI-Powered Leadership and Skill-Based Performance in Public Elementary School.**Moderation Estimates**

	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
AILEAD	0.362	0.040	0.283	0.441	8.975	<.001
AIComp	0.502	0.034	0.435	0.570	14.581	<.001

AILEAD * AIComp	0.036	0.037	-0.036	0.108	0.990	.322
-----------------	-------	-------	--------	-------	-------	------

Legend. AI-Powered Leadership (AILEAD), AI Competency (AIComp)

Table 8 revealed that the AI-Powered Leadership has a significant positive effect on the Skill-Based performance with an estimate of 0.362, CI (0.283,0.441) and $p<.001$. indicating that higher levels of an AI-Powered Leadership are associated with the better Skill-Based Performance among elementary school heads in Lopez, Quezon. Likewise, the AI Competency also shows a significant positive effect on Skill-Based Performance with estimate of 0.502, CI (0.435,0.570), and $p<.001$, indicating that the higher AI competency contributes to improved the Skill-Based Performance among elementary school heads.

However, the interaction between AI-Powered Leadership and AI Competency is not statistically significant with the estimate of 0.036, CI (-0.036,0.108), and $p=.322$. Indicating that the AI Competency does not significantly moderate the relationship between AI-Powered Leadership and Skill-Based Performance. Although both the AI-Powered Leadership and AI Competency independently contribute to a better Skill-Based Performance, the AI competency does not strengthen or weaken the effect of the AI-Powered Leadership on the Skill-based Performance in public elementary school in Lopez, Quezon.

In addition, One of the elementary public school use the Technology AI-based monitoring tool as one of their school practices and system to check and monitor the teacher's lesson plan, teacher's teaching load, class records, and schedule, and submitting report more ease, quicky, and accurate, the teacher with high AI competency can also prepare and organize their documents efficiently, however, even if the teachers are highly skilled in using the AI tools, the leadership practices of the school leaders still independently influence on how well teachers perform their work and submit quality report and outputs.

The school must develop and strengthen their AI-Powered Leadership and AI Competency through the continuous training and proper supervision of the higher authority, because both contribute to better work performance in school administration and teachers monitoring. Additionally, school leaders' improvement in AI practices also enhance school-based management performance and team-up, regardless of AI competency level (Austria & Alson, 2022).

Table 9. Moderating Role in AI Competency in the Relationship Between AI-Powered Leadership and Ethics-Based Performance in Public Elementary School.

Moderation Estimates

	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
AILEAD	0.203	0.043	0.118	0.288	4.672	<.001
AIComp	0.600	0.037	0.527	0.673	16.199	<.001
AILEAD * AIComp	0.018	0.039	-0.059	0.096	0.465	.642

Legend. AI-Powered Leadership (AILEAD), AI Competency (AIComp)

Table 9 revealed that the AI-Powered Leadership has significant positive effect on the Ethics-Based Performance with estimate of 0.203, CI (0.118,0.288), and $p<.001$. indicating that the higher level of AI-Powered Leadership is associated with the better Ethics-Based Performance of the elementary schools. Similarly, the AI Competency shows the significant positive effect on the Ethics-Based Performance with estimate of 0.600, CI (0.037,0.527), and $p<.001$, revealing that the higher level of AI Competency contributes to the enhancement of Ethics-Based Performance among public elementary school heads.

However, the interaction of the AI-Power Leadership and AI Competency is not statistically significant with the estimate of 0.018, CI (-0.059,0.096) and $p=.642$. Indicating that the AI Competency does not significantly moderate the relationship between AI-Powered Leadership and Ethics-Based Performance. Although both the AI-Powered Leadership and AI Competency independently contribute to a better Ethics-

Based Performance, the AI competency does not strengthen or weaken the effect of the AI-Powered Leadership on the Ethics-Based Performance in public elementary school in Lopez, Quezon. Therefore, the AI Competency does not play the important role in shaping how the AI-Powered Leadership influences Ethics-Based Performances.

Additionally, one of the public elementary schools, their school practices such as Technology AI-based monitoring tools, during the preparation of school-based reports, teachers and classroom monitoring, and submission of school forms and report to ensure the fairness, accountability, and transparency in school operations. Although the leaders of the school, teachers, and school administrative staff have high level of AI Competency in using technological/digital tools with AI application, the ethical practices such as honest in reporting, fair decision, and proper implementation of the school policies align to the DepEd guidelines are still greatly influence by the leadership practices of the school head rather than by the AI competency alone.

Furthermore, Gupta et al. (2025) expresses that it is crucial to AI competency for maintaining ethical decision making, but the impact of AI-powered leadership does not change on ethics-based performance, in ethical judgement and strategic control as human competence remains essential. Despite of various levels of AI competency, the positive relationship remains stable between AI-powered leadership and ethics-based performance.

Therefore, the study shows that strengthening AI-Powered Leadership among elementary school heads is important in developing the Ethics-Based Performance in schoolworks, while AI Competency must also be enhanced as a support mechanism for effective and ethical school management.

5. Summary of Findings and Recommendations

5.1. Summary of Findings

AI-Powered Leadership is meaningfully linked with stronger school performance, particularly in skill-based and ethics-based performance, showing that the effective use of artificial intelligence can support more responsive, efficient, and responsible school leadership. It also suggests that the innovative work behavior strengthens the relationship between AI-powered leadership and performance, although the expected mediation effect was not fully supported. While the AI competency hypothesis is sustained the relationship between AI-powered leadership and both skill-based and ethics-based performances. Overall, the findings highlighted that the AI in school leadership is the most beneficial when supported by the capable user and a culture that encourage the innovation, making it a valuable practice for improving school performances.

5.2. Summary of Recommendations

Based on the findings and conclusions of this research study, the following recommendation is offered by the researcher.

1. Provide AI training and workshops for the school heads on real school task, that training covers how the AI in planning, reading school data, making decisions, and checking limited of AI outputs.
2. Set one clear school policy on ethical AI use, gadgets, data privacy and consent align to the international, national, data privacy act, and DepEd orders, that the school have approved written rules on when the AI may be used, who checks the outputs, how pupils data is protected, and parent consent is required for photos, posts, and online sharing.
3. Improve the internet connectivity and basic digital tools especially in the remote schools with no to weak internet signal, then provide a practical support plan such as data allowance, shared devices, and offline tools that can still be used for reports and instructions.
4. Create a simple monitoring system for school operations and resource delivery that one tracking sheet

materials, requests, biddings, and other related docs, and have quarterly reviewed by the committee.

5. Strengthen coaching and mentoring using data from classroom observation that the result of it is used to guide teacher support plan focusing more in the reading, remediation, and pupils' progress.
6. Set a small pilot testing and review system for new ideas before new teaching strategy or school practice is widely used, record the result and decide whether to continue or adjust.
7. Make stakeholders feedback as a part of school action, suggestion from parents, donors, and community partners should be written to strengthen trust and make community support more lasting.
8. Make AI as mainly as a support tool not as the final decision maker. School leaders should require human checkers before any AI-assisted report, plan, or recommendations is finalized.
9. Prioritize support for equity and participation that the school management provides early solutions for the identified problems regarding equity and participation to remove the barriers to participation.
10. Require a quarterly review of AI-Powered leadership practice that simply check three things: what improved, what failed, and what needs immediate actions.
11. Keep building transparency by continuing to share school status publicly quarterly, through updating the post in the transparency board, and online posting on the official website of the school.
12. Engage creativity by encouraging teachers, school staff, and pupils to use approved technology tools and AI applications and tools in making programs, projects, and activities.
13. Improve partnership, that the school coordinates with the community, university or other agency for additional support in the digital devices that can be able to improve school and teaching performance.
14. For future researchers, Deeper exploration in the related variables and settings that extend this study by examining potential moderators and mediators and investigated the long-term impact by studying the effects of AI-Powered Leadership over time.

Acknowledgements

This research work was supported by Binahian A Elementary School, DepEd Division of Quezon and Laguna State Polytechnic University – San Pablo City Campus.

References

- Akgün, S., & Greenhow, C. (2021). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI And Ethics*, 2(3), 431–440. <https://doi.org/10.1007/s43681-021-00096-7>
- Ancho, I., & Villadiego, C. (2022). Ethical leadership practices of outstanding Filipino School heads. *Journal of Education and Innovation*, 24(2), 38-58. https://so06.tci-thaijo.org/index.php/edujournal_nu/article/view/250562
- Austria, R. P., & Alson, J. N. (2022). Differentiating the level of the school leaders' positive traits anchored on appreciative inquiry attributes: inputs to improving teachers' collaboration and the School-Based Management level. *American Journal of Multidisciplinary Research and Innovation*, 1(6), 92–101. <https://doi.org/10.54536/ajmri.v1i6.956>

- Berkovich, I. (2025). The rise of AI-assisted instructional leadership: Empirical survey of generative AI integration in school leadership and management work. In *Frontiers in Education* (Vol. 10, p. 1643023). Frontiers.
- Bollaert, L. (2025). Artificial Intelligence: Objective or Tool in the 21st-Century Higher Education Strategy and Leadership?. *Education Sciences*, 15(6), 774. <https://doi.org/10.3390/educsci15060774>
- Budianto, S., Rahadian, D., & Yunita, I. (2025). The emerging landscape of AI-powered leadership: Transforming roles and organizations. *Journal of Lifestyle and SDGs Review*, 5(2), e04139. <https://doi.org/10.47172/2965-730x.sdgsreview.v5.n02.pe04139>
- Da'as, R. (2023). Role of ethical school leadership in shaping adolescents' aggressive attitudes: A doubly latent multilevel SEM analysis. *Educational Management Administration & Leadership*. <https://doi.org/10.1177/17411432231216580>
- De Jong, J., & Den Hartog, D. (2010). Measuring innovative work behaviour. *Creativity and innovation management*, 19(1), 23-36. <https://doi.org/10.1111/j.1467-8691.2010.00547.x>
- DepEd (2020). *DepEd Order No. 24, s. 2020: National adoption and implementation of the Philippine Professional Standards for School Heads*. <https://www.deped.gov.ph/2020/08/11/do-024-s-2020>
- DepEd (2021). *DepEd Order No. 36, s. 2021: Guidelines on the release, utilization, monitoring, and reporting of program support funds for multigrade schools for CY 2021*. https://www.deped.gov.ph/wp-content/uploads/2021/09/DO_s2021_036.pdf
- DepEd (2022). DepEd highlights Digital Rise Program as key player in addressing challenges in education quality. *DepED Press Releases*. <https://www.deped.gov.ph/2022/05/10/deped-highlights-digital-rise-program-as-key-player-in-addressing-challenges-in-education-quality/#:~:text=Regions-DepEd%20highlights%20Digital%20Rise%20Program%20as%20key%20player%20in%20addressing,Program%20has%20three%20major%20components.>
- DTI (2021). National Artificial Intelligence Strategy Roadmap: AI for the People. <https://www.dti.gov.ph/>
- El-Banna, M. M., Sajid, M. R., Rizvi, M. R., Sami, W., & McNelis, A. M. (2025). AI literacy and competency in nursing education: preparing students and faculty members for an AI-enabled future-a systematic review and meta-analysis. *Frontiers in Medicine*, 12, 1681784. <https://doi.org/10.3389/fmed.2025.1681784>
- Escobal, C., Arboleda, M., Jarina, J. & Caluza, L. B. (2023). Philippine Public School Values Education Teachers' Experiences in Classroom Positive Discipline: A Phenomenological Inquiry. *Psychology and Education: A Multidisciplinary Journal*, 12(10), 1-11. <https://doi.org/10.5281/zenodo.8305107>
- Garcia, J. M., & Ching, D. A. (2024). The Effect of Ethical Leadership at Work on School Head Transparency & Trust in Governance in Public Elementary Schools. *TWIST*, 19(3), 427-435. <https://twistjournal.net/twist/article/view/414>
- Garzón, J., Patiño, E., & Marulanda, C. (2025). Systematic review of artificial intelligence in education: Trends, benefits, and challenges. *Multimodal Technologies and Interaction*, 9(8), 84. <https://doi.org/10.3390/mti9080084>
- Gupta, R. K., Mishra, R., Mishra, P., & Singh, B. (2025). AI-Augmented Leadership: AI Role in Transforming Organizational Decision-Making. In *2025 International Conference on Computational Intelligence and*

- Knowledge Economy (ICCIKE)* (pp. 803-808). IEEE. <https://tinyurl.com/mr298fu2>
- Hosseini, S., & Shirazi, Z. R. H. (2021). Towards teacher innovative work behavior: A conceptual model. *Cogent Education*, 8(1). <https://doi.org/10.1080/2331186x.2020.1869364>
- Irwanto, I. (2025). Research trends on artificial intelligence in K-12 education in Asia: a bibliometric analysis using the Scopus database (1996–2025). *Discover Artificial Intelligence*, 5(1). <https://doi.org/10.1007/s44163-025-00389-4>
- Mahapatra, G., Chatterjee, S., Gwindi, M., & Watson, S. (2025). *How values and beliefs shape education in Asia*. AVPN. [https://avpn.asia/resources/insights/how-values-and-beliefs-shape-education-in-asia/\[citation:2\]](https://avpn.asia/resources/insights/how-values-and-beliefs-shape-education-in-asia/[citation:2])
- Moreno, F. G. (2023). AI readiness of Philippine public administration: A review of literature. International Technology Management Corp. <https://d1wqtxts1xzle7.cloudfront.net/120948595/download-libre.pdf>
- Moreno, F. G. (2023). AI readiness of Philippine public administration: A review of literature. International Technology Management Corp. <https://d1wqtxts1xzle7.cloudfront.net/120948595/download-libre.pdf>
- Philippine Constitution (1987), Article XIV, Section 1. Retrieved from <https://www.officialgazette.gov.ph/constitutions/1987-constitution/>
- Reyes, R., Mariñas, J. M., Tacang, J. R., Asis, L. J., Sayman, J. M., Flores, C. C., Palima, Z., & Sumatra, K. (2024). The relationship between attitude towards AI and AI literacy of university students. *International Journal of Multidisciplinary Studies in Higher Education*, 1(1), 37–46. <https://doi.org/10.70847/587958>
- Rosel, M., Agodera, R., Oksok, N., & Bagalanon, R. (2025, March 31). *Adaptive Leadership in Education: A Qualitative Exploration of Leadership Styles in Resource-Constrained Schools in the Philippines*. https://jrmsu.university/index.php/The_Threshold/article/view/24
- Salam, S., & Senin, A. A. (2022). A Bibliometric Study on Innovative Behavior Literature (1961–2019). *SAGE Open*, 12(3). <https://doi.org/10.1177/21582440221109589>
- Silagan, B. L., & Tumapon, T. (2025). Technological competence, training and support, attitude towards AI, and teachers' acceptance. *Psychology and Education a Multidisciplinary Journal*, 36(8), 941–964. <https://doi.org/10.70838/pemj.360809>
- Ughulu, J. (2024). Ethical leadership in modern organizations: navigating complexity and promoting integrity. *International Journal of Economics Business and Management Research*, 08(05), 52–62. <https://doi.org/10.51505/ijebmr.2024.8505>
- Wang, S., Wang, F., Zhu, Z., Wang, J., Tran, T., & Du, Z. (2024). Artificial intelligence in education: A systematic literature review. *Expert Systems With Applications*, 252, 124167. <https://doi.org/10.1016/j.eswa.2024.124167>
- Yun, Y. Y. Y. (2024). The Characteristics and Enlightenment of Core Values Education for Youth in Singapore. *OALib*, 11(04), 1–13. <https://doi.org/10.4236/oalib.1111370>
- Zeng, M., Cheah, K. S. L., & Abdullah, Z. (2025). The influence of school principals' digital leadership on teachers' competency in integrating artificial intelligence: a systematic thematic review. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1655967>

Appendix A. An example appendix

Authors including an appendix section should do so after References section. Multiple appendices should all have headings in the style used above. They will automatically be ordered A, B, C etc.

A.1. Example of a sub-heading within an appendix

There is also the option to include a subheading within the Appendix if you wish.