

Artificial Intelligence (AI) in Medical Imaging: Literacy, Acceptance, Attitude, and Readiness among Radiologic Technologists

Jefferson King A. Fontilar

Liceo de Cagayan University Cagayan de Oro City, Philippines

DOI: <https://doi.org/10.47772/IJRISS.2026.100300532>

Received: 27 March 2026; Accepted: 01 April 2026; Published: 16 April 2026

ABSTRACT

Since the Industrial Revolution, technological advancements have transformed the way humans work, with machines increasingly replacing manual labor across various fields. One of the most significant developments is Artificial Intelligence (AI), which has been defined as the creation of intelligent machines and computer programs capable of performing tasks that normally require human intelligence. However, gaps remain in the literature. Most studies focus on students, with fewer examining practicing radiologic technologists, especially in under-resourced settings. Research is also concentrated in the Middle East, Europe, and the Americas, leaving Southeast Asia, particularly the Philippines, less explored. Using a quantitative correlational–predictive design, data were gathered from 100 radiologic technologists and analyzed through descriptive statistics, Pearson correlation, and multiple regression. Results showed that all variables, namely, literacy, acceptance of artificial intelligence (AI), and attitude towards AI, were “high” and significantly correlated with readiness for use among radiologic technologists. Exposure to different technologies emerges as the strongest predictor, followed by exposure and training.

Keywords: Artificial intelligence, readiness, literacy, acceptance, attitude, radiologic technologists, medical imaging, technology exposure

INTRODUCTION

Since the Industrial Revolution, technological advancements have transformed the way humans work, with machines increasingly replacing manual labor across various fields. One of the most significant developments is Artificial Intelligence (AI), which has been defined as the creation of intelligent machines and computer programs capable of performing tasks that normally require human intelligence (Winston, 1984). AI systems can mimic diverse cognitive functions, positioning them as vital tools in industries ranging from business to healthcare. Its rapid evolution also aligns with the global drive toward sustainable innovation, reinforcing the importance of building resilient infrastructure and fostering inclusive industrialization in accordance with the United Nations Sustainable Development Goal (SDG) 9: Industry, Innovation, and Infrastructure.

While national initiatives highlight the potential of artificial intelligence to transform healthcare, the reality on the ground remains far from full implementation. In the Philippines, the integration of AI into healthcare services remains constrained by inadequate infrastructure, limited digital readiness, and the absence of large-scale institutional adoption outside major urban centers (Sarmiento et al., 2025). Similarly, at the local level—particularly in Cagayan de Oro City—there is currently no published research or documented program demonstrating the actual use or readiness for AI integration in medical imaging and radiology practice. This evident research gap underscores the need to examine local capacities, awareness, and perceptions toward AI utilization in diagnostic imaging as a basis for future adoption and policy development. The objective of this study is to assess radiologic technologists’ readiness to adopt artificial intelligence (AI) in medical imaging, focusing on their competence, confidence, and willingness to integrate AI into diagnostic imaging practice. This aims to provide baseline data that can guide future implementation strategies, training programs, and policy development related to AI integration in radiology. Understanding user readiness is crucial, as the successful implementation of any emerging technology depends not only on its availability but also on the users’ competence, confidence, and willingness to integrate it into practice. In many instances, when a new

technology or digital tool is introduced without adequate preparation or acceptance from its intended users, its full capabilities remain underutilized. Consequently, the technology fails to deliver its expected benefits, leading to inefficiencies and a poor return on investment for the institution or organization that adopted it.

Furthermore, in the field of medical imaging, particularly radiology, technological innovations such as digitization have enhanced image acquisition by improving quality and efficiency. These improvements have enabled facilities to manage more patients, though they have also led to increased imaging workloads, especially with CT scans and MRI. This growing demand has often caused delays in diagnostic reporting, underscoring the need for more efficient tools. By integrating such innovations, healthcare systems are not only improving efficiency but also strengthening their technological infrastructure—directly contributing to SDG 9's emphasis on sustainable industrial innovation.

While AI is not intended to replace radiologists, it is increasingly viewed as a supportive tool that can alleviate workloads, improve diagnostic accuracy, and enhance clinical decision-making. Radiologic technologists also stand to benefit, as AI can optimize image post-processing and analysis, ultimately leading to faster and more precise results for patients. Exploring the readiness of technologists and radiologists to adopt AI is therefore essential not only to advance healthcare services but also to promote sustainable innovation in the medical sector. This integration of AI into radiology exemplifies how industry-driven technological advancement can strengthen infrastructure, drive innovation, and support sustainable development in line with SDG 9.

METHODOLOGY

Research Design

This study employed a descriptive, correlational, and causal research design to assess the levels of literacy, acceptance, attitude, and readiness of Radiologic Technologists regarding the use of artificial intelligence (AI) in medical imaging. This approach enabled researcher to reveal important insights into how these factors interact and influence one another in the context of Artificial Intelligence (AI) use. The correlational design is particularly appropriate for this investigation, as it allows the examination of complex interrelationships among multiple variables without manipulation, reflecting the naturalistic setting of public sector employment (Creswell & Plano Clark, 2018). Additionally, the causal research design was employed to identify which among these variables significantly predict participants' readiness, offering a deeper understanding of the key drivers that may influence readiness to use Artificial Intelligence (AI) among Radiologic Technologists, even when experimental manipulation is not feasible.

Research Setting

The research was conducted at various private hospitals in Cagayan de Oro City, Philippines, that offer radiology services with different radiological modalities.

Participants and Sampling Procedure

The participants in this study were 100 Radiologic Technologists with at least 6 months of clinical practice experience. The participants were carefully selected using a total enumeration sampling technique.

Research Instruments

Data were collected through a researcher-developed descriptive survey questionnaire comprising 108 items measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire consisted of eleven parts. The first part is on the level of awareness consisted of 9 items, exposure and training, 10 items, gender, 10 items, age 9 items, exposure to different technology, 10 items, perceived usefulness, 10 items, trust in AI tools 10 items, readiness 10 items, technical readiness, 10 items, organizational readiness, 10 items, and psychological readiness, 10 items.

Data Gathering Procedure

This study employed a quantitative descriptive–correlational design using a structured survey questionnaire administered via Google Forms to assess radiologic technologists’ AI literacy, exposure, and training, acceptance, attitude, and readiness. The instrument was developed from relevant literature, validated by experts, and distributed to participants recruited through hospital coordination, with access provided via QR code or secure link. Prior to participation, respondents completed an electronic informed consent form outlining the study’s purpose, procedures, and confidentiality measures. The questionnaire consisted of four sections covering AI literacy and exposure, acceptance, attitude (perceived usefulness and trust), and readiness, and required approximately 15–20 minutes to complete.

Ethical standards were strictly observed, ensuring voluntary participation, anonymity, and data confidentiality through secure, password-protected storage and encrypted files accessible only to the researcher. No personal identifiers were required, and only aggregated data were reported. The study posed minimal risk and maintained transparency and objectivity throughout data collection and analysis. The findings were intended to support improvements in training, policy development, and ethical AI integration in healthcare and were disseminated through academic and institutional channels.

Data Analysis

This study utilized mean and standard deviation to answer statements of the problem 1 up to 4. For problem number 5, Pearson moment correlation was used to test the relationship of the variables, while in the statement of the problem 6, was causal (predictive) method to examine the influence of the variables.

RESULTS AND DISCUSSION

The results highlight significant correlations among the variables and identify key predictors of readiness on Artificial Intelligence (AI) use in medical imaging. Table 1 presents the correlation results, while Table 2 presents the regression results.

Table 1. Correlation of readiness for use towards Artificial Intelligence (AI) with the literacy, acceptance, and attitude, among the participants

Independent Variables	Pearson r	P-value	Interpretation
Literacy			
Awareness of Artificial Intelligence (AI)	.613**	.000	Significant
Exposure & training	.397**	.000	Significant
Acceptance Level			
Gender	.658**	.000	Significant
Age	.608**	.000	Significant
Exposure to different technology	.760**	.000	Significant
Attitude towards AI			
Perceived usefulness	.795**	.000	Significant
Trust in AI tools	.777**	.000	Significant

Legend: p<.05 the relationship is significant (*)

The results of the Spearman’s Rho correlation analysis indicate that literacy, acceptance level, and attitude toward Artificial Intelligence (AI) are all significantly related to participants' readiness to use AI in radiologic practice. All variables obtained p-values of .000, which are below the significance level of 0.05, indicating statistically significant relationships. This suggests that improvements in AI-related knowledge, exposure to technology, and positive perceptions toward AI are associated with increased readiness to adopt AI tools in professional practice. These findings support the idea that readiness for AI adoption is influenced by a combination of cognitive, experiential, and psychological factors that shape individuals’ willingness to engage with emerging technologies.

In terms of literacy, awareness of AI demonstrated a strong positive correlation with readiness ($r = .613$), while exposure and training showed a moderate correlation ($r = .397$). This indicates that participants with greater awareness of AI concepts and relevant training are better prepared to use AI technologies in their professional tasks. This finding aligns with the work of Pedersen et al. (2024), who reported that healthcare professionals with greater awareness and understanding of AI are more likely to perceive its benefits and to demonstrate higher readiness for its integration into clinical practice. Similarly, Doherty et al. (2024) emphasized that education and structured training programs play a crucial role in improving healthcare professionals’ readiness to adopt AI technologies, as knowledge enhances both confidence and competence in using digital systems.

Regarding acceptance level, the results showed significant positive correlations between readiness and gender ($r = .658$), age ($r = .608$), and exposure to different technologies ($r = .760$). Among these variables, exposure to various technologies showed the strongest association, indicating that individuals who frequently interact with a range of technological tools are more likely to develop readiness for AI adoption. This supports the findings of Akudjedu et al. (2023) and Coakley et al. (2022), who reported that professionals with greater exposure to digital technologies tend to demonstrate higher levels of confidence and acceptance toward AI integration in radiology. Familiarity with technological systems reduces uncertainty and enhances the ability to adapt to innovations, thereby increasing readiness for AI utilization.

For attitude toward AI, perceived usefulness ($r = .795$) and trust in AI tools ($r = .777$) exhibited the strongest correlations with readiness, indicating that participants who believe AI is beneficial and trustworthy are more inclined to adopt it in their professional roles. These findings are consistent with Nazaretsky et al. (2025), who found that trust significantly influences users’ readiness and perceived usefulness of AI-powered educational technologies. Likewise, Đerić et al. (2025) emphasized that trust in AI systems—particularly regarding accuracy, relevance, and ethical use—strongly predicts behavioral intention to use AI tools. When professionals perceive AI as reliable and valuable for improving performance, they are more likely to be ready to integrate these technologies into their workflows.

The results highlight that readiness to use AI is a multifaceted construct shaped by literacy, acceptance factors, and attitudes toward AI. The significant correlations across all variables emphasize the importance of enhancing AI education, increasing exposure to digital technologies, and fostering trust in AI systems to support successful adoption in radiologic practice. These findings suggest that institutions aiming to integrate AI into healthcare settings should implement comprehensive strategies that combine training, technological exposure, and trust-building initiatives to strengthen professionals’ readiness and ensure effective utilization of AI tools.

Therefore, the null hypothesis, which states that there is no significant relationship among the level of literacy, acceptance, attitude, and readiness to use Artificial Intelligence (AI) among the participants, is rejected.

Table 2. Multiple Regression Analysis Predicting the readiness of radiologic technologists towards Artificial Intelligence (AI) use in medical imaging (add another column for sig or not sig)

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Interpretation
	B	Std. Error	Beta			
CONSTANT	-.649	.243		-2.672	.009	

Literacy						
Awareness of Artificial Intelligence (AI)	-.043	.063	-.039	-.690	.492	Not Significant
Exposure & training	.074	.032	.110	2.292	.024	Significant
Acceptance Level						
Gender	.015	.080	.015	.188	.851	Not Significant
Age	.020	.063	.022	.320	.749	Not Significant
Exposure to different technology	.293	.093	.244	3.136	.002	Significant
Attitude towards AI						
Perceived Usefulness	.123	.088	.115	1.386	.169	Not Significant
Trust in AI Tools	.128	.082	.131	1.569	.120	Not Significant

R = 0.676 R² = 0.457 F-value = 9.561 p-value = 0.000

A multiple regression analysis was conducted to determine which factors significantly predict radiologic technologists' readiness to use Artificial Intelligence (AI) in medical imaging.

Within the literacy domain, exposure and training emerged as significant predictors of readiness (B = 0.074, p = 0.024), whereas awareness of AI did not significantly predict readiness (p = 0.492). This suggests that practical exposure and formal training contribute more strongly to readiness than general awareness alone. These findings support the study by Doherty et al. (2024), which emphasized that structured training and educational programs are essential for preparing healthcare professionals for AI integration. Similarly, Pedersen et al. (2024) reported that while awareness of AI is widespread among healthcare professionals, readiness to apply AI in practice depends heavily on access to training and practical experience.

In terms of acceptance level, exposure to different technologies was a significant predictor (B = 0.293, p = 0.002), whereas gender (p = 0.851) and age (p = 0.749) were not. The strong influence of technological exposure indicates that individuals who frequently interact with various digital systems are more likely to feel prepared to adopt AI in medical imaging.

For the attitude toward AI variables, perceived usefulness (p = 0.169) and trust in AI tools (p = 0.120) did not significantly predict readiness in the regression model, although they showed positive coefficients. This suggests that while positive perceptions and trust toward AI may contribute to readiness, their influence may be mediated by more practical factors such as technological exposure and training. This observation is consistent with the work of Nazaretsky et al. (2025) and Đerić et al. (2025), who found that attitudes and trust are important for technology acceptance but may not independently predict readiness when other experiential factors are considered simultaneously.

The results indicate that practical experience with technology and access to AI-related training are the most important predictors of readiness among radiologic technologists. While awareness, demographic factors, and positive attitudes toward AI contribute to understanding the technology, they may not directly translate into readiness without adequate exposure and hands-on training. These findings emphasize the need for healthcare institutions to prioritize structured AI education, continuous professional development, and opportunities for technological engagement to enhance radiologic technologists' readiness for AI integration in medical imaging.

Furthermore, it is also important to highlight that among these two variables that has strong significance with the dependent variable namely; exposure and training ($p = .074$) and exposure to different technology ($p = .002$) with regards to beta coefficient, exposure to different technologies has the strongest predictive power ($\beta = .293$) indicating that the advantage of exposure to different technologies will lead to increased readiness to Artificial Intelligence (AI). This finding aligns with prior literature by Akudjedu et al. (2023), who noted that familiarity with technology enhances professionals' confidence in adopting AI tools in radiography practice. Likewise, Coakley et al. (2022) highlighted that exposure to digital technologies helps reduce uncertainty and increases readiness to integrate AI into clinical workflows.

Based on the significant beta coefficients and the strong overall fit of the regression model, the null hypothesis (H_{02}) stating that no variable predicts radiologic technologists' readiness to use Artificial Intelligence (AI) in medical imaging is rejected. The findings demonstrate that exposure and training and exposure to different technology, both singly and in combination, significantly predict passengers' satisfaction. These variables are therefore considered critical domains of readiness among radiologic technologists regarding the use of artificial intelligence (AI) in medical imaging. Thus, the regression model can be expressed as: $Y' = -0.649 + 0.293X_1 + 0.074X_2$, where: ($Y' =$ Readiness among Radiologic Technologists, $-0.649 =$ is the B Constant, $X_1 =$ Exposure to Different Technology, $X_2 =$ Exposure & Training).

CONCLUSIONS

The results of the study lead to several important conclusions. In terms of AI awareness, the participants exhibit a high level of understanding, indicating that most radiologic technologists are already familiar with the basic concepts and potential applications of AI in healthcare. However, the results revealed that exposure to and training on AI technologies remain relatively limited, as reflected by the neutral rating for this indicator. This suggests that while participants are knowledgeable about AI, opportunities for practical engagement, structured training, and hands-on experience with AI tools in clinical settings may still be insufficient.

In terms of acceptance, the participants show a high level of openness to technological integration, as reflected in indicators related to gender, age, and exposure to various technologies. This indicates that radiologic technologists generally perceive AI as compatible with their professional roles and are willing to adopt new technological advancements in their practice. Similarly, the findings reveal a positive attitude toward AI, particularly regarding perceived usefulness and trust in AI systems. These suggest that participants recognize the potential benefits of AI in improving diagnostic accuracy, workflow efficiency, and overall healthcare delivery, while maintaining a reasonable level of trust in AI-assisted tools.

Furthermore, the level of readiness among radiologic technologists is consistently high across the key dimensions—technical, organizational, and psychological. This indicates that participants are not only technically prepared to interact with AI technologies but are also psychologically open to embracing AI as part of future radiologic practice, while perceiving their organizations as moderately prepared for AI integration. This implies that radiologic technologists possess a favorable foundation for AI adoption in medical imaging. Nevertheless, strengthening practical exposure, structured training programs, and institutional support will be essential to fully translate this readiness into effective and sustainable implementation of AI technologies in clinical radiology practice.

There is a significant relationship between readiness and literacy, acceptance, and attitude toward AI. Increased awareness and exposure to AI, along with perceived usefulness and trust in AI tools, are strongly associated with higher readiness levels. Gender and age also influenced readiness, highlighting the impact of experience, exposure, and confidence with technology. These findings indicate that fostering literacy, promoting positive attitudes, and building trust in AI are essential to enhancing radiologic technologists' readiness to adopt AI in practice.

Exposure and training under literacy, and exposure to different technology under acceptance, toward AI collectively and significantly predict readiness among radiologic technologists. Furthermore, exposure to different technology has the strongest predictive power to readiness among radiologic technologists. This indicates that the model demonstrated a strong fit and explained a substantial portion of the variance in

readiness, highlighting the combined influence of knowledge, exposure, trust, and perception on professional preparedness. This suggests that increasing hands-on experience and familiarity with various technologies plays a crucial role in enhancing technologists' confidence, adaptability, and overall preparedness to effectively integrate AI into clinical practice.

RECOMMENDATIONS

Based on the results of this study, the investigator offers the following recommendations:

Department of Health (DOH). The Department of Health may develop national policies and strategic frameworks that support the integration of Artificial Intelligence in medical imaging. These policies may include funding for AI training programs, digital infrastructure development, and professional capacity-building initiatives for healthcare workers.

Hospitals. Hospitals may implement structured AI training and continuing professional development programs for radiologic technologists to enhance their knowledge, technical competence, and readiness for AI adoption in clinical practice.

The Academe. Academic institutions may integrate Artificial Intelligence, machine learning, and digital imaging technologies into radiologic technology curricula to ensure that future professionals are equipped with the necessary competencies for AI-enabled healthcare systems.

Radiology Departments. Radiology departments may encourage the use of AI-assisted diagnostic tools and provide hands-on workshops or simulation-based learning opportunities to help staff become familiar with AI applications in medical imaging.

Radiologic Technologists. Radiologic technologists may actively pursue continuous learning opportunities in AI, including training seminars, workshops, and certification programs, to enhance their technical readiness and professional competence.

Students of Radiologic Technology. Radiologic technology students may develop digital literacy and familiarize themselves with AI-based imaging technologies early in their academic training to prepare for the evolving demands of modern radiologic practice.

Future Researchers. Future studies may explore additional variables that may influence AI readiness, such as organizational culture, digital infrastructure, and ethical considerations. Researchers may also conduct larger-scale studies across multiple healthcare institutions to further validate and expand the findings of this research.

Philippine Association of Radiologic Technologists (PART). PART, particularly the Cagayan de Oro Chapter or the National Chapter, may organize continuing professional development (CPD) seminars, workshops, and training programs focused on Artificial Intelligence and emerging technologies in medical imaging. Since the findings revealed that exposure to different technologies was the strongest predictor of AI readiness, these activities should allow radiologic technologists to gain hands-on experience and practical immersion with AI-enabled imaging systems and related digital tools, thereby strengthening their technological competence and preparedness for AI integration in radiologic practice.

LITERATURE CITED

1. Akudjedu, T. N., Torre, S., Khine, R., Katsifarakis, D., Newman, D., & Malamateniou, C. (2023). Knowledge, perceptions, and expectations of Artificial intelligence in radiography practice: A global radiography workforce survey. *Journal of Medical Imaging and Radiation Sciences*, 54(1), 104-116.
2. Coakley, S., Young, R., Moore, N., England, A., O'Mahony, A., O'Connor, O. J., ... & McEntee, M. F. (2022). Radiographers' knowledge, attitudes and expectations of artificial intelligence in medical imaging. *Radiography*, 28(4), 943-948.

3. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
4. Đerić, E., Frank, D., & Milković, M. (2025). Trust in generative AI tools: A comparative study of higher education students, teachers, and researchers. *Information*, 16(7), 622.
5. Doherty, G., McLaughlin, L., Hughes, C., McConnell, J., Bond, R., & McFadden, S. (2024). Radiographer education and learning in artificial intelligence (REAL-AI): A survey of radiographers, radiologists, and students' knowledge of and attitude to education on AI. *Radiography*, 30, 79–87.
6. Nazaretsky, T., Mejia-Domenzain, P., Swamy, V., Frej, J., & Käser, T. (2025). The critical role of trust in adopting AI-powered educational technology for learning. *Computers and Education: Artificial Intelligence*, 8, 100368.
7. Pedersen, M. R. V., Kusk, M. W., Lysdahlgaard, S., Mork-Knudsen, H., Malamateniou, C., & Jensen, J. (2024). A Nordic survey on artificial intelligence in the radiography profession. *Radiography*, 30(4), 1106–1115.
8. Sarmiento, R. F. R., Overgaard, S. M., Gai, C., Overgaard, J. D., & Ohde, J. W. (2025). Guiding responsible AI in healthcare in the Philippines. *NPJ Digital Medicine*, 8(1), 338. <https://doi.org/10.1038/s41746-025-01755-3>