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Awareness, Adoption and Utilization of Ai Tools and Techniques Among Selected Librarians in Cavite

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ABSTRACT

This study examined the awareness, adoption, and utilization of Artificial Intelligence (AI) tools and techniques among selected academic librarians in Cavite. It aimed to determine the respondents' demographic profile, their levels of awareness, adoption, and utilization of AI tools, the significant differences in these variables when grouped according to profile, and the relationships among awareness, adoption, and utilization. A descriptive-correlational research design was employed, and data were gathered from 62 academic librarians using a structured survey questionnaire. The data were analyzed using appropriate descriptive and inferential statistical tools.

The findings revealed that the librarians had a very high level of awareness of AI tools and techniques, with an overall weighted mean of 3.52. Their level of adoption was high, with an overall weighted mean of 3.23, while their level of utilization was also very high, with an overall weighted mean of 3.52. No significant differences were found in the levels of awareness and adoption when grouped according to profile variables. However, a significant difference was found in the effectiveness of AI use when grouped according to position in the library. Significant low correlations were found between selected dimensions of awareness and adoption, and between knowledge of tools and scope of use. Meanwhile, no significant relationship was found between adoption and utilization.

The study concluded that selected academic librarians in Cavite generally possess strong awareness and utilization of AI tools, with a high level of adoption. Based on the findings, an action plan was proposed to strengthen training, institutional support, policy development, and responsible AI integration in academic libraries.

Keywords: Artificial Intelligence, AI Tools, Academic Librarians, Awareness, Adoption, Utilization, Academic Libraries, Library Services

INTRODUCTION

The rapid advancement of digital technologies continues to reshape the global information services landscape. Among these developments, artificial intelligence (AI) has emerged as a transformative force in libraries, offering new possibilities for automating routine processes, enhancing information retrieval, improving user experience, and supporting data-driven decision making. AI applications such as chatbots, recommender systems, automated cataloging, and intelligent interfaces are increasingly explored in library environments to improve efficiency and accessibility (Mandal & Ghosh, 2024).

Despite the growing presence of AI in libraries, its integration is not automatic nor uniform. The process

of integrating AI involves three critical stages: awareness, adoption, and utilization. Awareness refers to librarians' knowledge and understanding of AI tools and their potential applications. Adoption reflects librarians' acceptance, willingness, and readiness to integrate AI technologies into library operations. Utilization pertains to the actual application of these tools in professional practice. Research indicates that while librarians may be aware of AI technologies, this awareness does not always translate into adoption or sustained utilization due to institutional, technical, and professional constraints (Hervieux & Wheatley, 2021; Ali et al., 2024).

Librarians play a pivotal role in mediating the relationship between emerging technologies and library users. Their awareness of AI tools influences initial perceptions, but it is their adoption decisions, shaped by perceived usefulness, ease of use, ethical considerations, and institutional support, that ultimately determine whether AI tools are utilized effectively in library services. Studies have shown that although many librarians view AI positively, concerns related to job displacement, data privacy, ethical accountability, lack of training, and limited infrastructure continue to affect adoption and utilization levels (Appleton, 2024; Subaveerapandiyan, 2023).

In the Philippine setting, empirical studies on AI in libraries are still emerging. Although national initiatives promote digital transformation in education, limited research has examined how librarians understand, accept, and use AI technologies in practice. Cavite, as one of the growing academic centers in the country, provides a relevant locale for investigating librarians' engagement with AI tools and techniques.

The present study determined the awareness, adoption, and utilization of AI tools and techniques among selected academic librarians in Cavite. Specifically, it examined the respondents' profile, their levels of awareness, adoption, and utilization, the differences in these variables when grouped according to profile, the relationships among awareness, adoption, and utilization, and the action plan that may be developed based on the findings.

LITERATURE REVIEW

Artificial Intelligence (AI) refers to the ability of machines to perform tasks that typically require human intelligence, such as reasoning, learning, natural language processing, and decision-making (Russell & Norvig, 2016). In library contexts, AI includes technologies such as machine learning, natural language processing, recommender systems, automated cataloging, metadata generation, and virtual reference services used to improve access to information and support library operations (Panda & Chakravarty, 2022).

Studies consistently show that AI applications are increasingly present in libraries, but practical implementation remains uneven. Lo (2025) reports moderate awareness but limited hands-on experience among academic librarians in the United States, highlighting a gap between knowledge and practice. Similar findings are observed in India, where D'Souza (2024) finds significant variation in awareness and adoption levels across demographic groups. In the Philippine context, studies on educators and librarians indicate that awareness positively influences use, but implementation is constrained by limited institutional support and training (Tabiolo et al., 2024; De Leon et al., 2024).

AI plays a growing role in transforming libraries into dynamic, user-centered knowledge environments. By automating technical services such as cataloging and indexing, AI improves operational efficiency and service accuracy (Molaudzi & Ngulube, 2025). AI also supports accessibility and inclusivity through assistive technologies such as intelligent search tools, chatbots, and text-to-speech applications, which

improve access to information for diverse user groups (Mosha, 2025; Saxena & Tripathi, 2025). Beyond automation, AI supports decision-making and user engagement by enabling data-driven collection development and personalized services (Arias et al., 2025).

Awareness of AI tools among librarians is widely reported across regions, although the depth of understanding varies. Librarians are generally more familiar with visible, user-facing AI applications such as chatbots and plagiarism detection tools than with advanced systems like predictive analytics and automated classification (Martínez-Concha et al., 2024; Kisilowska-Szurmińska, 2025). In the Philippines, academic librarians demonstrate positive perceptions of AI and openness to its integration, yet studies identify gaps in technical preparedness and concerns related to ethics and job displacement (De Leon et al., 2024; De Leon, 2025).

Adoption represents the stage between awareness and actual utilization. It refers to librarians' acceptance, willingness, and readiness to integrate AI tools into library operations. Technology acceptance theories, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT), explain adoption through constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). The Diffusion of Innovations theory further explains that adoption depends on perceived relative advantage, compatibility, and opportunities for trial (Rogers, 2003).

Utilization refers to the actual application of AI tools in professional practice. Studies show that utilization is concentrated on chatbots, recommender systems, and AI-assisted search, while large-scale automation and predictive analytics remain limited or experimental (Martínez-Concha et al., 2024; Xu, 2024). In Philippine academic libraries, utilization is often limited to pilot initiatives and individual experimentation rather than institution-wide implementation (De Leon et al., 2024; Paiste, 2024).

Recent literature also emphasizes that ethical and responsible AI use is essential in library settings. IFLA (2020) emphasized privacy, transparency, intellectual freedom, accountability, and equitable access when integrating AI into library services. UNESCO (2021) stressed human oversight, fairness, transparency, privacy protection, and accountability in AI systems. NIST (2023) likewise identified important characteristics of trustworthy AI, including validity, reliability, safety, security, resilience, accountability, transparency, explainability, privacy, and fairness.

The reviewed literature demonstrates that while AI adoption in libraries is growing, significant gaps persist between awareness, adoption, and utilization. These gaps are more evident in local contexts where institutional support, technical preparedness, ethical awareness, and AI literacy remain developing areas. Thus, the present study contributes to the existing body of literature by examining awareness, adoption, and utilization as interconnected variables among selected academic librarians in Cavite.

METHODOLOGY

Research Design

This study used a descriptive-correlational design to describe respondents' profiles and assess their awareness, adoption, and utilization of Artificial Intelligence (AI) tools, as well as examine relationships among these variables. This approach was appropriate as it analyzed existing conditions without manipulating variables (Fraenkel et al., 2015; Creswell & Creswell, 2018). Primary data were collected from academic librarians in selected higher education institutions in Cavite through a structured survey questionnaire**.**

The study involved 97 academic librarians in Cavite, with 78 respondents selected using simple random sampling based on a 5% margin of error and 95% confidence level. A structured questionnaire, adapted

from previous studies, was used to measure awareness, adoption, and utilization of AI tools and techniques. The instrument was validated by experts and pilot tested, with reliability confirmed through Cronbach's alpha coefficients of .793 (awareness), .785 (adoption), and .751 (utilization), indicating acceptable reliability.

Data were collected over two weeks using both digital and printed questionnaires. Participants provided informed consent, and confidentiality and anonymity were ensured. Follow-up reminders were sent to improve response rates, and collected data were encoded and analyzed using SPSS. Descriptive statistics (frequency, percentage, and weighted mean) were used to summarize respondents' profiles and levels of awareness, adoption, and utilization of AI tools, while inferential statistics, including t-test, ANOVA, and Pearson r, were used to determine differences and relationships among variables.

RESULTS

The results are presented according to the study variables: demographic profile, awareness, adoption, utilization, significant differences, and significant relationships among awareness, adoption, and utilization of AI tools and techniques.

Table 1
The Demographic Profile of the Respondents

Demographic Profile	Demographic Profile	Frequency	Percentages
Age	20-29	17	27.4
Age	30-39	24	38.7
Age	40-49	16	25.8
Age	50 and above	5	8.1
Gender	Male	15	24.2
Gender	Female	47	75.8
Years in service	Less than 1	10	16.1
Years in service	1-5	28	45.2
Years in service	6-10	11	17.7
Years in service	More than 10	13	21
Position in the library	Librarian	47	75.8
Position in the library	School librarian	4	6.5
Position in the library	Head/Chief	5	8.1
Position in the library	Administrative work in the library	6	9.7
Total Number of respondents: 62	Total Number of respondents: 62	Total Number of respondents: 62	Total Number of respondents: 62

The respondents were mostly 30–39 years old with 24 or 38.7%, female with 47 or 75.8%, had 1–5 years in service with 28 or 45.2%, and were mostly holding the position of Librarian with 47 or 75.8%.

Table 2
Summary Table of the Level of Librarians' Awareness of AI Tools and Techniques

Indicator	Weighted Mean	Verbal Interpretation	Rank
Knowledge of tools	3.44	Very High	3
Knowledge of AI techniques	3.50	Very High	2
Awareness of benefits and limitations	3.61	Very High	1
Overall Weighted Mean	3.52	Very High	

The librarians had a very high level of awareness of AI tools and techniques, with an overall weighted mean of 3.52. Among the dimensions of awareness, awareness of benefits and limitations ranked first with a weighted mean of 3.61, followed by knowledge of AI techniques with 3.50, and knowledge of tools with 3.44.

Table 3
Summary Table of the Librarians' Adoption of AI Tools and Techniques

Indicator	Weighted Mean	Verbal Interpretation	Rank
Attitude toward AI	3.51	Very High	1
Intention to adopt AI	3.24	High	2
Organizational support for adoption	2.93	High	3
Overall Weighted Mean	3.23	High	

The librarians had a high level of adoption of AI tools and techniques, with an overall weighted mean of 3.23. Among the dimensions of adoption, attitude toward AI ranked first with a weighted mean of 3.51, followed by intention to adopt AI with 3.24, and organizational support for adoption with 2.93.

Table 4
Summary Table of the Level of Librarians' Utilization of AI Tools and Techniques

Indicator	Weighted Mean	Verbal Interpretation	Rank
Frequency of use	3.57	Very High	1
Scope of use	3.43	Very High	3
Effectiveness of use	3.55	Very High	2
Overall Weighted Mean	3.52	Very High	

The librarians had a very high level of utilization of AI tools and techniques, with an overall weighted mean of 3.52. Among the dimensions of utilization, frequency of use ranked first with a weighted mean of 3.57, followed by effectiveness of use with 3.55, and scope of use with 3.43.

Table 5
Summary of Significant Differences in Awareness, Adoption, and Utilization when Grouped According to Profile Variables

Variable Tested	Result
Awareness by age, gender, years in service, and position	No significant difference; all p-values were greater than 0.05.

Adoption by age, gender, years in service, and position	No significant difference; all p-values were greater than 0.05.
Utilization by age, gender, and years in service	No significant difference; all p-values were greater than 0.05.
Utilization by position in the library	No significant difference for frequency of use and scope of use. A significant difference was found for effectiveness of use ($F = 2.938$, $p = 0.041$), specifically between coded groups 1 and 4.

The findings showed that the librarians' level of awareness and adoption did not significantly differ when grouped according to age, gender, years in service, and position in the library. For utilization, no significant difference was found across most profile variables; however, a significant difference was found in effectiveness of use when grouped according to position in the library.

Table 6
Summary of Significant Relationships among Awareness, Adoption, and Utilization of AI Tools and Techniques

Variables	Significant Findings
Awareness and Adoption	Significant low correlations were found between knowledge of tools and intention to adopt AI ($r = 0.305$, $p = 0.016$), knowledge of tools and organizational support for adoption ($r = 0.286$, $p = 0.024$), and knowledge of AI techniques and organizational support for adoption ($r = 0.293$, $p = 0.021$).
Awareness and Utilization	A significant low correlation was found between knowledge of tools and scope of use ($r = 0.274$, $p = 0.031$). The rest of the relationships were not significant.
Adoption and Utilization	No significant relationship was found between adoption and utilization, since all p-values were greater than 0.05.

Overall, the results indicate that selected dimensions of awareness are associated with selected dimensions of adoption and utilization. However, adoption was not significantly related to utilization.

DISCUSSION

The findings show that the selected academic librarians in Cavite possess a very high level of awareness of AI tools and techniques. This suggests that the respondents are familiar with AI applications and recognize the benefits and limitations of AI in library services. The result supports previous studies indicating that librarians increasingly recognize AI as part of academic library work, although the depth of technical understanding may vary (Hervieux & Wheatley, 2021; De Leon et al., 2024).

The high level of adoption indicates that the respondents generally have positive attitudes toward AI and are willing to integrate AI tools into library services. However, organizational support received the lowest rating among the adoption dimensions. This finding implies that willingness to adopt AI may be present among librarians, but institutional support, training, policy guidance, and workflow integration remain important areas for improvement. This aligns with UTAUT and Diffusion of Innovations perspectives,

which emphasize facilitating conditions, compatibility, and institutional support in technology adoption (Venkatesh et al., 2003; Rogers, 2003).

The very high level of utilization suggests that the respondents already apply AI tools in various library-related tasks. Nevertheless, the significant difference in effectiveness of use when grouped according to position indicates that librarians' duties and responsibilities may influence how effectively AI tools are applied in practice. This means that AI utilization may not be experienced uniformly across all library positions.

The correlation results further show that awareness is related to selected aspects of adoption and utilization. Knowledge of AI tools was significantly related to intention to adopt AI, organizational support for adoption, and scope of use. This indicates that librarians who are more knowledgeable about AI tools are more likely to express readiness to adopt them and to use them across more library functions. However, the relationships were low, suggesting that awareness alone is not enough to ensure broad adoption and sustained utilization.

The absence of a significant relationship between adoption and utilization suggests that positive attitudes and willingness to adopt AI do not automatically lead to actual use. Other factors such as access to AI tools, institutional policies, technical support, workload demands, and training opportunities may influence whether AI is fully integrated into library practice. Thus, AI integration in academic libraries requires both individual readiness and institutional commitment.

CONCLUSION

The study concludes that selected academic librarians in Cavite have a very high level of awareness and utilization of AI tools and techniques, and a high level of adoption. They are particularly aware of the benefits, possible applications, and limitations of AI in library services. Their strongest adoption dimension is attitude toward AI, while organizational support for adoption is the weakest. This indicates that librarians are generally open to AI integration, but institutional support must be strengthened.

The results further conclude that awareness and adoption of AI tools and techniques do not significantly differ according to age, gender, years in service, and position in the library. Utilization also does not significantly differ across most profile variables, except in effectiveness of use when grouped according to position. This suggests that position-related responsibilities may affect how librarians perceive or experience the effectiveness of AI tools.

Certain aspects of awareness, particularly knowledge of tools and knowledge of AI techniques, are significantly related to selected dimensions of adoption and utilization. However, adoption is not significantly related to utilization. Therefore, positive attitude and intention alone do not automatically translate into actual use of AI tools and techniques.

Based on these findings, academic libraries may strengthen AI integration by providing regular training, clear institutional policies, ethical guidelines, technical assistance, workflow support, and opportunities for librarians to apply AI tools in daily library operations. Future studies may expand the scope by including other regions, institutional readiness, infrastructure support, digital literacy, policy implementation, and predictive analysis.

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