

Enhancing academic librarians' soft skills to face artificial intelligence changes using the ADKAR model

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Abstract

Introduction. This study analyses the development of soft skills among librarians at the Indonesian State Islamic University (PTKIN) in the context of AI-based technological transformation, using the ADKAR model as an analytical framework.

Research Methods. A descriptive quantitative survey targeted 83 librarians from a pool of 470 PTKIN librarians, using a Likert-scale questionnaire across five ADKAR dimensions: awareness, desire, knowledge, ability, and reinforcement.

Data Analysis. Descriptive statistics (frequencies, percentages, and mean scores) identified dominant dimensions and readiness gaps by education, tenure, and position.

Results. Awareness, desire, and ability were dominant (>70% positive responses) among Bachelor's/Master's degree holders and 11-20 year veterans. Knowledge and reinforcement showed gaps (<6% contribution) for Diploma staff and support roles, indicating an imbalance in AI adoption and weak institutional support.

Conclusion: The paper recommends that the targeted professional programs are necessary to boost AI literacy, digital adaptability, and collaboration, guiding PTKIN libraries in tiered training, mentoring, and policies for sustainable AI integration.



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A. INTRODUCTION

Digital transformation, driven by rapid technological advances and evolving regulatory frameworks, has fundamentally reshaped the contemporary institutional operational landscape (Perifanis & Kitsios, 2023). This transition is particularly crucial for academic libraries, which serve as a critical knowledge infrastructure in higher education. As organizations navigate Industry 4.0 technologies, including artificial intelligence (AI) and the Internet of Things (IoT), they face unprecedented opportunities and complex challenges in meeting stakeholder needs amidst increasing environmental uncertainty (Sunyoto et al., 2024). The adoption of AI has triggered a paradigm shift in library services, automating approximately 60% of routine tasks in technical services while creating new demands for advanced information mediation (Harisanty et al., 2023; Senthilkumar et al., 2024). This technological disruption has fundamentally altered professional roles, requiring librarians to transition from traditional information providers to dynamic knowledge facilitators and digital literacy educators (Allen & Weber, 2015; Nkuebe & Raju, 2020). However, a recent study indicates that while 58% of academic libraries have implemented some form of AI technology, only 32% have corresponding staff development programs, creating a critical competency gap (Chan et al., 2025).

Artificial Intelligence (AI) has become a transformative technology across various industries, including libraries. AI applications can streamline routine work by automating tasks and enhancing data search capabilities, thereby providing data-driven insights for informed decision-making. Another aspect of AI challenges that needs to be considered in the academic world relates to technical, legal, and ethical issues. For this reason, staff training is necessary to enable librarians to keep pace with rapid technological developments (Mallikarjuna, 2024).

Organizations require competent, skilled human resources to enhance professionalism and credibility, ultimately benefiting service

users and impacting overall performance. One management model that can improve organizational performance is ADKAR, a framework that uses five elements to transform an organization and achieve sustainable success. These five elements include Awareness, namely, the awareness of the need for change. Second, Desire, namely the desire or motivation to actively participate in change. Third is Knowledge or understanding of how to implement change; fourth is Ability or capacity to apply the new skills and behaviors needed for change; and finally, the fifth is Reinforcement or Reinforcement to maintain the changes that have been made (Antoniades et al., 2022).

One example of the ADKAR model's success in changing information governance is seen in research by Putri (2022), who states that it is time for Yogyakarta State University to implement electronic mail management, initially based on conventional paper. Furthermore, Ainur & Praptini (2022) state in their research that the ADKAR model is beneficial for changing team members' mindsets, increasing work effectiveness, fostering innovation, and enabling rapid adaptation by leveraging diverse technical knowledge to maintain business continuity.

According to Angtyan (2019), organizational change is characterized by two key dimensions: the organization and its employees. Organizational change can be successful if both dimensions are aligned. With this in mind, Fauzan et al. (2019) emphasize that the application of any organizational change model should be tailored to the organization's level of difficulty and capacity. Change management can be successful if both dimensions are aligned.

This study addresses a gap in the existing literature, specifically how PTKIN academic librarians can enhance the soft skills needed to adapt to AI-driven technological changes by applying the ADKAR model as an analytical and practical framework. This is evident in the study by Ristianti et al. (2025), which descriptively analyzed the challenges of AI in Islamic higher education counseling services, including students' reliance on AI,

which undermines critical thinking skills. This study did not use the ADKAR change management framework and did not focus on developing librarians' soft skills. Another study in academic libraries, conducted by Koskei (2024), proposed four research framework models: the Kurt Lewin model, the McKinsey 7S model, Kotter's theory, and the ADKAR change model. Ansori et al. (2024) examined the dimensions quantitatively. Second, this study specifically focused on soft skills rather than general technology training, recognizing that behavioral and interpersonal competencies are crucial for long-term adaptability in an AI-driven environment. Third, this analysis was applied to the underexplored but increasingly significant context of PTKIN libraries, offering insights grounded in local contexts and globally relevant.

By integrating theoretical rigor with context-sensitive analysis, this study makes significant contributions to both library science and educational management. The findings are expected to inform the design of professional development programs that are well-targeted, sensitive to institutional culture, responsive to technological trends, and aligned with the evolving role of librarians in the era of artificial intelligence. Thus, this study provides a replicable model for similar educational institutions facing parallel transitions.

Therefore, the primary objective of this study is to evaluate and map the readiness of PTKIN academic librarians to develop the soft skills required to navigate AI-driven transformations, using the ADKAR model as an analytical framework. The study aims to answer: (1) how librarians perceive their own awareness, motivation, and competence in relation to AI, and (2) what institutional mechanisms are most effective in reinforcing sustained skills development. By addressing these questions, this study not only fills theoretical and empirical gaps but also offers practical recommendations for higher education institutions in navigating the AI transition.

B. LITERATURE REVIEW

Organizational Change and Strategic Management

Organizational change is a planned process of shifting an institution from its current state to a desired future state through strategic decision-making and resource optimization. Effective change management aligns leadership direction and employee engagement, enabling improved performance, sustained motivation, and the development of a culture of continuous improvement (Hasan et al., 2025). Ducheck (2020) further emphasizes that organizational resilience is essential for navigating volatile environments, as uncertainty serves as both an external risk and an internal strategic challenge that demands anticipatory action.

Artificial Intelligence in Library Development

The evolution of artificial intelligence (AI), pioneered by scholars such as Turing, Minsky, and McCarthy, has influenced organizational systems and society for over seventy years. AI currently serves as a key technological infrastructure, with approximately half of global organizations integrating it to accelerate information processing (UNEVOC, 2021). In the library sector, AI supports automation, enhances search capabilities, and personalizes services (Huang et al., 2023). Therefore, librarians' soft skills, such as communication, adaptability, problem-solving, and technological literacy, are becoming increasingly critical to maintain professional relevance (Nimbhorkar, 2024).

Soft Skills for Librarians in the Digital and AI Era

Soft skills have become essential for librarians as their roles extend beyond technical routines to user-centered, collaborative, and innovation-driven responsibilities. These skills include communication, problem-solving, adaptability, creativity, teamwork, emotional intelligence, and digital literacy. Nimbhorkar (2024) emphasizes that soft skills underpin librarians' professional identities, enabling

them to respond effectively to evolving user needs, technological demands, and organizational challenges.

In the AI era, soft skills complement digital competencies by enabling librarians to interpret data-driven insights, facilitate information literacy instruction, engage in interdepartmental collaboration, and address ethical considerations related to AI use. Dube et al. (2024) argue that soft skills significantly influence librarians' readiness for technological transformation, particularly in facilitating user interactions, building trust, and navigating organizational change. Therefore, strengthening soft skills is a strategic requirement that supports AI adoption and broader institutional development.

Changing Roles and Competencies of Academic Librarians in the AI Era

The rapid adoption of AI has reshaped the professional competence framework of academic librarians. Dube et al. (2024) argue that digital competencies and soft skills are core requirements for librarians navigating an AI-driven environment. Institutional support, continuous training, and cultural adaptation are essential to ensuring the relevance and sustainability of library services. Cox (2024) further highlights that, rather than replacing librarians, AI redefines their roles to focus on mentoring, facilitating digital literacy, and mediating access to advanced information. Collaborative learning through conferences, workshops, and cross-disciplinary initiatives helps reinforce these evolving competencies (Febriyanti, 2024). Furthermore, AI and big data analytics offer strategic advantages for decision-making and problem-solving within libraries (Bickley et al., 2024).

ADKAR Model as a Framework for AI Adoption in Libraries

AI-based digital transformation requires an integrative approach that encompasses not only technological mastery but also the strengthening of soft skills, engagement with organizational culture, and adaptive leadership. Technology alone is insufficient to guarantee successful change without

behavioral adaptation and team collaboration (García & Ríos-carmenado, 2025). The concepts of iterative learning and practice-based mentoring are also implemented in the Knowledge and Ability stages of the ADKAR model to accelerate the acquisition of new competencies in a technology-based work environment (Kim et al., 2025).

The ADKAR model, consisting of Awareness, Desire, Knowledge, Ability, and Reinforcement offers a systematic framework for managing individual-based organizational change (Zine et al., 2025). Desire and Knowledge, which also exert strong influence, underscore the importance of designing change programs that build librarians' intrinsic motivation for AI (growth mindset, curiosity, innovation orientation) while providing conceptual knowledge of AI, its ethics, and its impact on library services (Zine et al., 2024). In the library context, ADKAR facilitates a structured AI adoption process by ensuring that all staff understand the rationale for change, acquire the necessary skills, and maintain long-term engagement (Hiatt, 2006). For PTKIN libraries, this model is particularly relevant because AI adoption demands a shift from manual work to more analytical, user-centred services.

Research shows that ADKAR implementation faces significant challenges. Paramitha et al. (2020) identified resistance to change stemming from fear of job loss and decreased autonomy as the most common barriers in public institutions. Other barriers, such as limited infrastructure, funding constraints, and varying levels of technical competence, also slow the adoption process (Paramitha et al., 2020). Mengsha (2023) added that institutions implementing AI-based changes typically operate in environments that demand rapid adaptation, making technology-based changes complex, resource-intensive, and heavily influenced by organizational culture and leadership commitment.

A structured implementation of AI-based change involves several sequential strategies. The Awareness stage emphasizes communication through seminars, internal

campaigns, and demonstrations to demonstrate the urgency of AI adoption (Hiatt, 2006). The Desire stage emphasizes open discussions, assurances, and incentive schemes to reduce staff resistance. The Knowledge stage focuses on developing technical capacity through training modules, workshops, and mentoring programs so that librarians master basic AI-related competencies. The Ability stage operationalizes these competencies through pilot projects, such as chatbots, catalogue automation, and AI-based recommendation systems, supported by standard operating procedures (SOPs) and ongoing evaluation. Finally, the Reinforcement stage ensures sustainability through the integration of policies, performance indicators, ongoing training, and stable budget allocations (Hiatt, 2006; Zine et al., 2024; Zine et al., 2025). This comprehensive approach enables libraries to transform toward an AI-based service ecosystem with minimal disruption while strengthening organizational resilience.

C. RESEARCH METHODS

This study employed a quantitative descriptive research design to map the readiness and soft skills development of academic librarians at PTKIN institutions in responding to AI-driven technological changes, using the ADKAR model. A quantitative-only approach was chosen because the study aimed to measure the level and distribution of librarian readiness across the predefined ADKAR dimensions (Awareness, Desire, Knowledge, Ability, and Reinforcement), rather than to explore subjective experiences. Therefore, qualitative methods were not included, as this study focused on creating a structured diagnostic profile to support institutional planning and policy development.

The study population consisted of approximately 470 PTKIN librarians (UIN, IAIN, and STAIN) from the official APPTIS directory. The sample size of 83 respondents was determined using the Slovin formula with a 10% margin of error. A simple random sampling technique was used to select

respondents from the sampling frame by generating random numbers. Data were collected through an online questionnaire distributed proportionally across institutions to reduce institutional bias.

$$\begin{aligned}n &= N / (1 + N \times e^2) \\n &= 470 / (1 + 470 \times 0.1^2) \\n &= 470 / 5.7 \\n &\approx 82.5 \approx 83\end{aligned}$$

The research instrument was a Likert-scale questionnaire developed from the ADKAR framework, consisting of 25 items (5 per dimension). Content validity was ensured through expert review, and reliability testing showed Cronbach's alpha values above 0.70 for all dimensions. Data were analyzed using descriptive statistics (mean, frequency, and percentage) to map librarian readiness by education level, length of service, and functional position. Ethical considerations included voluntary participation, informed consent, respondent anonymity, and secure data handling.

D. RESULTS AND DISCUSSION

The development of librarians' soft skills in the face of AI was examined using elements of the ADKAR model, based on education level, length of service, and job level. According to the questionnaire results, the educational level of the 83 participating librarians showed that the majority held a Bachelor's degree (S1) at 52.9%, followed by Master's degree holders (S2) at 35.3%. Meanwhile, Diploma graduates and doctorate holders each represented 5.9% of the sample. This distribution indicated that the librarian workforce in PTKIN libraries was predominantly composed of individuals with undergraduate and postgraduate educational backgrounds. Regarding length of service, 39.2% of respondents had worked for 11–20 years, making this group the largest in terms of experience and AI-readiness-related soft skills. Librarians with 5–10 years of service accounted for 15.7%, while those with fewer than 5 years accounted for only 3.9%.

In terms of career level, the majority of respondents were junior librarians (39.2%),

followed by middle-level librarians (29.4%). These findings indicated that junior and mid-level librarians were the most actively involved and had the greatest potential to lead initiatives to strengthen the soft skills required to respond to AI-driven technological changes (Figure 1).

Awareness

Most librarians demonstrate a strong level of awareness of the importance of integrating AI into library operations, reflecting their recognition of its potential to improve efficiency and service quality. However, this awareness still needs to be deepened, particularly regarding how AI will shape librarians' future roles and competency requirements. A comprehensive overview of respondent characteristics in relation to their awareness of AI integration in library practice indicated that based on education level, the majority of respondents held a Bachelor's degree (52.90%, 44 respondents), followed by those with a Master's degree (35.30%, 29 respondents), while Diploma and Doctoral holders each represented 5.90% (5 respondents). Based on tenure, the distribution showed that librarians with more than 20 years of experience constituted the largest group (41.20%, 34 respondents), followed by those with 11–20 years of tenure (39.20%, 33 respondents), indicating that most respondents were highly experienced. Meanwhile, librarians with 5–10 years of tenure accounted for 15.70% (13 respondents), and those with less than 5 years of tenure made up the smallest group at 3.90% (3 respondents). By job position, junior librarians had the highest proportion (39.20%, 33 respondents), followed by mid-career librarians (29.40%, 24 respondents), first-level librarians (18.07%, 15 respondents), and library assistants (13.25%, 11 respondents). Collectively, the total number of respondents was 83, reflecting a diverse yet experienced population with varied backgrounds and varying levels of awareness regarding the adoption and application of AI within the library environment (Table 1).

Desire

The majority of respondents who indicated a strong desire to adapt to AI changes and develop soft skills were dominated by librarians with Bachelor's (S1) and Master's (S2) degrees (a total of 88% of 83 respondents), as well as those with 5–10 years and 11–20 years of work experience (a total of 75.11%), reflecting the profile of core functional and mid-career librarians. This pattern was supported by job title data, which showed that Junior Librarians and Middle Librarians had the highest level of desire (72.44%), indicating that these groups, which were active in daily operations and career development, were the primary drivers of AI adoption. These findings align with the abstract, which states that librarians with Bachelor's and Master's degrees and 11–20 years of work experience have higher levels of desire, providing a positive indication of the motivational readiness of the majority of PTKIN librarians to transform. Conversely, librarians with Diplomas and those serving as library assistants showed the lowest percentages of desire, only 5.78% and 7.56%, respectively. This motivation gap highlighted the need for targeted intervention strategies to support staff groups and ensure inclusivity in the AI transition process. The high level of desire among this core group was an important (reinforcing) factor in the library management's development of structured soft skills development initiatives (Table 2).

Knowledge

Results of the study showed that the level of knowledge of PTKIN librarians regarding adaptation to AI changes and soft skills development was dominated by groups with Bachelor's (S1) and Master's (S2) degrees (totaling more than 90%), as well as groups with 11–20 years and > 20 years of work experience (totaling more than 75%), indicating that librarians with more experience and higher formal education had the best conceptual and technical understanding. This concentration of knowledge was also evident among Junior Librarians and Middle Librarians (74.56%), confirming their central role as innovators in

libraries. However, a key finding that needed to be underlined was the significant knowledge gap among Diploma-level librarians, who contributed only 4.05% of the total knowledge, and Library Assistants, who contributed 5.78%. This gap reinforces the abstract's statement that knowledge gaps remain significant among Diploma-level librarians, underscoring the need for targeted training programs to enhance AI literacy and digital skills among these support staff, enabling comprehensive organizational adaptation. This phenomenon suggested that, even though mid-career librarians had an adequate knowledge base, knowledge transfer to support staff and new librarians (less than 5 years of service) remained suboptimal. Therefore, libraries need to design specific curricula, not only to enhance AI knowledge but also to bridge the gap between job levels. This context aligns with research findings on the need for targeted professional development programs to strengthen AI literacy and digital adaptability (Table 3).

Ability

The level of ability, based on education level, length of service, and position level, perceived by PTKIN librarians to implement the new soft skills and practices needed to deal with AI integration, is highly concentrated among groups with Bachelor's (54.04%) and Master's (36.36%) degrees. This is consistent with the findings on Awareness and Desire in the abstract, indicating that librarians with higher qualifications feel most competent. The highest ability was also reported by librarians with 11–20 years of work experience (38.89%) and > 20 years (35.86%), as well as those serving as Junior Librarians (36.87%) and Middle Librarians (35.86%), confirming that experience and core functional roles are strongly correlated with the ability to adapt to AI. However, in line with the knowledge dimension, Diploma-level librarians and Assistant Librarians again showed the lowest percentage of Ability (4.55% and 7.07%, respectively). This gap indicated that although most core librarians felt capable,

there were still significant challenges in transforming knowledge into practical skills among support staff, requiring intensive, context-specific training programs, as the study's conclusions suggested.

Regardless of educational background, the findings indicated that while librarians with Bachelor's degrees generally demonstrated stronger skills in applying AI to library activities, substantial improvements were still required at all levels of education. Ongoing efforts to strengthen both technical and soft skills were crucial to ensure that AI adoption could effectively enhance service quality and operational performance (Table 4).

Reinforcement

The reinforcement analysis showed notable differences across educational backgrounds, length of service, and job positions. Librarians with Bachelor's (55.38%) and Master's (33.87%) degrees constituted the majority and tended to respond more positively to institutional support for developing AI-related skills, while those with Diplomas (4.84%) and Doctorates (5.91%) experienced less structured reinforcement. Based on length of service, junior librarians with <5 years (8.06%) and 5–10 years (16.13%) of experience were generally more receptive to technological change, whereas senior librarians with 11–20 years (38.17%) and >20 years (37.63%) of experience required stronger reinforcement measures to sustain motivation and reduce resistance. Differences also emerged across job positions: Library Assistants (6.99%) and First-Level Librarians (40.86%) reported feeling more supported in integrating AI skills, while Junior Librarians (17.74%) and, especially, Middle Librarians (34.41%) needed additional incentives, structured guidance, or formal acknowledgement to maintain engagement. Overall, these patterns highlight the importance of implementing differentiated reinforcement strategies tailored to each demographic group to ensure consistent, effective behavioral change in AI adoption (Table 5).

This study demonstrated that PTKIN librarians' readiness for AI adoption varies significantly by educational background, length of service, and job level, indicating that readiness is not uniform but socially and institutionally constructed. Survey results showed that awareness and desire scored higher than knowledge, ability, and reinforcement, confirming that cognitive recognition of AI urgency preceded operational capability. These variations must be interpreted within the distinctive organizational context of PTKIN, which operates under the Ministry of Religious Affairs and is characterized by hierarchical governance, normative compliance, and strong moral legitimacy. Unlike public universities, where innovation may be driven by competition and autonomy, change in PTKIN is mediated by leadership authority and institutional endorsement, shaping librarians' perceptions and responses to technological transformation.

The relatively high awareness scores among junior librarians and those with 11–20 years of experience reflected exposure to digital discourse and professional expectations rather than direct operational readiness. This aligns with Paramitha et al. (2020), who argue that awareness is often the easiest stage to achieve because it relies on the dissemination of information rather than the acquisition of skills. However, awareness in this study should not be equated with preparedness, as the ADKAR dimension further reveals structural limitations. The Islamic institutional context strengthens awareness through values such as *amanah* (responsibility) and *maslahah* (public benefit), which frame AI as an ethical tool for improving service quality rather than merely a technological trend. Importantly, this interpretation is grounded in survey data rather than normative assumptions, as awareness scores consistently exceed those of other ADKAR dimensions across demographic groups.

Despite high awareness, desire showed moderate variation, with mid-level and junior librarians reporting stronger motivation to engage with AI. Survey data indicated that

desire was influenced by perceived career relevance, managerial encouragement, and co-worker norms—not just religious discourse. Consistent with Albrecht et al. (2022), the desire for organizational change emerged from perceptions of concrete individual benefits mediated by job resources, resulting in significant change engagement. In PTKIN environments, desire was strengthened when AI adoption was framed as compatible with Islamic work ethics (professional effort and development), coupled with explicit leadership legitimacy. However, senior librarians reported lower desire scores, reflecting risk aversion, fear of losing competence, or limited incentives rather than resistance to Islamic values, as implied by Fatmawati et al. (2024).

The knowledge dimension revealed the most critical structural gap, particularly among Diploma-level librarians, who reported a significantly lower understanding of AI-related concepts than those with Bachelor's and Master's degrees. This disparity was not merely individual but systemic, reflecting unequal access to formal training, curriculum exposure, and professional development opportunities. Picado Argüello & González-Prida (2024) argue that without adequate conceptual and applied knowledge, motivation cannot effectively translate into change. In this study, AI knowledge remained abstract, mainly with limited familiarity regarding automation, metadata enhancement, AI-assisted search, or user interaction systems. This finding aligns with Lo (2024), who reports a similar AI literacy gap among academic librarians in Southeast Asia. Therefore, the lower readiness of Diploma-level librarians should be interpreted as an outcome of structural exclusion from capacity-building mechanisms, rather than as an individual deficiency.

Moving from knowledge to ability, data indicated that librarians with intermediate tenure (11–20 years) demonstrated higher levels of practical competence than junior and senior staff. This suggests that ability emerges from a combination of experiential familiarity with library workflows and

sufficient exposure to training opportunities. Picado Argüello & González-Prida (2024) note that ability requires not only technical proficiency but also soft skills such as adaptability, problem-solving, and digital communication. In PTKIN libraries, ability development is constrained by limited infrastructure, time allocation, and mentorship systems, explaining why knowledge does not automatically translate into operational confidence. The findings reinforce the argument that ability is the most resource-intensive of the ADKAR stages and cannot be achieved through short-term interventions alone.

The reinforcement dimension consistently scored lowest, indicating weak institutionalization of AI-related behaviors. Survey responses revealed a lack of formal recognition, performance indicators, or follow-up mechanisms after training initiatives. This confirms Jaaron et al.'s (2021) assertion that without reinforcement, change efforts will regress despite high awareness and desire. In PTKIN libraries, reinforcements are further complicated by bureaucratic rigidity and the absence of AI competencies in official KPIs or promotion criteria. Paramitha et al. (2020) and Hanif (2023) emphasize that reinforcement must be embedded in organizational systems rather than treated as an optional add-on. The absence of reinforcement in this study explains why readiness stagnates at the cognitive level rather than evolving into sustainable practice.

From an organizational culture perspective, PTKIN's Islamic identity represents a distinctive contribution rather than a constraint, provided it is operationalized rather than invoked normatively. Values such as *amanah* (trustworthiness) and *maslahah* (benefit) can function as a reinforcement mechanism when translated into policy instruments, such as ethical AI guidelines, service-quality KPIs, and recognition frameworks grounded in institutional values. However, without formal integration into governance structures, these values remain symbolic and do not materially influence behavior. These findings extended

previous studies by demonstrating that religious values alone did not drive technological readiness; rather, their effectiveness depended on institutional translation into measurable systems.

Compared with other studies, this study aligns with international findings that emphasize human capital readiness as a key determinant of AI integration (Livi & Salubi, 2024). However, this study diverged by highlighting how hierarchical religious institutions shaped the ADKAR trajectory, particularly in the reinforcement phase. Unlike libraries in more decentralized systems, PTKIN libraries require explicit top-down policy alignment to sustain change. This supports Reis & Junior's (2025) finding that institutional context significantly mediates technological adoption outcomes.

Operationally, the findings suggest that AI readiness in PTKIN libraries needs to be strengthened through specific ADKAR interventions at each stage: awareness through data-driven communication; desire through leadership endorsement and career-linked incentives; knowledge through tiered, inclusive training modules; ability through workflow-based mentoring and practice; and reinforcement through KPIs, certification, and institutional recognition. Without such differentiation, interventions risk remaining generic and ineffective. AI readiness among PTKIN librarians is not hindered by cultural or religious values but by structural and managerial limitations, particularly in knowledge distribution and reinforcement mechanisms. By empirically identifying reinforcement as the weakest link, this study contributes a context-sensitive extension of the ADKAR model and offers actionable insights for policy-driven transformation in Islamic higher education libraries.

E. CONCLUSION

This study assessed AI readiness among PTKIN librarians using the ADKAR framework and reveals consistent patterns across dimensions. Librarians demonstrate high levels of awareness and desire, indicating a strong recognition of the urgency of AI integration and positive motivation for

change. However, knowledge and ability remain moderate, suggesting gaps in technical understanding and practical application of AI in daily library operations. The reinforcement dimension scores lowest, reflecting limited institutional follow-up, weak policy alignment, and insufficient mechanisms for sustaining newly acquired competencies. These findings indicate that while individual readiness has progressed, institutional support systems have not yet fully enabled sustainable AI-driven transformation in PTKIN libraries. From a policy and research perspective, the results suggest that PTKIN leadership should adopt structured ADKAR-based strategies, including tiered training and mentoring, pilot projects, performance-based recognition, and formal policy integration to strengthen reinforcement. This study is limited by its cross-sectional design, reliance on self-reported data, margin of error, and potential response bias, which may affect generalizability. Future research should employ a mixed-methods approach to explore barriers to reinforcement in more depth and a longitudinal design to evaluate the effectiveness of ADKAR-based interventions over time. Overall, this study contributes a data-driven readiness profile that highlights reinforcement as a critical means for sustaining AI adoption in academic libraries.

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FIGURE LIST

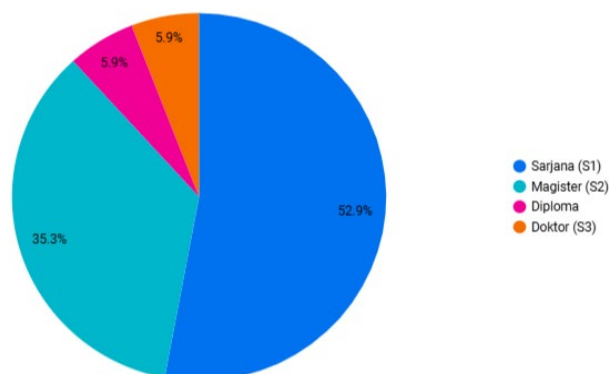


Figure 1 Education level diagram

TABLE LIST

Table 1 Awareness based on education level, length of working time, and position level

Category	Subcategory	Percentage	Number
Education Level	Diploma	5.90%	5
	Bachelor's Degree (S1)	52.90%	44
	Master's Degree (S2)	35.30%	29
	Doctoral Degree (S3)	5.90%	5
Years of Service	< 5 years	3.90%	3
	5–10 years	15.70%	13
	11–20 years	39.20%	33
	> 20 years	41.20%	34
Job Position	Library Assistant	13.25%	11
	First Librarian	18.07%	15
	Young Librarian	39.20%	33
	Middle Librarian	29.40%	24
Total Respondents		100%	83

Source: results of data analysis, 2024

Table 2 Desire based on education level, length of working time, and position level

Category	Subcategory	Percentage	Number
Education Level	Diploma	5,78%	5
	Bachelor's Degree (S1)	49,78%	41
	Master's Degree (S2)	38,22%	32
	Doctoral Degree (S3)	6,22%	5
Years of Service	< 5 years	8,00%	7
	5–10 years	40,89%	34
	11–20 years	34,22%	28
	> 20 years	16,89%	14
Job Position	Library Assistant	7,56%	6
	First Librarian	20,00%	17
	Young Librarian	37,78%	31
	Middle Librarian	34,66%	29
Total Respondents		100%	83

Source: results of data analysis, 2024

Table 3 Knowledge based on education level, length of working time, and position level

Category	Subcategory	Percentage	Number
Education Level	Diploma	4,05%	3
	Bachelor's Degree (S1)	52,60%	44
	Master's Degree (S2)	37,57%	31
	Doctoral Degree (S3)	5,78%	5
Years of Service	< 5 years	6,94%	6
	5–10 years	17,34%	14
	11–20 years	39,88%	33
	> 20 years	35,84%	30
Job Position	Library Assistant	5,78%	5
	First Librarian	19,66%	17
	Young Librarian	37,57%	31
	Middle Librarian	36,99%	30
Total Respondents		100%	83

Source: results of data analysis, 2024

Table 4 Ability based on education level, length of working time, and position level

Category	Subcategory	Percentage	Number
Education Level	Diploma	4,55%	4
	Bachelor's Degree (S1)	54,04%	45
	Master's Degree (S2)	36,36%	30
	Doctoral Degree (S3)	5,05%	4
Years of Service	< 5 years	8,09%	7
	5–10 years	17,17%	14
	11–20 years	38,89%	32
	> 20 years	35,86%	30
Job Position	Library Assistant	7,07%	6
	First Librarian	20,20%	16
	Young Librarian	36,87%	31
	Middle Librarian	35,86%	20
Total Respondents		100%	83

Source: results of data analysis, 2024

Table 5 Reinforcement based on education level, length of working time, and position level

Category	Subcategory	Percentage	Number
Education Level	Diploma	4,84%	4
	Bachelor's Degree (S1)	55,38%	46
	Master's Degree (S2)	33,87%	28
	Doctoral Degree (S3)	5,91%	5
Years of Service	< 5 years	8,06%	7
	5–10 years	16,13%	13
	11–20 years	38,17%	32
	> 20 years	37,63%	31
Job Position	Library Assistant	6,99%	6
	First Librarian	40,86%	34
	Young Librarian	17,74%	15
	Middle Librarian	34,41%	28
Total Respondents		100%	83

Source: results of data analysis, 2024