Artificial Intelligence Awareness and Perceptions Among Librarians at a South African Private Higher Education Institution (PHEI)

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Abstract: This study explored the awareness and perceptions of artificial intelligence (AI) among librarians at a private higher education institution (PHEI) in South Africa. Using the Technology Acceptance Model (TAM) as a theoretical framework, the research employed a qualitative approach grounded in the interpretivist paradigm. Twelve librarianswere purposively sampled, and data were collected through a single semi-structured focus group discussion. Braun and Clarke's six-phase thematic analysis guided data interpretation. Three key themes emerged: (1) Limited Understanding and Awareness of AI, (2) Perceived Scope of AI Applications in Academic Libraries, and (3) Threat to Research Integrity and Privacy Concerns. Findings showed participants often conflated basic automation with AI, indicating conceptual gaps that hinder meaningful engagement with AI technologies. Nonetheless, participants acknowledged AI's potential to improve library services. Positioning AI awareness as the foundational dimension of AI literacy, the study emphasizes the need for targeted AI literacy programmes that first build conceptual clarity, and contributes to knowledge on AI usage in developing academic library settings.

Keywords: Artificial intelligence, AI awareness, Artificial intelligence (AI) Perception, Technology Acceptance Model (TAM), Private higher education institution (PHEI), AI literacy

1. Introduction and Background

Artificial intelligence (AI) is increasingly viewed as transformative for academic libraries, enhancing services through tools such as metadata automation and chatbots (Harisanty et al., 2022; Okunlaya et al., 2022). However, adoption depends on librarians' knowledge and attitudes. In South Africa, research largely focuses on public universities, leaving private higher education institutions (PHEIs) underexplored despite their growth (Zondi et al., 2024; Molaudzi & Ngulube, 2025). Since librarians act both as technology adopters and guides, their perceptions are central to AI integration (Molaudzi & Marutha, 2024).

AI awareness and AI literacy are related but distinct requirements. In this study, AI awareness refers to librarians' knowledge of what AI is and where it can be applied, whereas AI literacy is a broader set of competencies that enables people to understand, use, critically evaluate and ethically engage with AI (Long & Magerko, 2020; Ng et al., 2021). Awareness is therefore treated as the entry point to, rather than a substitute for, AI literacy (Section 2.5). Many librarians struggle to distinguish automation from genuine AI, which can limit effective use (Gasparini & Kautonen, 2022). Concerns about job loss, privacy, and ethical risks such as bias and academic integrity further complicate adoption (Abayomi et al., 2021; Johansen et al., 2024; Lo, 2023).

1.1 Problem Statement

Although AI is reshaping academic library services, its successful integration depends on librarians' awareness of what AI is and how it can be applied. In South Africa, studies of AI in academic libraries have concentrated on public universities (Molaudzi & Marutha, 2024; Molaudzi & Ngulube, 2025), leaving librarians in private higher education institutions largely unstudied despite the sector's growth. Moreover, existing studies seldom distinguish AI awareness from the broader construct of AI literacy, so it remains unclear whether librarians possess the conceptual foundation required for meaningful AI adoption. Without this evidence, PHEIs risk investing in AI tools and training that do not address librarians' actual understanding, perceptions and ethical concerns.

2. Literature Review

2.1 Defining Artificial Intelligence in Library Contexts

Artificial Intelligence (AI) in library contexts refers to computer systems designed to perform tasks that typically require human intelligence, such as learning, reasoning, and natural language processing. In library environments, AI encompasses technologies including machine learning for automated cataloguing, chatbots for reference services, and recommendation systems for resource discovery (Omame & Alex-Nmecha, 2020; Adesina & Zubairu, 2024). Unlike basic automation, which operates strictly on fixed rules, AI systems can learn and adapt, thereby enhancing both library operations and user experiences (Oyekale & Zubairu, 2023). Recent studies affirm that AI tools have begun to redefine traditional cataloguing and metadata services, as well as

transform user engagement by personalizing access pathways to information (Enakrire & Oladokun, 2023; Zondi et al., 2024).

2.2 Librarians' Knowledge and Perceptions of Artificial Intelligence

Awareness of AI among academic librarians is uneven, with many showing basic familiarity but limited formal training and practical competence (Ajani et al., 2022; Hervieux & Wheatley, 2021). Their understanding of advanced applications, including robotics and sophisticated chatbot systems, remains limited (Subaveerapandiyan et al., 2023). Studies across regions reveal this mixed pattern. In South Africa, Dettman (2024) found that 44.1% of librarians acknowledge AI's importance for service delivery, while in Nigeria, 80% reported awareness and positive perceptions, seeing AI as a way to simplify operations (Oyekale & Zubairu, 2023). Yet, despite these perceptions, practical implementation is rare, with most libraries lacking active deployment (Ajani et al., 2022; Enakrire & Oladokun, 2023). Although librarians recognize AI's potential for automating tasks like cataloguing and reference services (Omame & Alex-Nmecha, 2020; Adesina & Zubairu, 2024), their skills remain underdeveloped. This gap between awareness and practice, compounded by inadequate infrastructure and weak strategic frameworks, continues to challenge effective adoption in many institutions (Molaudzi & Ngulube, 2025; Zondi et al., 2024).

2.3 Attitudes and Perceptions of Librarians Toward AI in Academic Libraries

Librarians generally express cautious optimism about AI integration in academic libraries, recognizing its potential to enhance efficiency and service delivery while also voicing notable concerns (Kalbande et al., 2024; Omame & Alex-Nmecha, 2020). However, worries about job displacement and overreliance on technology persist. Abayomi et al. (2021) found that fear of redundancy was a major barrier to AI adoption in Nigerian libraries, while Subaveerapandiyan et al. (2023) reported similar concerns in other developing regions. Attitudes also vary by region: librarians in developing countries often demonstrate more enthusiasm despite infrastructural limitations (Ajani et al., 2022; Oyekale & Zubairu, 2023), whereas counterparts in developed countries report less interest in AI-related professional development (Wood & Evans, 2018; Hervieux & Wheatley, 2021).

2.4 Concerns and Ethical Implications of AI Use in Academic Libraries

AI adoption in academic libraries raises ethical challenges tied to academic integrity, intellectual property, privacy, and professional responsibility (Nogueira, 2023; Berkowitz, 2025). Generative AI threatens originality and scholarly trust (Johansen et al., 2024), while privacy and bias risks may compromise confidentiality or yield discriminatory outcomes (Lo, 2023; Michalak, 2023). Librarians also face shifting professional roles, requiring skills in digital literacy, AI ethics, and governance (Kalbande et al., 2024). Proactive planning, stakeholder engagement, and robust ethical frameworks are therefore essential to ensure AI strengthens rather than undermines the mission of academic libraries (Mannheimer et al., 2024; Berkowitz, 2025).

2.5 AI Awareness and AI Literacy: Distinct but Intersecting Concepts

AI literacy is a multidimensional and still contested concept. Long and Magerko (2020) define it as a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool. Ng et al. (2021) conceptualise four dimensions: knowing and understanding AI, using and applying AI, evaluating and creating AI, and AI ethics, while Laupichler et al. (2022) show that the concept remains loosely defined in higher education, with studies differing on whether they emphasise technical knowledge, practical skills or ethical judgement.

AI awareness is a narrower construct. In library studies (Ajani et al., 2022; Harisanty et al., 2022), awareness denotes whether librarians know of AI, can recognise it and can identify its potential applications. It corresponds most closely to the "know and understand" dimension of AI literacy (Ng et al., 2021) and is necessary but insufficient for the higher-order dimensions of application, evaluation and ethical judgement. The concepts intersect where awareness includes accurate conceptual understanding, such as distinguishing AI from rule-based automation (Gasparini & Kautonen, 2022), and where perceptions of risk draw on the ethical dimension. This study therefore treats AI awareness as its primary construct and as the foundational layer of AI literacy: it does not measure AI literacy as a whole, but examines whether the foundation on which it can be built exists.

3. Conceptual Framework Lens Guiding This Study

Davis' (1989) Technology Acceptance Model (TAM) provides a widely used theoretical framework for explaining users' acceptance of new technologies. At its core, TAM identifies Perceived Usefulness (PU) and Perceived Ease

of Use (PEOU) as the primary determinants of Attitude Toward Use, which subsequently shapes Behavioural Intention and leads to Actual System Use (Davis, 1989; Turner et al., 2010). This model has been widely applied across professional contexts, including library and information science. While this study adopts TAM as its theoretical foundation, it extends the model to capture the specific realities of AI awareness and perceptions among librarians in private higher education institutions in South Africa. Unlike in contexts where AI systems are fully deployed, many librarians in this study had limited direct experience with AI. Their perceptions were shaped less by actual system use and more by awareness levels, institutional environments, and expectations about potential benefits and risks.

Accordingly, the adapted framework (Figure 1) incorporates three additional elements:

- **Awareness:** Added as an external/contextual factor since librarians' knowledge of AI strongly influences how they perceive its usefulness and ease of use. Prior studies in Africa have shown that librarians often conflate automation with AI (Ajani et al., 2022; Enakrire & Oladokun, 2023). Awareness is understood here as the foundational "know and understand" dimension of AI literacy (Ng et al., 2021; Section 2.5).
- **Overall Perception:** Replaces TAM's behavioral intention and actual use constructs. Because AI adoption in libraries is still at an early stage, overall perception of AI capabilities provides a more accurate dependent variable than usage behaviors (Dettman, 2024; Zondi et al., 2024).
- **Library Environment Context:** Captures institutional and environmental influences such as infrastructure, policy, and training, which shape librarians' readiness to engage with AI. This aligns with later extensions of TAM (Venkatesh & Davis, 2000), which emphasize the role of external variables in shaping acceptance.

Because AI integration in the study context is still emerging, the focus is on adoption, the willingness to begin using technology as a precursor to adaptation.

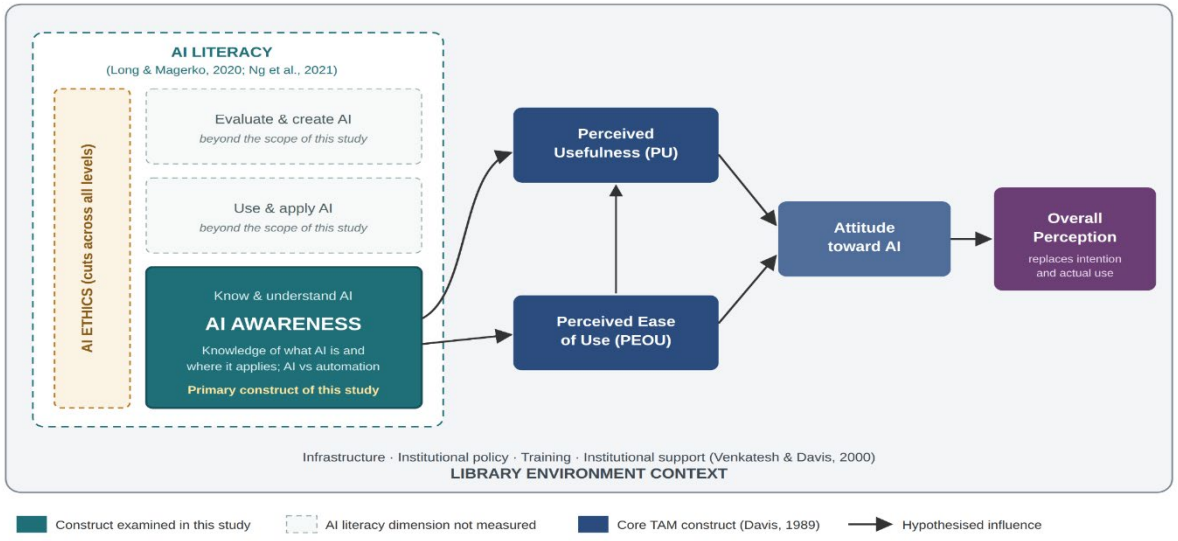

Figure 1: Adapted TAM framework positioning AI awareness as the foundational "know and understand" dimension of AI literacy (adapted from Davis, 1989; Ng et al., 2021)

4. Research Methodology

This qualitative study was guided by the following objectives:

- To assess the current level of awareness and understanding of artificial intelligence (AI) among information specialists/librarians at a PHEI in South Africa.
- To examine the prevailing attitudes and perceptions of information specialists/librarians toward AI and its applications in academic libraries.
- To identify concerns held by information specialists/librarians regarding the use of AI, particularly in relation to academic integrity, intellectual property rights, and their professional roles.

4.1 Research Design

The study adopted an interpretive paradigm to capture participants' subjective experiences and contextual meanings related to AI awareness and perception in academic libraries (Creswell & Creswell, 2018). A qualitative method was chosen for its ability to explore under-researched topics and generate rich, descriptive insights. Focus group discussions enabled participants to share and reflect on their views interactively; though limiting individual depth, they promote dynamic exchanges and collective meaning-making.

4.2 Participants and Sampling

The target population comprised 29 librarians across nine campus libraries within the PHEI.Purposive sampling (Etikan et al., 2016; Palinkas et al., 2015) was used to select participants who (a) were employed as librariansor librarians, (b) were directly involved in library service delivery, and (c) had experience of, or responsibility for, digital library services. Twelve librarians participated, identified as Participants A to L. Twelve lies at the upper end of typical focus group size and was considered sufficient because the aim was depth of shared meaning within one institution rather than statistical generalisation.

4.3 Data Collection

Data were collected through one semi-structured focus group discussion done online on Zoom platform for a duration of 90 minutes. A discussion guide aligned with the three objectives addressed awareness of AI initiatives, AI's impact on service delivery, AI as an improvement or a threat to job security, and concerns or reservations (Section 5). The researcher moderated the discussion, using probes to encourage every participant to contribute. The discussion was audio-recorded with consent, transcribed verbatim and verified against the recording by an independent editor.

4.4 Data Analysis

Data were analysed using Braun and Clarke's (2006) six-phase thematic analysis process, allowing themes to emerge inductively. The full verbatim transcript, containing the contributions of all twelve participants, formed the dataset, and every contribution was coded manually. TAM constructs were applied only at the interpretation stage (Section 5.4). In Phase 1 (familiarisation), the transcript was read repeatedly alongside the recording. In Phase 2, segments were coded line by line (e.g., "OPAC described as AI", "saving the time of the user", "student over-reliance", "privacy of user data"). In Phase 3, related codes were collated into candidate themes; for example, codes equating counting machines, PC booking systems and the OPAC with AI formed a theme of conceptual confusion. In Phase 4, candidate themes were checked against the coded extracts and the full transcript, and overlapping themes were merged. In Phase 5, three final themes were defined and named (Section 5), and in Phase 6 representative extracts were selected and interpreted against the literature and the adapted TAM. Credibility was strengthened through data triangulation and thick description (Lincoln & Guba, 1985).

4.5 Ethical Considerations

Ethical approval was obtained from the institutional Research Ethics Committee (reference R.000161 [REC]). All participants provided informed consent, were assured of confidentiality and anonymity, and were informed of their right to withdraw at any time without consequences. Data were securely stored, and the researcher remained mindful of potential power dynamics during the discussion. Participants are identified only by letters (A–L).

4.6 Limitations

The study focused on a single private higher education institution with a narrow geographic scope, limiting transferability to public or differently resourced institutions, and participants' views may change as AI technologies evolve.

5. Presentation and Discussion of Findings

5.1 Theme 1: Limited Understanding and Awareness of AI

Participants were asked "Are you aware of any AI Initiatives or implementation in your library?"

> *"... I'm not sort of involved so much in the day-to-day activities of a physical library like the issue and return of books..."* ***[Participant C****"... have the 3M machine with counts, the number of patrons that come into our library and also we have one called my PC bookings which gives out reports to how many students maybe for*

a week or for a month that have used our computers and other one I would say is also the library page, the OPAC where users..." ***[Participant I].***

Participants' responses revealed a key conceptual gap, with many equating basic automation with artificial intelligence. This mirrors findings by Ajani et al. (2022) and Subaveerapandiyan et al. (2023), who report similar misconceptions in developing regions due to limited exposure and inadequate training. In terms of Ng et al.'s (2021) framework, participants' awareness remained at a surface level of the "know and understand" dimension: they recognised that digital tools were in use but could not articulate what distinguishes AI from rule-based systems, which constrains progression to the "use and apply" and "evaluate" dimensions. From a TAM perspective, these misunderstandings can distort perceived usefulness, leading to inflated expectations or overlooked opportunities for effective AI adoption.

5.2 Theme 2: Perceived Scope of AI Applications in Academic Libraries

Participants were asked: "What are your overall perceptions regarding the impact of AI on academic library service delivery?"

"... know of the Ragunathan's 10s, library laws into that says that you should always. Uh, save the time of the user, so, in terms of serving time out, say that AI has..." [Participant F]. "...AI has improved our services as my colleagues has also mentioned that... [Participant J]. "... Agree with the past uh speakers you look with the 3M in the past with some libraries..." [Participant E].

When participants were asked about "What is your general perception of AI's role in academic library service delivery?" They expressed:

"... some quite serious flaws. Umm, I recently read an article about privacy concerns with ChatGPT..." ***[Participant C].***

"... think from my perception, I think I think it's actually influencing the role of library in the positive way... ***[Participant B].*** *"... think it also has to do with us adapting to the new technologies and systems to actually improve our services..."****[Participant A].***

When participants were also asked about their views on whether artificial intelligence is seen as a tool for improvement or potential threat to job security in libraries:

"... with my experience, I think it's not a threat to us as librarians, but AI bring some changes..." ***[Participant J].***

*"... the tool for improvement for now that I don't think there is any AI that can replace the library services****..."*** ***[Participant G].*** *"...I feel like it can actually enhance how we actually deliver the services to our users..."* ***[Participant B].***

Participants demonstrated relatively high perceived usefulness of AI, linking its capabilities to enhanced job performance and improved service delivery. Many aligned AI's benefits with Ranganathan's principles, especially saving users' time, reflecting a seamless integration of new technologies with existing professional values. They viewed AI as a tool to automate routine tasks and support user-centered services, without compromising core functions or job security—unlike findings in other studies (Abayomi et al., 2021; Subaveerapandiyan et al., 2023). This optimism may stem from institutional support and a proactive approach to staff development, differing from more hesitant Western contexts (Wood & Evans, 2018). Still, concerns about privacy, ethical risks, and overreliance on tools like ChatGPT persisted, aligning with broader calls for responsible AI use (Dettman, 2024; Kalbande et al., 2024).

5.3 Theme 3: Threat to Research Integrity and Privacy Concerns

Participants were asked: "What are your concerns or reservations?"

"... worried about the student's dependence on this AI tools and also the research integrity..." ***[Participant J].***

"... can sense if it's privacy and security... this raises concerns about privacy and security..." ***[Participant F].***

"... AI's the diminishes the quality of the research or of the academic work..." ***[Participant G].***

Participants raised concerns about AI's impact on academic integrity, intellectual property, and privacy, citing risks such as plagiarism, over-reliance, declining research quality, and data insecurity (Nogueira, 2023; Johansen et al., 2024; Lo, 2023; Michalak, 2023). They emphasized the need for clear institutional policies to guide ethical use. These concerns suggest that the ethical dimension of AI literacy (Ng et al., 2021) is developing ahead of participants' conceptual understanding of AI, a strength on which AI literacy programmes can build. Their insights underscore the urgent need for ethical guidance, professional development, and institutional oversight in AI-enabled libraries (Mannheimer et al., 2024).

5.4 Integration with Technology Acceptance Model

This study reaffirms the explanatory power of Davis' (1989) TAM but also extends it to fit the specific context of AI within the PHEI libraries. Each of the thematic findings corresponds directly to core TAM constructs:

- **Theme 1 (Limited Understanding and Awareness of AI):** Participants' difficulty distinguishing automation from AI constrained both **Perceived Usefulness (PU)** and **Perceived Ease of Use (PEOU)**. If librarians cannot clearly conceptualize AI, they are less able to judge its utility or ease, which explains why PU and PEOU scores remain moderate despite optimism. This finding supports prior African studies that highlight awareness as a prerequisite for realistic technology evaluations (Ajani et al., 2022; Enakrire & Oladokun, 2023).
- **Theme 2 (Perceived Scope of AI Applications in Academic Libraries):** Here, librarians explicitly linked AI to efficiency, user satisfaction, and alignment with Ranganathan's laws, demonstrating high Perceived Usefulness. Their emphasis on AI as a tool to save time and enhance services directly maps to PU in TAM. Unlike other contexts where AI is seen as a threat, participants maintained positive attitudes, which strengthens the pathway from PU → Attitude Toward Use.
- **Theme 3 (Threat to Research Integrity and Privacy Concerns):** Ethical risks, data security issues, and policy gaps decreased **Perceived Ease of Use**, as librarians anticipated effortful adaptation, governance, and training requirements. In TAM terms, these factors lower PEOU and create barriers along the PEOU → Attitude pathway (Venkatesh & Davis, 2000).

5.5 Theoretical Contributions

This study extends TAM by identifying new factors influencing technology acceptance in professional library settings. It demonstrates that conceptual clarity about AI acts as a critical external variable shaping both usefulness and ease of use perceptions, and that professional identity and ethical responsibility moderate attitudes toward AI. By distinguishing AI awareness from AI literacy, it also positions awareness as the foundational layer of AI literacy operating as an external variable in TAM, bridging technology acceptance research and the AI literacy literature. Drawing on the three themes, the study proposes an AI Awareness–Literacy Acceptance Model for academic librarians (Figure 2). Each theme is translated into a model construct: Theme 1 (Limited Understanding and Awareness of AI) into Conceptual Clarity; Theme 2 (Perceived Scope of AI Applications in Academic Libraries) into Perceived Service Value of AI; and Theme 3 (Threat to Research Integrity and Privacy Concerns) into Ethical AI Literacy. Four propositions follow. P1: conceptual clarity enables accurate judgements of both PU and PEOU. P2: perceived service value, framed by Ranganathan's laws, raises PU. P3: ethical AI literacy, developing ahead of conceptual clarity, surfaces integrity and privacy concerns that lower PEOU. P4: institutional enablers, namely sequenced AI literacy training, ethical policy and data governance, and pilot projects, strengthen conceptual clarity and PEOU and move librarians from cautious acceptance towards adoption readiness. As the model derives from a single-institution qualitative study, these propositions should be tested in larger, multi-institutional studies.

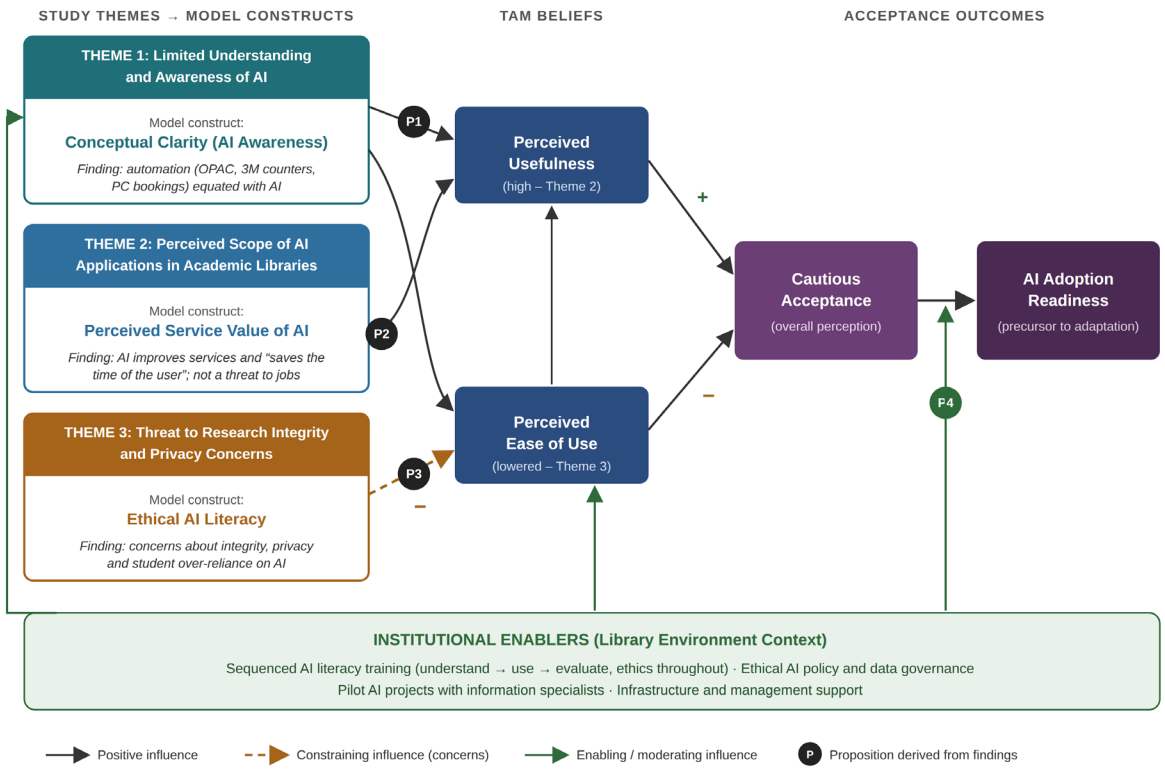

Figure 2: Proposed AI Awareness–Literacy Acceptance Model for academic librarians (Source: Author, derived from study findings)

6. Conclusion and Recommendations

6.1 Conclusion

This study explored AI awareness and perceptions among librarians at a South African private higher education institution, revealing cautious optimism alongside conceptual confusion and ethical concerns. The Technology Acceptance Model (TAM) helped explain how awareness shapes attitudes, with participants showing moderate perceived usefulness but low ease of use, leading to cautious acceptance contingent on support and training. The findings indicate that participants' AI awareness, the foundational layer of AI literacy, is still developing, while the ethical dimension of AI literacy is comparatively well established. These conclusions should be read in light of the limitations in Section 4.6.

6.2 Recommendations

Libraries should pilot AI projects with specialists to build staff confidence (Subaveerapandiyan et al., 2023). Institutions are encouraged to update privacy policies regularly and strengthen data protection measures to safeguard the rights of users and maintain trust (Abayomi et al., 2021). Structured education and awareness initiatives should be developed for both librarians and library users, aligning technological innovation with professional ethics and institutional values (Bakiri et al., 2024; Oyekale & Zubairu, 2023).

6.3 Practical Implications

The findings underscore an urgent need for foundational AI literacy among librarians. Institutions should provide training that distinguishes between automation and true AI technologies and demonstrates AI applications in cataloguing, information retrieval, and user support. Such programmes can be sequenced according to the dimensions of AI literacy (Long & Magerko, 2020; Ng et al., 2021): conceptual understanding first, then use and application, then critical evaluation of AI outputs, with ethical use addressed throughout.

6.4 Further Research

Future research should extend beyond a single institution. National and comparative studies of private and public higher education libraries would capture variation in AI awareness and readiness across South Africa, while longitudinal studies could track how librarians' perceptions and AI literacy evolve as AI becomes embedded in library services.

Ethical Clearance Statement: I hereby declare that ethical clearance for the research was obtained from the relevant ethics review committee. The study was approved under the following reference number: R.000161 [REC].

AI Declaration: This study acknowledges the use of AI tools to assist with language refinement, grammar correction, and content structuring.

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