SLR School Library Research
RESEARCH JOURNAL OF THE AMERICAN ASSOCIATION OF SCHOOL LIBRARIANS

Volume 29, 2026
ISSN: 2165-1019

Approved June 2026
www.ala.org/aasl/slr

School Librarians' AI Literacy, Readiness, and Professional Engagement with AI Technologies: An International Survey

Zakir Hossain, Teacher Librarian, United World College, Changshu, China, Visiting Researcher, Uttara University, Dhaka, Bangladesh

Corinne Hertel, International School of Zug and Luzern, Switzerland

Md. Sakib Biswas, Noakhali Science and Technology University, Bangladesh

Abstract

The accelerated integration of artificial intelligence (AI) across K–12 education necessitates that school librarians evolve into leaders in AI literacy. This international mixed-methods exploratory study surveyed 319 school librarians from over 50 countries between May 2024 and April 2025 to assess their AI literacy, confidence, and readiness. Quantitative findings revealed intermediate AI literacy, yet instructional confidence and readiness remained constrained, with strong correlations between AI familiarity, literacy, and confidence. Statistical analysis identified formal library and information science (LIS) educational qualification as the only demographic factor significantly predicting higher AI literacy. Qualitative thematic analysis of 121 open-ended responses indicated that limited readiness is driven by four structural barriers: institutional and policy constraints; educator attitudes and knowledge gaps; time, resource, and professional development limitations; and concerns about student misuse and academic integrity. The study offers preliminary support for the AI Leadership Framework (Hossain, 2025b) as a developmental model for professional growth, situating AI literacy within cognitive, behavioral, affective, and psychomotor domains. Findings highlight the urgent need for targeted LIS curriculum reform, institutional support, and professional development to empower school librarians to lead the preparation of future citizens for an AI-augmented world.

Introduction

The emergence of artificial intelligence (AI), particularly Generative AI (GenAI), is profoundly reshaping K–12 education. With the accelerated advancement and adoption of GenAI technologies, educational institutions are experiencing significant shifts in pedagogical approaches, resource curation, AI-powered platforms, and the competencies expected of students (Limna et al., 2022; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023a). International bodies such as UNESCO and the World Economic Forum have called for integrating AI competencies into national curricula to ensure that future citizens can not only use AI tools but also engage with them critically, ethically, and creatively (Milberg, 2024; UNESCO, 2023b). These developments indicate that AI literacy—the ability to identify, understand, evaluate, and responsibly apply AI technologies (Hossain, 2025a)—is becoming a core educational priority and a vital 21st-century skill (Voulgari et al., 2022).

Beyond technical proficiency, AI literacy encompasses cognitive and ethical dimensions such as contextual awareness, data integrity, transparency, and responsible use (UNESCO, 2023a; Voulgari et al., 2022). AI literacy can be viewed as an evolution of established information literacy paradigms within librarianship, extending traditional skills of locating, evaluating, and using information ethically into the context of algorithmic systems and machine-generated content. Scholars increasingly argue that cultivating such literacy promotes not only technological fluency but also critical agency and optimism toward AI's societal role (Hollands & Breazeal, 2024).

Within this evolving educational landscape, school librarians (also known as teacher-librarians and school library media specialists) are historical stewards of information literacy and uniquely positioned to lead AI literacy efforts. The importance of school librarians to student outcomes has been empirically established across multiple contexts. A recent study of over 3,000 first-year university students found that any level of high school library staffing significantly improved students' first-semester GPA and credits earned, with the effect surpassing that of other commonly cited predictors such as family income and gender (Cheby & Wimberley, 2026). These findings reinforce the critical role of school library professionals in preparing students for postsecondary success.

School librarians' expertise in fostering digital literacy, media literacy, academic integrity, and copyright literacy (Hossain, 2020; Merga, 2022; Wright et al., 2024) aligns with the demands of teaching AI citizenship and promoting ethical engagement with GenAI-generated content (Hossain, 2025a; Oddone et al., 2024). Yet as AI reshapes library operations—from cataloging to personalizing learning—librarians face a dual mandate: to adopt AI tools themselves and to guide students and teachers in navigating the ethical complexities of AI (International Federation of Library Associations and Institutions [IFLA], 2020; Softlink Education, 2024).

With libraries becoming increasingly reliant on AI and GenAI to deliver services and manage information, the role of AI-literate librarians will only become more important (Cox, 2023), with school librarians no exception. However, emerging research indicates that while librarians acknowledge AI's educational potential, many remain uncertain about their own readiness to integrate or teach it (Huang, 2024; Khan et al., 2025). In school library contexts, barriers such as

limited professional development, inconsistent institutional policy, and ethical ambiguity have been found to constrain effective AI adoption (Softlink Education, 2024; Wong & Chiu, 2025). These challenges highlight a pressing need to explore how school librarians perceive their AI literacy, confidence, and readiness, and how such perceptions shape their engagement with emerging AI tools—a conceptual lens through which to interpret the gaps identified in our findings.

Research Rationale

As GenAI becomes increasingly embedded in K–12 educational environments, the role of school librarians is undergoing a profound transformation (Oddone et al., 2024; Wong & Chiu, 2025). Scholars such as Hossain (2025a), Hutchinson (2024), and Yi et al. (2024) have highlighted the expanding responsibility of school librarians in fostering inquiry-based learning and cultivating essential competencies, such as information literacy, digital citizenship, AI literacy, and AI citizenship. Globally, professional bodies, including IFLA (Committee on Freedom of Access to Information and Freedom of Expression, 2020), the American Library Association (Center for the Future of Libraries, 2019), and the International Association of School Librarianship (IASL, 2025), have advocated for libraries to lead in promoting AI literacy, emphasizing their role in democratizing access to emerging technologies. Yet, despite growing policy momentum, the lived experiences and contextual challenges of school librarians in translating these visions into classroom or library practices remain largely underexplored, particularly across non-Western contexts.

As school librarians shift from a traditional focus on information literacy toward broader domains such as digital and media literacy (Bauld, 2023), AI literacy emerges as the next critical frontier. Milberg (2024) and Williams (2024) similarly argued that education systems must move beyond digital literacy and embrace AI literacy as a core educational priority. Building on this evolving mandate, Wright et al. (2023) and Dukic and Pestic (2025) observed that school librarians demonstrated adaptability and resilience during the COVID-19 pandemic, redefining their roles to meet shifting instructional demands and positioning themselves to thrive as K–12 learning environments continue to diversify. This adaptability provides a strong foundation for navigating the next wave of change driven by AI integration. However, as Hutchinson (2024) has cautioned, school librarians are required to overcome lingering reluctance and uncertainty surrounding AI adoption and position themselves as key facilitators in helping students and classroom teachers navigate AI's ethical, pedagogical, and technical complexities.

Despite the growing discourse on AI in education, few empirical studies have systematically examined how school librarians perceive and enact AI literacy across diverse international contexts. Most existing research remains localized or conceptual and has focused on higher education or policy-level frameworks rather than practitioner experiences in K–12 settings. This study, therefore, addresses a double gap: first, by providing empirical evidence on the current state of AI literacy, confidence, and readiness reported by school librarians; and second, by adopting a multi-continental comparative perspective that captures regional variations and global trends. Together, these descriptors position this mixed-methods study as one of the first to map the international landscape of AI literacy in school librarianship.

Understanding these aspects of AI use is essential for informing future professional development, policy, and curriculum design in K–12 education aimed at empowering school library professionals in the age of GenAI. Accordingly, this study seeks to address this gap by:

1. Exploring the current level of AI literacy among school librarians internationally, including their familiarity, confidence, and overall readiness to integrate AI and GenAI tools used in K–12 education.
2. Understanding the extent and nature of school librarians' engagement with AI technologies in professional practice, including instructional, administrative, and library management contexts.
3. Investigating differences in AI literacy and engagement across demographic and contextual factors such as region, gender, educational background, school type, and professional experience.
4. Ascertaining the key challenges and barriers that limit AI readiness and integration in K–12 schools.

These purposes collectively guided the study's mixed-methods design and subsequent interpretation of results, bridging quantitative measures of literacy and readiness with qualitative insights into the participating school librarians' professional experiences, challenges, and aspirations.

Literature Review

The rapid advancement of GenAI tools such as ChatGPT has reshaped pedagogical practices, resource accessibility, and learning paradigms in K–12 education (Limna et al., 2022). A growing number of international organizations, including UNESCO (2023b), have called for the integration of AI literacy skills into national curricula. This focus aligns with the World Economic Forum's advocacy for embedding AI in education to develop a workforce capable of critically engaging with emerging technologies (Milberg, 2024). Similarly, in 2025, the Organisation for Economic Co-Operation and Development announced plans to include Media and Artificial Intelligence Literacy (MAIL) in the Programme for International Student Assessment (PISA) starting in 2029, signaling a growing recognition of AI proficiency as an essential global competence.

Emerging research highlights the urgency of embedding AI literacy within educational ecosystems. Hornberger et al. (2023) and Milberg (2024) noted that students, many of whom already interact with AI tools regularly, anticipated that AI will play a central role in their future careers. Williams (2024) described AI literacy as a foundational skill across all levels of education. Echoing this, Hossain (2025a) has advocated for cultivating critical AI literacy and AI citizenship, encouraging students to engage critically, ethically, and responsibly with AI technologies.

Studies have also reported that the effectiveness of AI integration in schools depends heavily on teachers' readiness and competencies. Khazanchi and Khazanchi (2025) emphasized that teachers must develop AI competencies to foster 21st-century skills and model responsible AI engagement. Yet persistent barriers remain. Su et al. (2023) reported significant gaps in teachers'

AI knowledge, limitations in curriculum design, and the absence of pedagogical guidelines. Northeastern University and Gallup (2019) found that many educators lack the conceptual understanding needed to teach with or about AI. These findings underscore the necessity of professional development and institutional support to empower educators as facilitators of AI literacy.

Global Policy Frameworks and AI Literacy Integration

In response to the growing influence of GenAI, governments and international organizations have introduced policies and frameworks to enhance citizens' AI literacy and ensure its ethical use. As of September 2025, 70 countries had released national AI policies or strategies (OECD.AI Policy Navigator, 2021; 2025). These initiatives have acknowledged AI's benefits while establishing regulations to safeguard ethical use, privacy, and equity. Notably, UNESCO (2023b) developed AI competence frameworks for teachers and students, and the European Commission (2024) introduced the first comprehensive legal framework for AI.

Several countries, including China, Finland, Portugal, Singapore, and the United Arab Emirates (UAE), have formally embedded AI literacy into their K–12 curricula (UNESCO, 2022). Australia launched the Australian Framework for Generative AI in Schools to guide responsible use (Department of Education, 2023). Beginning in the 2025–2026 academic year, the UAE will make AI literacy compulsory across K–12 (McFarland, 2025). These developments illustrate that AI literacy extends beyond technical competence to include civic, ethical, and cultural dimensions central to educational equity and innovation. When guided by ethical frameworks, AI integration can promote learner-centered pedagogy, critical thinking, and inclusivity (Hossain, 2025a; Luckin et al., 2022; UNESCO, 2023b).

AI Adoption in Libraries

Libraries and librarians have traditionally been early adopters of emerging technologies to enhance knowledge access, information curation, and user engagement. Librarians, as experts in information literacy instruction, have also served as longstanding advocates for ethical information practices, responsible research, and the critical use of technological tools (Association of College & Research Libraries [ACRL], 2025). In recent years, contemporary library systems have increasingly integrated AI to streamline operations, enhance personalization, and improve overall user experience (Cox, 2023; Goodchild et al., 2024). AI-driven applications now facilitate cataloging, content recommendation, language translation, and user analytics, contributing to greater efficiency and inclusivity within library environments (Adewojo et al., 2025; Kalbande et al., 2024).

At a broad level, global surveys indicate a cautious yet growing embrace of AI. Elsevier's international survey of librarians' attitudes toward AI (Goodchild et al., 2024) found conversational AI tools (e.g., ChatGPT) to be the most frequently used forms of AI in professional practice. While respondents to the Elsevier survey valued these tools for improving productivity and creativity, concerns were expressed regarding training, institutional policy, and ethical standards. This balance between innovation and stewardship places librarians at the intersection of digital transformation and professional responsibility, underscoring that

successful adoption hinges on advanced AI literacy among LIS professionals (Cox, 2023; Goodchild et al., 2024).

Recent regional studies echo these global dynamics. A survey of 317 library professionals across specializations in South Asia, namely Bangladesh, India, and Pakistan—and the Middle East, specifically Saudi Arabia, Qatar, and the United Arab Emirates—revealed strong conceptual understanding of AI but limited behavioral competence in practical application. This gap highlights the urgent need for curriculum reform and hands-on professional development (Khan et al., 2025). Similarly, Mutia et al. (2024) compared Malaysian and Indonesian librarians' perceptions of AI's role in supporting learning experiences, lifelong learning, and digital literacy. Their findings revealed a shared optimism regarding AI's sustainable contribution to educational growth, further reinforcing the importance of capacity building, policy support, and sustained professional development to ensure equitable and ethical AI integration in library practice. A study conducted in the United States found that university library administrators agreed on the need for postsecondary institutions to address ethical and privacy issues related to AI (Lo, 2024). These findings suggest that AI raises ethical concerns affecting areas such as academic integrity, student assessment, critical thinking, and traditional teaching practices across libraries in higher education.

AI Adoption and Literacy Among School Library Professionals

Within K–12 education, school library professionals are uniquely positioned to translate AI policy aspirations into practice. Their expertise in fostering digital, media, and information literacies naturally aligns with the broader aims of AI literacy and ethical technology use (Merga, 2022; Oddone et al., 2024). Recent practitioner reports and case studies have shown that school librarians actively explore AI integration in their daily work. The 2023 Australian School Library Survey revealed that many school librarians are experimenting with generative AI for administrative and instructional purposes, using tools like ChatGPT to automate communications, design lessons, and introduce AI-related content into digital literacy instruction (Softlink Education, 2024). In the United States, Bauld (2023) described a school librarian who utilized ChatGPT to generate book recommendations and teaching prompts while navigating the challenges of factual accuracy and bias.

Practical guidance for AI integration in school libraries is gradually emerging. Beyond conceptual discussions, several practitioners and researchers have begun documenting concrete models of implementation. Seales (2025) has offered strategies for embedding AI tools responsibly into library services and classroom collaboration, emphasizing policy alignment, ethical safeguards, and equitable access. Building on this, Wong and Chiu (2025) have presented an empirical case study of an international school library that incorporated a structured AI-literacy program into its information-skills curriculum. Through inquiry-based learning, students explored both the capabilities and ethical implications of generative AI, illustrating how librarians can scaffold critical understanding rather than merely introducing new technologies. In another illustration, a Qatar-based international school librarian described developing a "Centaur Librarianship" model, using ChatGPT to streamline shelf-to-spreadsheet inventory tasks and demonstrating a productive human/AI partnership ("human-in-the-loop") in library collection management (McKim, 2025).

These examples highlight a global shift from conceptual advocacy toward practical experimentation, showing how school librarians can serve as critical AI literacy facilitators, ethical mediators, and innovators in AI integration. They recognize AI's potential to transform information services, pedagogy, and resource management, while also highlighting enduring challenges, such as limited professional development, inconsistent institutional support, and ethical uncertainties. These challenges mirror broader educational trends, where enthusiasm for AI often outpaces institutional readiness (Su et al., 2023). Therefore, strengthening AI literacy among school librarians is critical for ensuring that K–12 schools can cultivate students who think critically, act responsibly, and engage confidently in an AI-augmented world.

Against this backdrop, our study explored school librarians' perceptions of their own AI literacy, engagement, and readiness across global contexts, focusing on their familiarity with AI tools, confidence in instructional integration, professional development needs, and ethical concerns related to academic integrity, privacy, and trust. Addressing the gap between potential and effective implementation is essential for developing evidence-based professional learning models and institutional frameworks that position school librarians as leaders in AI literacy education. Guided by the AI Leadership Framework (Hossain, 2025b) shown in Figure 3, the study interprets patterns of familiarity, confidence, and institutional support through a developmental lens of professional growth. The following section outlines the mixed-methods exploratory design adopted to investigate these relationships.

Methods

This study adopted a mixed-methods exploratory design to investigate school librarians' AI literacy, readiness, and professional engagement with AI technologies across global contexts as well as identify the key challenges and barriers that limit AI readiness and integration in K–12 schools.

Mixed-methods research integrates quantitative and qualitative data to provide a comprehensive understanding of complex educational phenomena (Creswell & Creswell, 2017). The exploratory design was deemed suitable due to the novelty of the topic and the lack of established frameworks addressing AI literacy among school librarians, allowing us to examine emerging patterns and relationships in a flexible, data-driven manner. This approach enabled the identification of contextual nuances and developmental trends in an area that has not yet been extensively theorized (Stebbins, 2001; Stewart, 2025).

Survey Instrument Development and Pilot Testing

Design of the questionnaire was informed by an extensive literature review, expert feedback from the pilot survey, and our professional experience in school librarianship and library and information science (LIS) educational research. The authors listed first and second bring extensive backgrounds in K–12 education and school library practice across diverse global contexts, which contributed to the development of contextually relevant and globally applicable survey items. The questionnaire employed both closed-ended—Likert scales, checkboxes, multiple-choice—and open-ended questions to capture nuanced responses from school librarians.

A pilot study was conducted with 12 school librarians: nine from international schools in Europe (Croatia, the Netherlands, Switzerland) and Asia (Malaysia, Singapore), two from private schools in Cambodia and the United Arab Emirates, and one from a public school in the United States, as well as one LIS faculty member based in Nigeria. Pilot feedback led to several refinements, including the clarification of key terms such as "AI familiarity," defined as general awareness or recognition of AI technologies, and "AI literacy," defined as a deeper understanding of AI principles, implications, and the ethical application of AI tools. All relevant terms, study objectives, and data privacy protocols were clearly defined for participants within the survey.

The survey was administered in English only, as English serves as the primary professional language for international school librarianship and is widely used in LIS professional communication globally. The questionnaire comprised 38 closed-ended items organized across four thematic sections, plus one open-ended question, and took approximately 10–12 minutes to complete. In addition to demographics and background information, the survey questions were organized into four thematic sections corresponding to the learning domains described below: AI Familiarity and Literacy (cognitive domain), Application and Usage of AI Tools (behavioral domain), Instructional Confidence and Readiness (affective domain), and Instructional Practice (psychomotor and behavioral domains). An additional section on Perceived Challenges included open-ended questions.

I. **AI Familiarity and Literacy (cognitive domain):** Participants self-rated their AI literacy and familiarity using 5-point Likert scales. Multiple-choice items were included to gather information about respondents' familiarity with specific AI tools, their purposes for using AI, and their self-identified competencies, providing behavioral indicators that contextualize their self-rated literacy levels.
II. **Application and Usage of AI Tools (behavioral domain):** This section examined participants' personal and professional use of specific AI tools (e.g., ChatGPT, Bard (now Gemini), Bing's (now Microsoft Copilot) chatbot), gathering data about the frequency and purposes of AI use in their professional practice. These questions captured self-reported behavioral patterns (i.e., actions taken) rather than merely attitudes or knowledge, allowing us to understand how AI awareness translates into concrete professional practices.
III. **Instructional Confidence and Readiness (affective domain):** Scaled items measured participants' perceived confidence and readiness to explain AI concepts to students or colleagues. Questions were also asked about values, motivation, and self-efficacy.
IV. **Instructional Practice (psychomotor and behavioral domains):** This section explored how participants incorporate AI into information literacy instruction and other standard library practices. The questions were designed to gather data about both action-oriented implementation and pedagogical engagement.
V. **Perceived Challenges (cognitive and affective domains):** An open-ended question elicited reflections on institutional, pedagogical, and ethical barriers to enhancing AI literacy in K–12 schools. Responses were analyzed thematically to identify common cognitive insights and affective responses.

Participants and Data Collection

The online survey was conducted over an extended period, initially from May through November 2024 (n = 316), to accommodate participant availability across global regions and enhance response diversity. A further nine responses were collected between January and April 2025 from school librarians in the Netherlands, following the first author's keynote presentation at the Dutch International Secondary Schools' School Librarian Conference at International School Almere. This flexible, staggered approach enabled us to reach a broader and more geographically diverse group of participants, including those in underrepresented K-12 educational contexts within the existing AI-in-education literature, such as Dutch school librarians. The questionnaire was disseminated globally through multiple channels, including:

- Online discussion lists and boards of IASL and the IFLA School Libraries Section.
- National and regional school library associations and organizations in Australia, Croatia, Hong Kong, Portugal, the UK and the USA.
- Social media platforms such as X (formerly Twitter), Facebook, and LinkedIn.
- Professional networks of the research team.

Participation was voluntary and open to practicing school librarians, teacher-librarians, and library media specialists. No formal sampling frame was employed; instead, a purposive convenience approach was used to reach diverse global respondents who met specific criteria. Eligible participants were required to: (1) be currently practicing as a school librarian, teacher-librarian, or library media specialist in a K–12 setting; (2) complete at least 80% of the survey items; and (3) provide meaningful responses (i.e., not obviously nonsensical or duplicate entries). These criteria ensured that the final sample comprised actively practicing professionals capable of meaningfully reporting on their AI literacy and engagement in school library contexts.

A total of 326 submissions were received from over 50 countries. After excluding two responses from university librarians, one from an LIS faculty member, and three incomplete responses, the final analytic sample comprised 319 valid responses from practicing school librarians. Notable response numbers included the United States (71), India (42), Portugal (35), and Australia (34); with additional significant contributions from Canada, Switzerland, and the United Kingdom (14 each); New Zealand (10); the Netherlands (9); Germany (8); and Hong Kong and Hungary (6 each). Responses from all other countries were fewer than five each, collectively representing an additional 30+ countries. In this study, we grouped countries by continent as shown in Table 1. Respondents represented diverse genders, educational qualifications, years of experience, grade level (divisional) responsibilities (e.g., primary, middle, and high school), and institutional contexts, including public, private, and international school systems.

Data Analysis

In this study, quantitative and qualitative data were analyzed to provide a comprehensive insight into school librarians' AI literacy, readiness, and engagement, as well as challenges affecting their integration and promotion of AI literacy in their schools.

The quantitative data were analyzed using IBM SPSS Statistics software and Google Sheets, with visualizations produced in Flourish Studio. Descriptive statistics, including frequencies and percentages, were used to summarize the distribution of responses across demographic variables and to identify emerging trends. To explore relationships and differences between variables, inferential statistical tests, including an Analysis of Variance (ANOVA), were conducted. The ANOVA examined whether respondents' self-reported AI literacy levels significantly differed based on demographic factors such as continent, gender, grade level responsibility, school type, education, and years of experience.

Open-ended responses were analyzed using thematic analysis to capture participants' perceptions, challenges, and insights growing out of their own experiences. For the qualitative analysis, responses were considered valid if they: (1) addressed the question substantively (i.e., provided a meaningful description of a challenge rather than comments such as 'no' or 'N/A'), (2) were not identical duplicates from the same participant, and (3) did not appear to be generated by AI (e.g., generic text not addressing the specific question context). Of the 319 total respondents, 121 responded meeting these criteria.

To assist with the coding process, we used ChatGPT (OpenAI, 2025) as an AI-supported analysis tool. Following emerging scholarship on the use of GenAI in qualitative research (Lee et al., 2024; Naeem et al., 2025), ChatGPT was prompted with anonymized response sets to suggest preliminary clusters of ideas. Following Braun and Clarke's (2006) six-phase approach to thematic analysis, we then critically reviewed, refined, and validated these AI-generated clusters. In this process, ChatGPT functioned as an assistant coder, supporting the identification of initial patterns while we ensured interpretive accuracy and thematic coherence.

This mixed-methods approach enabled the integration of statistical and emergent thematic findings, offering a holistic view of school librarians' engagement with AI technologies around the world. The emergent themes were organized under four broad categories aligned with the study's objectives. The AI Leadership Framework (shown in Figure 3) was not used at this point to predetermine codes but was later employed to interpret the emergent themes and contextualize reported developmental patterns of AI engagement among school librarians.

Ethical Considerations

The study was conducted in full alignment with the principles outlined in the *European Code of Conduct for Research Integrity* (All European Academies, 2023). We adhered to core ethical standards, including voluntary participation, informed consent, anonymity, and maintaining the confidentiality of respondents' data. Participants were informed about the purpose of the research, data usage policies, confidentiality measures, and their right to withdraw at any stage. These measures ensured transparency, respect for participants' autonomy, and the responsible handling of all collected data.

We acknowledge the use of two GenAI tools, ChatGPT-4.1 (free version) and DeepSeek (V3.1), to assist with language refinement and reference consistency checking. However, we affirm that all the ideas and interpretations presented here are entirely our own.

The tools were prompted as follows:

> "Read the attached article critically and analytically. Please check clarity and flow, readability, grammar and mechanics, structure and transitions, academic style, and conciseness."

> "Act as a citation checker. Please verify in-text citations and reference list consistency according to APA 7th edition, and highlight any discrepancies."

Findings

The demographic profile of the 319 school librarians presented in Table 1 reflected a diverse and globally distributed sample, with the majority based in Europe (33.2%) and North America (27.6%), followed by Asia (21.9%) and Oceania (14.1%). Gender distribution was heavily skewed, with females comprising 85.6% of respondents, aligning with known trends in school librarianship, while male representation remained low (11.9%). Grade-level responsibilities were well balanced across educational stages, with the highest proportions of school librarians working in K–8 (24.8%) and high school (24.8%) settings, and a notable 21.9% covering both middle and high school (Grades 6–12), followed by 19.7% responsible for whole school settings (K–12). Over half of the respondents (53%) were employed in public schools, with 21.9% in international schools, and 18.2% in private schools, representing varied institutional contexts. In terms of qualifications, nearly half of the participants (46.1%) held a master's degree in LIS, 21.0% possessed a postgraduate certificate or diploma in LIS, and an almost equal—and notable—minority (19.5%) lacked formal credentials, reflecting a broad spectrum of academic preparation. The participants' professional experience was quite evenly distributed, with nearly equal representation across the different ranges of years of experience, particularly among those with 1–5 (20.7%), 6–10 (21.3%), and 11–15 (20.7%) years of service. This demographic spread enhances the study's generalizability and provides rich insight into the AI literacy, readiness, and engagement of a broad cross section of school librarians globally.

Table 1

Demographic Profile of the Respondent School Librarians (n = 319)

Variables	Labels/Categories	Frequency (*n*)	Percentage (%)
Continent	Africa	7	2.2
	Asia	70	21.9
	Europe	106	33.2
	North America	88	27.6
	South America	3	0.9
	Oceania	45	14.1
Gender	Female	273	85.6
	Male	38	11.9

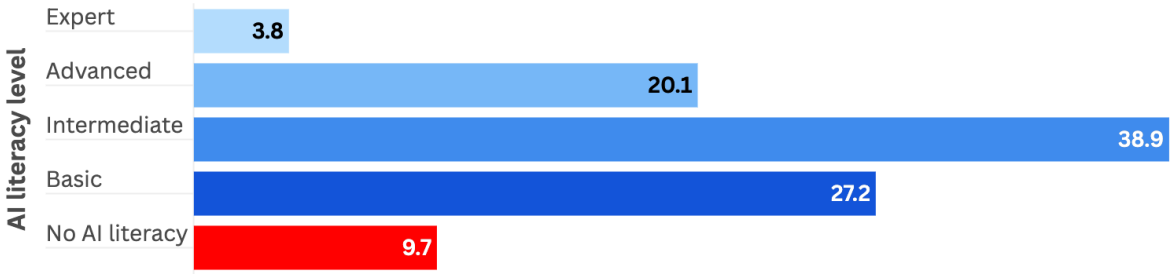
Variables	Labels/Categories	Frequency (*n*)	Percentage (%)
	Prefer not to say	8	2.5
Grade-Level Responsibility	Primary/Elementary & Middle School (K–8)	79	24.8
	Middle School (6-8)	28	8.8
	High School (9-12)	79	24.8
	Secondary (Middle & High School)	70	21.9
	Whole School (K–12)	63	19.7
School Type	International School	70	21.9
	Private School (local/national curriculum)	58	18.2
	Public School (government/state-funded)	169	53.0
	Other	22	6.9
Education	Library Technician Diploma	14	4.4
	Bachelor's in LIS	23	7.2
	Postgraduate Certificate/Diploma in LIS	67	21.0
	Master's in LIS	147	46.1
	PhD in LIS	6	1.9
	No formal LIS qualification or degree in education	62	19.5
Experience	1–5 years	64	20.1
	6–10 years	68	21.3
	11–15 years	66	20.7
	16–20 years	52	16.3
	21–25 years	34	10.7
	More than 25 years	35	11.0

AI Literacy of School Librarians

Figure 1 illustrates the self-reported AI literacy levels of school librarians, highlighting a spectrum of competencies across the profession. The largest proportion of respondents (38.9%) identified as having an intermediate level of AI literacy, indicating a moderate understanding of navigating AI tools and capacity for AI literacy instruction. Over one-quarter (27.2%) reported a basic level of literacy, suggesting foundational awareness but limited application capabilities. Notably, 20.1% of school librarians considered themselves to have advanced AI literacy, reflecting strong engagement and comprehension, while only 3.8% identified as experts, indicating a scarcity of high-level proficiency in the field. Surprisingly, 9.7% of respondents reported having no AI literacy at all. These figures suggest that while a significant portion of school librarians are beginning to engage meaningfully with AI, there remains a critical need for targeted professional development to raise overall competencies and support ethical, informed integration of AI in K–12 schools' information and/or digital literacy curricula.

Figure 1

School Librarians' Self-Rated AI Literacy (n = 319)



School Librarians' AI Literacy Based on Demographic Variables

The ANOVA test results in Table 2 can be used to assess whether school librarians' reported AI literacy levels differed significantly across various demographic variables. Of the six variables examined: location (by continent), gender, grade level responsibility, school type, education, and experience, only educational qualification demonstrated a statistically significant effect on AI literacy levels ($F = 2.715$, $p = 0.007$). This finding indicates that the level of formal education, particularly in LIS or related fields, is a critical determinant of AI literacy among people serving as school librarians. Considering this outcome, it is noted with some trepidation that Table 1 shows almost one-fifth of respondents do not have a formal qualification in librarianship or education.

Although the grade-level responsibility approached significance ($p = 0.056$), suggesting potential differences based on the grade levels served (e.g., K–8 vs. high school), it did not reach the conventional threshold for statistical significance. Other variables (continent, gender, school type, and years of experience) showed no statistically significant differences, indicating that these factors may not substantially influence AI literacy levels in this sample.

Table 2

ANOVA Test on AI Literacy Based on Demographics.

Variables	SS	*df*	MS	*F*	Sig.
Continent	1.871	4	0.468	0.274	0.894
Gender	4.873	3	1.624	1.666	0.174
Grade-level resp.	10.522	5	2.104	2.185	0.056
School type	3.811	4	0.953	0.971	0.424
Education	20.425	8	2.553	2.715	0.007**
Experience	6.990	6	1.165	1.192	0.310

Note. SS: Sum of Squares, *df*: Degree of Freedom, MS: Mean Square, *F*: Mixed Design, Sig.: Significance Level **($p \leq 0.01$).

School Librarians' Conceptual and Pedagogical AI Competencies

Table 3 reveals a notable gap between school librarians' conceptual understanding of AI and their instructional competencies. While approximately 70% of respondents demonstrated awareness of AI's real-world applications and ethical considerations, the proportion reporting applied teaching competencies was substantially lower. Fewer than half felt capable of teaching students how to use AI tools (45.5%), identifying AI-related biases (45.6%), or guiding ethical AI-supported research (45.0%). Technical competencies were even weaker, with only around 30% able to identify AI-embedded software or evaluate AI-powered educational tools. These findings suggest that while conceptual awareness is relatively strong, significant professional development gaps remain in translating knowledge into pedagogical practice.

Table 3

School Librarians' Conceptual and Pedagogical AI Competencies

Competencies	Frequency (*n*)	Percentage (%)	Percent of Cases (%)
I can discuss the ethical considerations related to AI.	224	20.0	70.4
I can explain how AI is used in real-world applications.	223	19.9	70.1
I can teach students about AI tools and how to use them.	151	13.5	45.5
I can identify AI-related biases and discuss their implications.	145	13.0	45.6
I can guide students in ethically conducting research projects using AI tools.	143	12.8	45.0
I can identify if a software or digital tool uses AI technology.	100	8.9	31.4
I can evaluate AI-powered educational tools for their effectiveness and ethical considerations.	92	8.2	28.9
None of the above	41	3.7	12.9

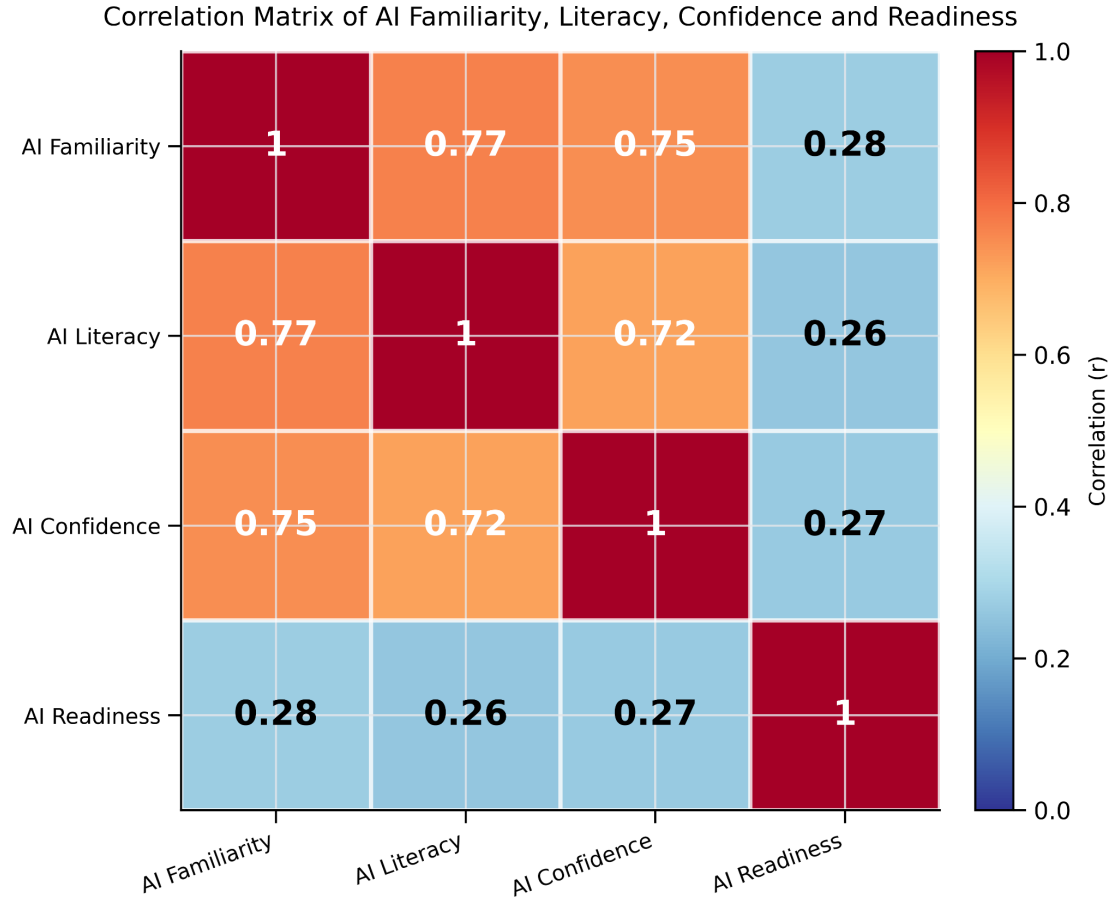
Note: n = 319; multiple responses allowed.

School Librarians' Consolidated AI Competencies

The correlation analysis illustrated in Figure 2 revealed strong, statistically significant relationships between reported AI familiarity, AI literacy, AI confidence, and AI readiness among participating school librarians, indicating that increased exposure to AI tools is closely associated with higher conceptual understanding and confidence in using AI ($r = .75$ to $.77$, $p < .01$). AI readiness demonstrated moderate but significant correlations with each of the other variables ($r = .26$ to $.27$, $p < .01$), suggesting that readiness is a multifaceted construct influenced by familiarity, knowledge, and affective disposition.

Figure 2

Correlation Matrix of AI Familiarity, AI Literacy, AI Confidence and AI Readiness



Note: ** p < .01, * p < .05

School Librarians' AI Engagement

Analysis of the data relating to school librarians' own engagement with AI revealed varying levels of engagement and purposes for use.

AI Tools in Professional Practice

The data in Table 4 reveal that school librarians reported varied levels of engagement with various AI tools in their professional practice. ChatGPT emerged as the most frequently used tool, with 66.8% of respondents reporting use, indicating strong familiarity and confidence in conversational AI for information retrieval, content creation, or instruction. Other tools, such as Copilot (19.4%), Perplexity AI (16.0%), and Gemini (12.9%), showed moderate use, reflecting a growing interest in generative search and assistant platforms. However, research-focused tools

such as Connected Papers, Elicit, and ResearchRabbit were used by fewer than 7% of respondents. Notably, 18.5% of participating school librarians reported not using any AI tools.

Table 4

AI Tools School Librarians Use at Work

AI tools	Frequency (n)	Percentage (%)	Percent of Cases (%)
ChatGPT	213	38.4	66.8
Other	63	11.4	19.7
Copilot	62	11.2	19.4
None	59	10.6	18.5
Perplexity AI	51	9.2	16.0
Gemini	41	7.4	12.9
Elicit	19	3.4	6.0
Quillbot	19	3.4	6.0
ResearchRabbit	14	2.5	4.4
Connected Papers	7	1.3	2.2
WriteWise	3	0.5	0.9
Jasper	1	0.2	0.3
Scholarcy	1	0.2	0.3
Sourcely	1	0.2	0.3

Note: n = 319; multiple responses allowed.

Reasons for Using AI Tools in School Librarianship

Table 5 shows that school librarians' use of AI tools is concentrated primarily on student-facing instructional activities. The most frequently reported applications were integrating AI into information literacy lessons (30.7%), assisting students with information retrieval (30.4%), exploring AI to stay current with technological advancements (30.1%), and creating digital content (29.5%). Research support (28.6%) and library event planning (24.1%) were also commonly reported.

In contrast, operational applications of AI were less frequently reported. Only 9.7% of respondents used AI for cataloging and organization, and 8.8% employed AI to analyze library usage data. Personalized reading recommendations (19.4%), collaboration with teachers (17.9%), and accessibility enhancements (15.0%) also showed modest engagement. Notably, 17.6% of respondents reported not using AI tools at all.

Table 5

Reasons for AI Tools Usage in School Librarianship

Statements	Frequency (n)	Percentage (%)	Percent of Cases (%)
I integrate AI tools into information and digital literacy lessons.	98	10.8	30.7
I use AI tools to assist students with information retrieval and finding related sources.	97	10.7	30.4
I explore AI tools to keep up with technological advancements in librarianship.	96	10.6	30.1
I use AI tools to create engaging digital content and resources for the library.	94	10.4	29.5
I use AI tools to assist students with research projects and assignments.	85	9.4	28.6
I use AI to assist with library event planning and promotion.	77	8.5	24.1
I use AI tools to develop personalized reading recommendations for students.	62	6.8	19.4
I use AI tools to support collaboration and communication with teachers.	57	6.3	17.9
None/I do not use AI tools.	56	6.2	17.6
I incorporate AI tools in library programs and workshops for students.	53	5.8	16.6
I am exploring AI applications to enhance library accessibility for students with special needs.	48	5.3	15.0
I use AI tools to enhance library cataloging and organization.	31	3.4	9.7
I use AI tools to analyze library usage data and improve services.	28	3.1	8.8
Other	24	2.6	7.5

Note: n = 319; multiple responses allowed

Integration of AI Literacy When Teaching in the Library

Table 6 shows that 45.2% of school librarians participating in the study had integrated AI literacy into their information literacy/library curriculum to some degree, though only 10.7% did so "extensively" or "to a great deal." A significant proportion (34.5%) had engaged minimally ("to some extent"), while 26% planned to adopt AI literacy but had not yet done so. Nearly a quarter (24.8%) had not incorporated AI literacy into their instruction at all, and 4.1% reported lacking familiarity with AI tools and rejected their use entirely. The data highlight a disparity between intent and action, with most school librarians remaining in early or inactive stages of integrating AI literacy into their existing information literacy, digital literacy, or library curriculum/lessons, depending on which model each school follows. From our perspective, this disparity between intention and implementation reflects the systemic challenges reported in the

qualitative findings. Institutional constraints, insufficient training, and competing responsibilities reportedly limited school librarians' capacity to embed AI literacy meaningfully within existing curricula.

Table 6

AI Literacy Integration Into Information Literacy/Library Instruction

Variables	Frequency (n)	Percentage (%)
Yes, extensively	12	3.8
Yes, to a great deal	22	6.9
Yes, to some extent	110	34.5
No, but I plan to	83	26.0
No, I have not	79	24.8
I am not familiar with AI tools and do not plan to teach or use them	13	4.1

Note: n = 319.

Qualitative Insights: Challenges to Promote and/or Integrate AI Literacy (n = 121)

Participants were asked: "Are there any challenges you have encountered when trying to enhance AI literacy among students or colleagues in your context? If yes, please describe." During the qualitative thematic analysis of their answers, four major themes emerged from 121 (38%, n=319) valid responses (criteria mentioned in methodology):

i) institutional and policy constraints,
ii) educator attitudes and knowledge gaps,
iii) time, resources, and professional development needs, and
iv) concerns about student misuse and academic integrity.

Institutional and Policy Barriers Constraints

A substantial number of respondents reported systemic limitations, including a lack of official AI policies, unclear directives, and administrative resistance. Some schools have banned student use of AI or restricted access to tools due to privacy concerns or regulatory requirements. For example, one response was, "My school district doesn't want us teaching about it until the senior admin team decides what they want to do about AI … they are still refusing to let it be taught or explored."

Respondents also mentioned slow or inconsistent policy development, blocking of AI platforms by district IT administrators, and fear of legal or ethical implications, which collectively hindered school-wide AI integration. A typical response was, "Our school is still figuring out its policies and procedures when it comes to AI. Without having these in place, there has been inconsistent use and messaging for and from staff."

These comments vividly illustrate why AI readiness remains stifled, despite moderate familiarity and curiosity, particularly among librarians working in public schools or regions where AI policy is underdeveloped.

Educator Attitudes and Knowledge Gaps

Many school librarians described a culture of skepticism, fear, or resistance among teaching colleagues. According to school librarians, some classroom teachers view AI solely as a cheating tool and prefer punitive measures to instructional support. A representative response was, "Most staff still view AI as something the students cheat with … Teachers of Digital Technologies are more on board with using it." Other respondents said that they avoid the topic altogether, fearing that discussion may encourage misuse. For example, one reported, "Many educators are in the 'gotcha' mindset … Reality is that educators need to embrace AI in their teaching and alter their age-old assignments."

This mistrust is often compounded by a lack of training and the inability to pedagogically integrate new tools/platforms, or a perception that AI literacy falls outside the school librarian's teaching responsibilities (e.g., 4.1% of participants selected the response: "I am not familiar with AI tools and do not plan to teach or use them"). This finding aligns with the relatively low percentages (around 13%–20%) of respondents who felt confident teaching AI or discussing its ethical implications (see Table 3). The quantitative findings underscore that even among tech-savvy educators, AI integration remains pedagogically underdeveloped, or many school librarians have not been provided with time or training to embed AI into their teaching.

Time, Resources and Professional Development Needs

Respondents repeatedly cited limited time, lack of instructional materials, and minimal training opportunities as critical barriers. Many noted being part-time or overburdened, with little capacity to explore new tools or conduct workshops. One said, "Time. I don't have enough time to reach all students and staff and continue to explore new AI tools." While interest in AI literacy is growing, school librarians reported that they struggle to prioritize its integration amid competing responsibilities, staffing constraints, or a lack of district-level support. Another respondent said, "My school is not ready and has not taken the time to teach staff about AI … PD on AI would be amazing." Similarly, another survey participant reported, "State laws regarding student data privacy limit access to use of approved apps, staff is [are] nervous about being the first to use with students but will use AI apps personally to create lesson content."

These responses directly align with moderate correlations observed in the quantitative data between AI familiarity and confidence ($r = .749$), suggesting that professional development could help build competencies, but that structural constraints may be limiting adoption.

Concerns About Student Misuse and Academic Integrity

Several school librarians in the study highlighted the difficulty of managing academic integrity in the age of AI, with students frequently using AI tools to complete assignments with minimal oversight. One said, "Students always overuse and misuse AI-related tools … It has been much

more challenging for teachers to maintain academic integrity." Another lamented, "Despite clear explanations … middle school students copy/paste without acknowledging the AI tool." Another participant shared, "The problem with teaching 'ethical use' of AI is that the students who we are trying to educate SIMPLY DO NOT CARE ABOUT ETHICAL USE ...". In addition, a third participant expressed concern, saying: "The biggest challenge is that they really just want to play with the tools; they don't fully understand the big picture or ethical concerns, which I think is critical."

This theme complements the low self-reported ability to evaluate AI tools and guide ethical research practices (Table 3: ~8%–13%), reinforcing a need for both pedagogical strategies and institutional support. Other studies have revealed that many educators struggle to identify AI-generated content, creating tension between enforcement and instruction. Others have noted a lack of student understanding about responsible AI use, calling for structured digital and AI citizenship education that emphasizes critical thinking, ethical considerations, and authenticity (Hossain, 2025a; Merga, 2022).

Discussion and Implications

This study presents one of the first large-scale, multi-continental examinations of school library professionals' AI literacy, readiness, and engagement with AI tools, shedding light on the evolving role of school librarians in an increasingly AI-integrated K–12 educational landscape. The findings reveal that while many school librarians demonstrate moderate familiarity and confidence in using AI tools, especially widely accessible platforms such as ChatGPT, their readiness to implement AI in teaching remains limited. This readiness gap echoes concerns expressed in prior literature (Huang, 2024; Kagolya & Chepchirchir, 2024; Wong & Chiu, 2025) and reinforces the claim that technical awareness does not necessarily translate into pedagogical integration or leadership in AI literacy. As Hossain (2025b) and Oddone et al. (2024) have asserted, the shift from digital to AI literacy requires not only awareness but also structured professional support and leadership cultivation.

The strong correlations between AI familiarity, literacy, and confidence suggest that school librarians with greater hands-on exposure to AI tools are more likely to develop both conceptual understanding and self-assurance in applying AI in their professional roles. This pattern aligns with Bandura's (1977) theory of self-efficacy, which posits that repeated exposure and successful experiences foster both competence and confidence. These findings support the notion that familiarity may serve as a foundation for both cognitive (literacy) and affective (confidence) dimensions of AI competencies.

However, the weaker correlations with AI readiness suggest that these foundational elements do not automatically translate into preparedness for instructional integration. For example, librarians may understand AI ethics but lack effective strategies for integrating this understanding into their curricula. This gap implies that while experiential learning can build individual confidence, systemic supports, such as professional development, clear policies, and collaborative planning time, are necessary to bridge the divide between personal competence and professional readiness to lead AI literacy efforts. These findings emphasize the importance of continuous, integrated professional development that simultaneously enhances school librarians' practical exposure,

conceptual literacy, and confidence to foster comprehensive AI readiness in educational contexts.

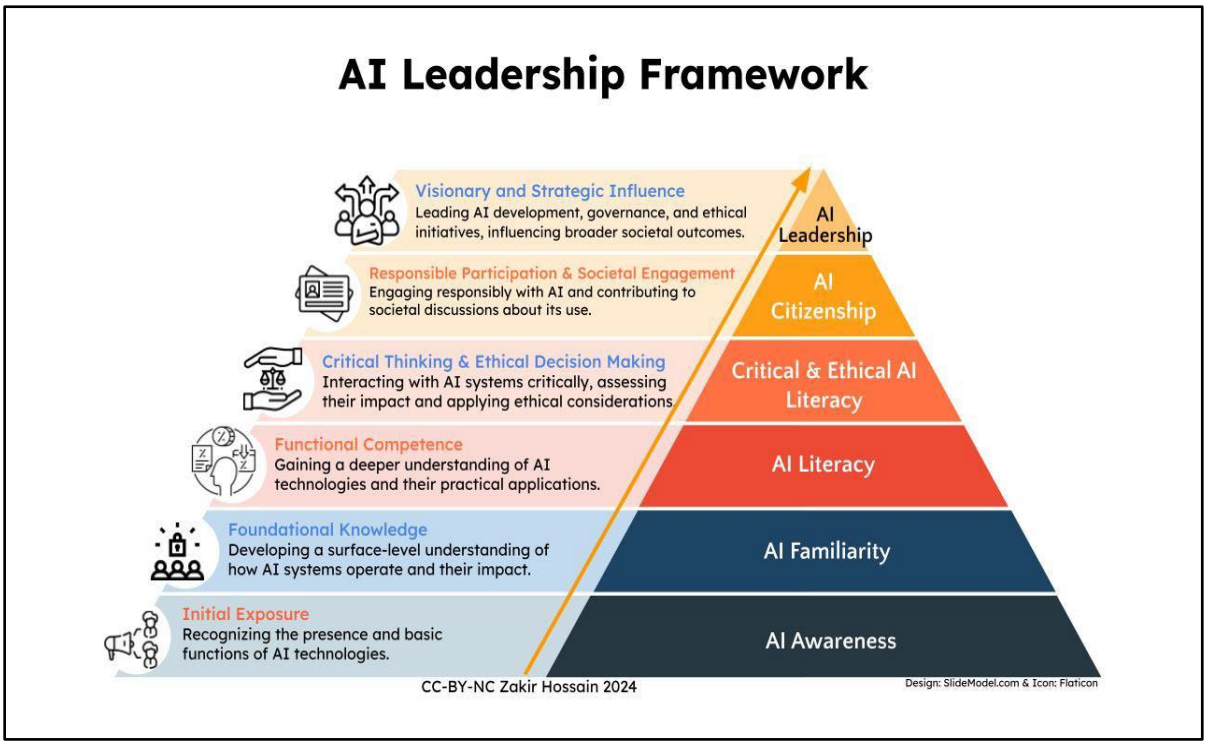
The persistence of this readiness gap is further evidenced by the relatively low percentages of school librarians using AI tools for collaboration with teachers (17.9%) or student engagement through library programs and workshops (16.6%), suggesting the impact of structural limitations such as unclear policy, insufficient training, and uncertainty around ethical AI use. This finding aligns with challenges identified by Su et al. (2023) and Kagolya and Chepchirchir (2024), including gaps in curriculum design, the absence of guiding frameworks for ethical AI implementation (Hossain, 2025a), the lack of pedagogical guidelines for K–12 settings, and teacher reluctance or skepticism (Hutchinson, 2024).

The finding that 18.5% of respondents reported using no AI tools may reflect gaps in digital literacy, institutional access, or professional readiness, consistent with prior research (Softlink Education, 2024; Su et al., 2023). These patterns are further substantiated by our qualitative data, which reveal widespread concerns about institutional resistance, time constraints, lack of professional development opportunities, and the complexities of guiding students in the ethical use of AI.

Importantly, the ANOVA results indicate that formal education, particularly qualifications in LIS, is the only demographic factor among the respondents that significantly influences AI literacy. This finding highlights the importance of AI competencies integration in LIS education and continuing professional development. Without such curricular reform, inconsistencies in AI readiness are likely to persist across school library settings, perpetuating inequities in professional readiness. When viewed through the lens of the AI Leadership Framework (Figure 3), this suggests that formal LIS education primarily supports the foundational awareness stage of AI literacy, where professionals gain conceptual understanding. However, progression toward applied and leadership stages requires additional experiential and institutional support. While we did not employ the framework as a predetermined analytical model, the emergent themes organically aligned with its developmental continuum.

The observed correlations among familiarity, literacy, and confidence align closely with the framework's foundational tiers, while the identified barriers, such as limited institutional support and concerns about academic integrity, highlight challenges in advancing toward leadership and transformational application stages (i.e., the stages involving pedagogical innovation and institutional leadership). Collectively, these findings offer an evidence-based elaboration of the framework's stages, grounding its conceptual progression in global practitioner data.

Figure 3. AI Leadership Framework. (Hossain, 2025b; adapted with permission)



Thematic analysis revealed that several respondents described being expected to lead AI-related conversations and initiatives without institutional backing, resulting in professional frustration and uneven adoption. As one respondent reflected, "I offer lessons, but not everyone takes me up on that offer ... admin does not allow time for me to teach the teachers." Ultimately, the findings affirm that participants see the role of school librarians not just as resource facilitators, but as ethical AI stewards in K–12 education. However, this vision will remain aspirational unless supported by robust institutional mandates, cross-disciplinary collaboration, and targeted professional learning ecosystems.

The incorporation of learning domains into the research design offers a valuable lens for interpreting the findings. AI familiarity and literacy (cognitive domain), AI tool usage (behavioral domain), instructional confidence and readiness (affective domain), and instructional practice (psychomotor and behavioral domains) reflect interdependent yet unevenly developed areas of AI preparedness among school librarians. The statistically significant correlations between AI familiarity, literacy, and confidence suggest a strong interrelationship between cognitive and affective domains, consistent with the self-efficacy framework discussed above. However, the weaker link between these domains and actual instructional practice indicates a bottleneck in the psychomotor domain, where knowledge and motivation are not yet being effectively translated into regular pedagogical integration.

Moreover, ethical concerns ("Will I/students use AI responsibly?") surfaced as a distinct barrier, decoupling technical confidence from implementation intent. We therefore recommend extending self-efficacy models to include an "ethical efficacy" dimension—capturing confidence in applying AI responsibly—to better predict which educators will move from experimentation to sustained, value-aligned adoption. This dimension is especially critical in the context of AI's ethical risks, including using or spreading misinformation, committing privacy violations, and perpetuating bias.

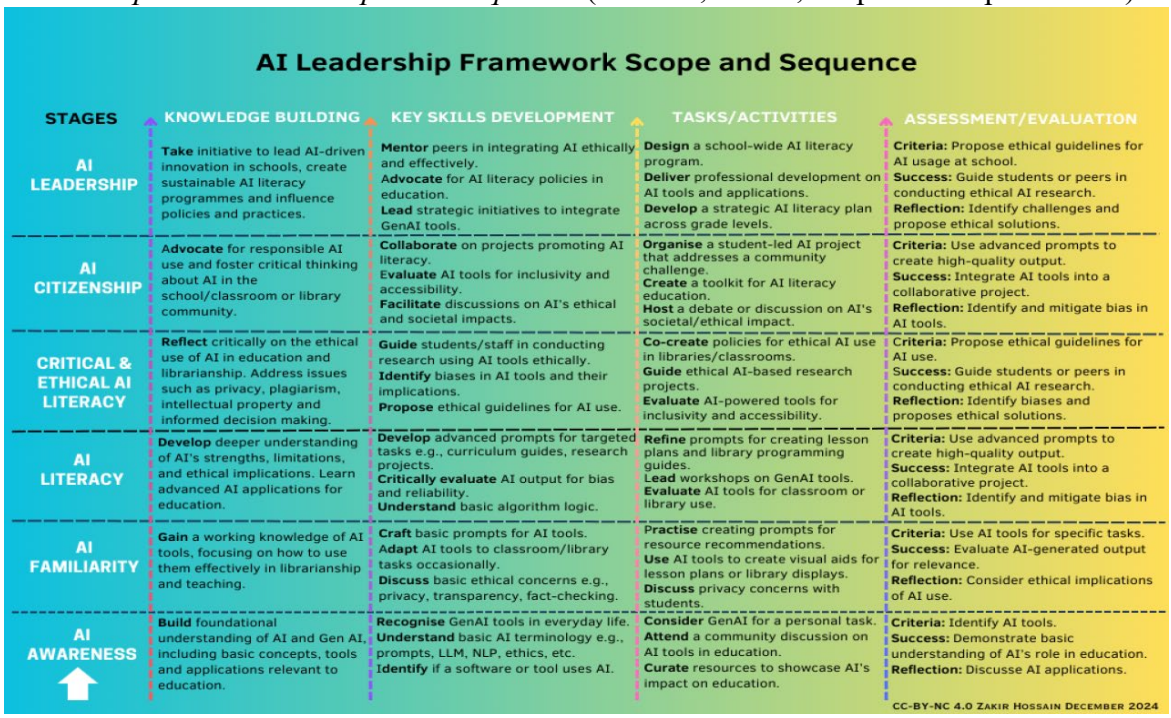
The qualitative findings in this study reinforce these conclusions. Institutional barriers, lack of policies, and time constraints hinder the application of behavioral and psychomotor skills; educator mistrust and fear inhibit affective engagement; and inconsistent training affects cognitive growth. These intersecting barriers point to the need for systemic solutions.
First, system-level policy reform—by governments, institutions with LIS programs, education departments, and library organizations—is required to mainstream AI literacy into professional standards for school librarians. Global and national library associations, as well as education departments, must advocate for integrating AI competencies into job descriptions, professional evaluation metrics, and school-level expectations.

Second, institutional investment in targeted professional development is essential. This includes not just access to tools, but opportunities for critical reflection, scenario-based training, and ethical case studies tailored to the school library context.

These findings highlight the need for a developmental framework that bridges awareness with practice. The AI Leadership Framework and its accompanying scope-and-sequence map (Table 7) outline such a pathway, offering a developmental continuum from foundational awareness through applied practice to transformational leadership. By aligning our survey results and qualitative themes with this framework, we propose a way forward for supporting school librarians not just as competent users of GenAI tools, but as leaders who can guide colleagues and students in responsible AI use.

Table 7

AI Leadership Framework Scope and Sequence (Hossain, 2025b; adapted with permission)



AI Leadership Framework Scope and Sequence

STAGES	KNOWLEDGE BUILDING	KEY SKILLS DEVELOPMENT	TASKS/ACTIVITIES	ASSESSMENT/EVALUATION
AI LEADERSHIP	**Take** initiative to lead AI-driven innovation in schools, create sustainable AI literacy programmes and influence policies and practices.	**Mentor** peers in integrating AI ethically and effectively. **Advocate** for AI literacy policies in education. **Lead** strategic initiatives to integrate GenAI tools.	**Design** a school-wide AI literacy program. **Deliver** professional development on AI tools and applications. **Develop** a strategic AI literacy plan across grade levels.	**Criteria:** Propose ethical guidelines for AI usage at school. **Success:** Guide students or peers in conducting ethical AI research. **Reflection:** Identify challenges and propose ethical solutions.
AI CITIZENSHIP	**Advocate** for responsible AI use and foster critical thinking about AI in the school/classroom or library community.	**Collaborate** on projects promoting AI literacy. **Evaluate** AI tools for inclusivity and accessibility. **Facilitate** discussions on AI's ethical and societal impacts.	**Organise** a student-led AI project that addresses a community challenge. **Create** a toolkit for AI literacy education. **Host** a debate or discussion on AI's societal/ethical impact.	**Criteria:** Use advanced prompts to create high-quality output. **Success:** Integrate AI tools into a collaborative project. **Reflection:** Identify and mitigate bias in AI tools.
CRITICAL & ETHICAL AI LITERACY	**Reflect** critically on the ethical use of AI in education and librarianship. Address issues such as privacy, plagiarism, intellectual property and informed decision making.	**Guide** students/staff in conducting research using AI tools ethically. **Identify** biases in AI tools and their implications. **Propose** ethical guidelines for AI use.	**Co-create** policies for ethical AI use in libraries/classrooms. **Guide** ethical AI-based research projects. **Evaluate** AI-powered tools for inclusivity and accessibility.	**Criteria:** Propose ethical guidelines for AI use. **Success:** Guide students or peers in conducting ethical AI research. **Reflection:** Identify biases and proposes ethical solutions.
AI LITERACY	**Develop** deeper understanding of AI's strengths, limitations, and ethical implications. Learn advanced AI applications for education.	**Develop** advanced prompts for targeted tasks e.g., curriculum guides, research projects. **Critically evaluate** AI output for bias and reliability. **Understand** basic algorithm logic.	**Refine** prompts for creating lesson plans and library programming guides. **Lead** workshops on GenAI tools. **Evaluate** AI tools for classroom or library use.	**Criteria:** Use advanced prompts to create high-quality output. **Success:** Integrate AI tools into a collaborative project. **Reflection:** Identify and mitigate bias in AI tools.
AI FAMILIARITY	**Gain** a working knowledge of AI tools, focusing on how to use them effectively in librarianship and teaching.	**Craft** basic prompts for AI tools. **Adapt** AI tools to classroom/library tasks occasionally. **Discuss** basic ethical concerns e.g., privacy, transparency, fact-checking.	**Practise** creating prompts for resource recommendations. **Use** AI tools to create visual aids for lesson plans or library displays. **Discuss** privacy concerns with students.	**Criteria:** Use AI tools for specific tasks. **Success:** Evaluate AI-generated output for relevance. **Reflection:** Consider ethical implications of AI use.
AI AWARENESS	**Build** foundational understanding of AI and Gen AI, including basic concepts, tools and applications relevant to education.	**Recognise** GenAI tools in everyday life. **Understand** basic AI terminology e.g., prompts, LLM, NLP, ethics, etc. **Identify** if a software or tool uses AI.	**Consider** GenAI for a personal task. **Attend** a community discussion on AI tools in education. **Curate** resources to showcase AI's impact on education.	**Criteria:** Identify AI tools. **Success:** Demonstrate basic understanding of AI's role in education. **Reflection:** Discusse AI applications.

CC-BY-NC 4.0 Zakir Hossain December 2024

The four qualitative themes can be understood as developmental constraints within this framework: institutional barriers slow advancement to leadership, educator attitudes impede early adoption, limited professional development restricts capacity building, and ethical concerns challenge transformational growth. Similar to LaFlamme's (2025) staged model for librarian AI literacy and Mills et al.'s (2024) K–12 AI literacy leadership framework, our adaptation emphasizes progression from basic familiarity to critical, ethical, instructional, and institutional leadership. The framework is designed to equip school library professionals not only as competent users but also as critical AI leaders who can support student learning, guide teachers, and contribute to school-wide AI integration.

Limitations and Future Research

This study has several limitations. Firstly, as independent researchers, we did not have IRB oversight, although we strictly adhered to the *European Code of Conduct for Research Integrity*. Secondly, the use of self-reported data may reflect subjective perceptions rather than actual competencies. Self-reporting can be affected by cognitive bias, whereby people with low ability tend to overestimate or overstate their knowledge/skills (e.g., the Dunning–Kruger effect) (Máté et al., 2025). Thirdly, the non-random purposive sampling limits the generalizability of results. This means that caution had to be exercised around overgeneralization when interpreting the findings. Future studies should triangulate survey data with qualitative research methods, including in-depth interviews, focus groups, and case studies.

Additionally, regional disparities in response rates may under-represent the experiences of school librarians in lower-resourced or non-English-speaking contexts. Future studies could adopt longitudinal designs and more balanced geographical representation to measure changes in AI literacy over time, incorporate direct assessments of AI competencies, and explore institutional and policy-level factors influencing AI adoption in school libraries.

Despite these limitations, this study provides a valuable foundation for research, policy, and practice, highlighting the urgent need to equip school librarians with the tools, knowledge, and confidence required to lead AI literacy efforts in their communities. Beyond the field of librarianship, this study also contributes to AI literacy scholarship in education more broadly by offering a transferable analytical and developmental model applicable to other professionals, including classroom teachers, policymakers, curriculum developers, researchers, etc. The multi-domain approach, linking cognitive, behavioral, affective, and psychomotor dimensions of AI competencies, can inform research for classroom teachers, instructional technologists, and curriculum leaders seeking to build AI-ready learning environments. Additionally, our findings highlight the importance of ethical considerations as a cross-cutting dimension that influences all four domains. In this sense, the study extends the conversation from "AI literacy for school librarians" to a scalable framework for cultivating AI leadership across educational professions, reinforcing the interdisciplinary and global relevance of its findings.

Conclusion

This study provides timely and critical insights into the global landscape of school librarians' AI literacy and professional engagement with AI technologies. Drawing on the perspectives of 319 school librarians from over 50 countries, the findings highlight both the strengths and areas for growth in the profession and preparedness to navigate the evolving demands of AI in K–12 education. Although many respondents reported moderate familiarity and literacy, their pedagogical integration of AI and instructional confidence remain inconsistent—highlighting the need for more structured, accessible, and context-specific professional support.

Without coordinated action among LIS schools, professional associations, and K–12 systems, AI literacy will remain uneven, further entrenching digital divides. A unified advocacy effort calling for mandatory AI competence standards, securing dedicated professional learning funds, and forging policy partnerships can result in the mandates and resources school librarians need to guide students critically, ethically, and innovatively into an AI-augmented learning ecosystem. Ultimately, the AI Leadership Framework and the proposed scope and sequence for implementation provide a developmental pathway for realizing this vision: supporting school librarians in evolving from users to ethical leaders of AI literacy. The framework further supports the need to foster "ethical efficacy"—a critical dimension extending Bandura's self-efficacy theory—capturing the confidence required to apply AI responsibly, which is essential given widespread concern over student misuse. By adopting this staged approach, professional learning can move beyond tool introduction towards cultivating the higher-order competencies required for transformational AI leadership.

References

Adewojo, A. A., Amzat, O. B. and Abiola, H. S. (2025). AI-powered libraries: Enhancing user experience and efficiency in Nigerian knowledge repositories. *Library Hi Tech News*, *42*(2), 12–16. https://doi.org/10.1108/LHTN-08-2024-0142

All European Academies. (2023). *The European code of conduct for research integrity.* https://allea.org/code-of-conduct/

Association of College & Research Libraries. (2025). *2025 Environmental scan.* American Library Association. https://www.ala.org/sites/default/files/2025-04/2025_ACRL_Environmental_Scan.pdf

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://educational-innovation.sydney.edu.au/news/pdfs/Bandura%201977.pdf

Bauld, A. (2023, August 31). Librarians can play a key role implementing artificial intelligence in schools. *School Library Journal.* https://www.slj.com/story/Librarians-Can-Play-a-Key-Role-Implementing-Artificial-Intelligence-in-Schools

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Center for the Future of Libraries. (2019). *Artificial intelligence.* American Library Association. https://www.ala.org/future/trends/artificialintelligence

Cheby, L., & Wimberley, L. (2026). The impact of high school library staffing on college success. *School Library Research*, 29. https://www.ala.org/sites/default/files/2026-07/chebywimberley.pdf

Committee on Freedom of Access to Information and Freedom of Expression. (2020). *IFLA statement on libraries and artificial intelligence.* International Federation of Library Associations and Institutions. https://repository.ifla.org/handle/123456789/1646

Cox, A. (2023). *Developing a library strategic response to artificial intelligence.* International Federation of Library Associations and Institutions. https://www.ifla.org/g/ai/developing-a-library-strategic-response-to-artificial-intelligence/

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

DeepSeek. (2026). DeepSeek (V3.1) [Large language model]. https://deepseek.com

Department of Education. (2023). *Australian framework for generative artificial intelligence (AI) in schools*. Commonwealth of Australia. https://www.education.gov.au/download/17416/australian-framework-generative-artificial-intelligence-ai-schools/35400/australian-framework-generative-ai-schools/pdf

Dukic, Z., & Pestic, D. (2025). School Librarians Using Smartphones for Higher Productivity during the COVID-19 Pandemic. *School Library Research*, 28. https://www.ala.org/sites/default/files/2025-12/dukic-et-al.pdf

European Commission. (2024, April 23). *AI Act*. Shaping Europe's digital future. https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai

Goodchild, L., Mulligan, A., & Mensell, N. (2024). *Insights: Librarian attitudes toward AI.* Elsevier. https://assets.ctfassets.net/o78em1y1w4i4/7blTDRY4Lt5eMyAQvhNwlC/244b5db79ea0fee8e995b30df9272b06/LIBRARIAN_KEY_FINDINGS_Attiutudes_to_AI_REPORT_Oct_2024_DIG.pdf

Hollands, F., & Breazeal, C. (2024). Establishing AI literacy before adopting AI. *The Science Teacher*, *91*(2), 35–42. https://doi.org/10.1080/00368555.2024.2308316

Hornberger, M., Bewersdorff, A., & Nerdel, C. (2023). What do university students know about artificial intelligence? Development and validation of an AI literacy test. *Computers and Education: Artificial Intelligence*, *5*, 100165. https://doi.org/10.1016/j.caeai.2023.100165

Hossain, Z. (2020). Connecting policy to practice: How do literature, standards and guidelines inform our understanding of the role of school library professionals in cultivating an academic integrity culture? *Synergy*, *18*(1). http://slav.vic.edu.au/index.php/Synergy/article/view/373

Hossain, Z. (2025a). School librarians developing AI literacy for an AI-driven future: Leveraging the AI Citizenship Framework with scope and sequence. *Library Hi Tech News*, *42*(2), 17–21. https://doi.org/10.1108/LHTN-10-2024-0186

Hossain, Z. (2025b). AI Leadership Framework: Advancing Australian school library professionals' AI literacy and leadership competence. *Connection,* Issue 132 (Term 1). https://www.scisdata.com/connections/issue-132/ai-leadership-framework-advancing-australian-school-library-professionals-ai-literacy-and-leadership-competence/

Huang, Y.-H. (2024). Exploring the implementation of artificial intelligence applications among academic libraries in Taiwan. *Library Hi Tech 42*(3), 885–905. https://doi.org/10.1108/lht-03-2022-0159

Hutchinson, E. (2024). Navigating tomorrow's classroom. *Journal of Information Literacy*, *18*(1). https://doi.org/10.11645/18.1.553

International Association of School Librarianship. (2025). *Media & Information Literacy SIG*. IASL-Online. https://iasl-online.org/about/leadership/info_lit_sig.html

Kagolya, R., & Chepchirchir, S. (2024). Integrating artificial intelligence literacy in library and information science training in Kenyan academic institutions. In T. Kwanya, I. M. Kibandi, & P. Gatiti (Eds.), *Proceedings of the 26th Standing Conference of Eastern, Central and Southern African Library and Information Associations (SCECSAL XXVI)*. https://karuspace.karu.ac.ke/server/api/core/bitstreams/c57f6ba4-2b9a-4457-9b9f-6d826fec4d92/content

Kalbande, D., Suradkar, P., Chavan, S., Verma, M. K. & Yuvaraj, M. (2024). Artificial intelligence integration in academic libraries: Perspectives of LIS professionals in India. *The Serials Librarian*, *85* (5/6), 132–143. https://doi.org/10.1080/0361526X.2024.2433262

Khan, Z. I., Hossain, Z., Biswas, Md. S., & Islam, Md. E. (2025). Mapping AI literacy among library professionals: A cross-regional study of South Asia and the Middle East. *Journal of Web Librarianship*, *19*(3/4), 189–220. https://doi.org/10.1080/19322909.2025.2565183

Khazanchi, P., & Khazanchi, R. (2025). Role of stakeholders in improving AI competencies in K–12 classrooms. In *Society for Information Technology & Teacher Education International Conference* (pp. 736–742). Association for the Advancement of Computing in Education. https://www.learntechlib.org/p/225589/

LaFlamme, K. A. (2025). Scaffolding AI literacy: An instructional model for academic librarianship. *The Journal of Academic Librarianship*, *51*(3), 103041. https://doi.org/10.1016/j.acalib.2025.103041

Lee, V. V., van der Lubbe, S. C., Goh, L. H., & Valderas, J. M. (2024). Harnessing ChatGPT for thematic analysis: Are we ready? *Journal of Medical Internet Research*, *26*, e54974. https://www.jmir.org/2024/1/e54974

Limna, P., Jakwatanatham, S., Siripipattanakul, S., Kaewpuang, P., & Sriboonruang, P. (2022). A review of artificial intelligence (AI) in education during the digital era. *Advance Knowledge for Executives*, *1*(1), 1–9. https://ssrn.com/abstract=4160798

Lo, L. S, (2024). Evaluating AI literacy in academic libraries: A survey study with a focus on U. S. employees. *College & Research Libraries*, *85*(5), (635–668). https://doi.org/10.5860/crl.85.5.635

Luckin, R., Cukurova, M., Kent, C., & du Boulay, B. (2022). Empowering educators to be AI-ready. *Computers and Education: Artificial Intelligence, 3*, 100076. https://doi.org/10.1016/j.caeai.2022.100076

Máté, D., Kiss, J. T., & Csernoch, M. (2025). Cognitive biases in user experience and spreadsheet programming. *Education and Information Technologies*, *30*(11), 14821–14851. https://doi.org/10.1007/s10639-025-13392-0

McFarland, A. (2025, May 5). UAE makes AI classes mandatory from kindergarten—The world needs to follow. Unite.AI. https://www.unite.ai/uae-makes-ai-classes-mandatory-from-kindergarten-the-world-needs-to-follow/

McKim, K. (2025, October 11). From shelf to spreadsheet: How I built a book room inventory with ChatGPT - and what it taught me about Centaur Librarianship. Linkedin.com. https://www.linkedin.com/pulse/from-shelf-spreadsheet-how-i-built-book-room-inventory-kathleen-mckim-e1ifc/?trackingId=Cal%2BkgNVSHmKaaKJfMueog%3D%3D

Merga, M. K. (2022). *School libraries supporting literacy and wellbeing*. Facet Publishing.

Milberg, T. (2024, April 28). The future of learning: How AI is revolutionizing education 4.0. World Economic Forum. https://www.weforum.org/agenda/2024/04/future-learning-ai-revolutionizing-education-4-0/

Mills, K., Ruiz, P., Lee, K.-W., Coenraad, M., Fusco, J., Roschelle, J., & Weisgrau, J. (2024). AI literacy: A framework to understand, evaluate, and use emerging technology. Digital Promise. https://doi.org/10.51388/20.500.12265/218

Mutia, F., Masrek, M. N., Baharuddin, M. F., Shuhidan, S. M., Soesantari, T., Yuwinanto, H. P., & Atmi, R. T. (2024). A comparative analysis of librarians' views on AI support for learning experiences, lifelong learning, and digital literacy in Malaysia and Indonesia. *Preprints*. https://doi.org/10.20944/preprints202405.1380.v1

Naeem, M., Smith, T., & Thomas, L. (2025). Thematic analysis and artificial intelligence: A step-by-step process for using ChatGPT in thematic analysis. *International Journal of Qualitative Methods*. https://doi.org/10.1177/16094069251333886

Northeastern University & Gallup, Inc. (2019). *Facing the future: U.S., U.K. and Canadian citizens call for a unified skills strategy for the AI age.* https://uwm.edu/csi/wp-content/uploads/sites/708/2024/10/Facing_the_Future_US_UK_and_Canadian_citizens_call_for_a_unified_skills_strategy_for_the_AI_age-compressed.pdf

Oddone, K., Garrison, K., & Gagen-Spriggs, K. (2024). Navigating generative AI: The teacher librarian's role in cultivating ethical and critical practices. *Journal of the Australian Library and Information Association*, *73*(1), 3–26. https://doi.org/10.1080/24750158.2023.2289093

OECD.AI Policy Navigator. (2021). *National AI policies & strategies.* Organisation for Economic Co-operation and Development. https://oecd.ai/en/dashboards/national

OECD.AI Policy Navigator. (2025). *National AI policies & strategies.* Organisation for Economic Co-operation and Development. https://oecd.ai/en/dashboards/national

OpenAI. (2025). ChatGPT (Version 4.1) [Large language model]. https://chatgpt.com

Organisation for Economic Co-operation and Development. (2025). *PISA 2029 media and artificial intelligence literacy*. https://www.oecd.org/en/about/projects/pisa-2029-media-and-artificial-intelligence-literacy.html

Seales, D. L. I. (2025). *Leveraging AI in school libraries: From basics to best practices*. ALA Editions.

Softlink Education. (2024, April 24). *Australian libraries share: The impact of AI on school libraries*. https://www.softlinkint.com/blog/australian-school-libraries-share-the-impact-of-ai-on-school-libraries/

Stebbins, R. A. (2001). *Exploratory research in the social sciences*. Sage Publications. https://doi.org/10.4135/9781412984249

Stewart, L. (2025). *Exploratory research: Definition, how to conduct & examples*. ATLAS.ti. https://atlasti.com/research-hub/exploratory-research

Su, J., Ng, D. T. K., & Chu, S. K. W. (2023). Artificial intelligence (AI) literacy in early childhood education: The challenges and opportunities. *Computers and Education: Artificial Intelligence*, *4*, 100124. https://doi.org/10.1016/j.caeai.2023.100124

United Nations Educational, Scientific and Cultural Organization. (2022). *K–12 AI curricula: A mapping of government-endorsed AI curricula*. UNESDOC Digital Library. https://unesdoc.unesco.org/ark:/48223/pf0000380602

United Nations Educational, Scientific and Cultural Organization. (2023a). *Education in the age of artificial intelligence.* UNESDOC Digital Library. https://unesdoc.unesco.org/ark:/48223/pf0000387029_eng

United Nations Educational, Scientific and Cultural Organization. (2023b). *International forum on AI and education: Steering AI to empower teachers and transform teaching.* https://unesdoc.unesco.org/ark:/48223/pf0000386162/PDF/386162eng.pdf.multi

Voulgari, I., Stouraitis, E., Camilleri, V. and Karpouzis, K. (2022). Artificial intelligence and machine learning education and literacy: Teacher training for primary and secondary education teachers. In *Handbook of research on integrating ICTs in STEAM education,* IGI Global, 1–21. https://www.igi-global.com/chapter/artificial-intelligence-and-machine-learning-education-and-literacy/304839

Williams, R. (2024). *Impact.AI: Democratizing AI through K–12 artificial intelligence education* (Doctoral dissertation, Massachusetts Institute of Technology. MIT Libraries. https://hdl.handle.net/1721.1/153676

Wong, E. K. C., & Chiu, D. K. W. (2025). AI literacy instruction program in international school libraries: A qualitative study under the lens of the Big Six Information Literacy Model. *Journal of Librarianship and Information Science*, *58*(2). https://doi.org/10.1177/09610006251331977

Wright, K. E., Koz, O., & Moore, J. A. (2024). The evolving roles of school librarians during the COVID-19 pandemic: A phenomenological study. *School Library Research*, *27*. 1–33. https://www.ala.org/sites/default/files/2024-09/wright-et-al.pdf

Yi, K., Turner, R., Syn, S. Y., Williams, M., Hardin, A., & Long, T. (2024). A feasibility study of AI-generated resources for K–12 information literacy. In *Proceedings of the Association for Library and Information Science Education Annual Conference*. https://doi.org/10.21900/j.alise.2024.1757

Cite This Article

Hossain, Z., Hertel, C., & Biswas, M.S. (2026). School Librarians' AI Literacy, Readiness, and Professional Engagement with AI Technologies: An International Survey. *School Library Research* 29. <www.ala.org/aasl/slr/volume29/hossainetal>.

School Library Research (ISSN: *2165-1019*) is an official journal of the American Association of School Librarians. It is the successor to *School Library Media Quarterly Online and School Library Media Research. The purpose of* School Library Research *is to promote and publish high quality original research concerning the management, implementation, and evaluation of school libraries. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school libraries. Visit the SLR website for more information.*

The American Association of School Librarians empowers leaders to transform teaching and learning. Visit the AASL website for more information.