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AI-Enabled Library Services and User Satisfaction: Investigating Service Quality, Accessibility, and Ethical Challenges

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Abstract
Artificial intelligence (AI) has moved from an experimental curiosity to an operational reality in library and information centres, reshaping how catalogues are searched, how reference queries are answered, and how collections are recommended to readers. This study investigates the relationship between AI-enabled library services and user satisfaction, with particular attention to three dimensions that determine whether such systems succeed or fail in practice: service quality, accessibility, and ethical trustworthiness. Adopting a descriptive survey design, data were collected from users of academic and public libraries through a structured questionnaire built on an adapted SERVQUAL framework supplemented by accessibility and ethics constructs derived from recent literature. The instrument measured user awareness of AI-enabled services, frequency of use, perceived service quality across reliability, responsiveness, assurance, empathy and tangibility, perceived accessibility across infrastructural and competency dimensions, and perceived ethical risk across privacy, transparency and algorithmic bias. Five hypotheses were formulated and tested using correlation analysis, independent samples t-tests, one-way analysis of variance, chi-square tests of independence, and multiple linear regression. The findings indicate that perceived service quality is the strongest positive determinant of user satisfaction, that accessibility barriers significantly moderate the benefit users derive from AI-enabled services, and that ethical concerns—particularly around data privacy and the opacity of recommendation systems—exert a measurable negative influence on user trust and, through it, on satisfaction. Differences between academic and public library users emerged in awareness and intensity of use rather than in overall satisfaction, suggesting that the determinants of a positive AI service experience are broadly consistent across library types. The study concludes that AI adoption in libraries yields satisfaction dividends only when deployment is accompanied by deliberate investment in infrastructure, user training, transparent data governance, and the retention of human mediation as an accessible alternative. Recommendations are offered for library administrators, system vendors, and professional associations.

Keywords: artificial intelligence, library services, user satisfaction, service quality, accessibility, information ethics, algorithmic transparency, academic libraries, public libraries

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1. Introduction

1.1 The Changing Landscape of Library Service Delivery

The library has never been a static institution. Each generation of information technology—from the card catalogue to the online public access catalogue, from the CD-ROM database to the federated discovery layer—has redefined the boundary between what the librarian does and what the system does on the librarian's behalf. What distinguishes the present moment is the speed and the depth of that redefinition. Artificial intelligence does not merely automate a clerical task; it participates in judgements that were once considered irreducibly professional, such as deciding which of ten thousand records best answers a reader's imprecisely worded question, or determining which items a particular reader is likely to find useful next.

This shift has occurred against a backdrop of rising user expectation. Library patrons now arrive having been conditioned by commercial platforms that anticipate their preferences, respond instantaneously, and remain available at every hour. Cox, Pinfield and Rutter (2019) observed that thought leaders in the profession anticipated AI would reconfigure not only library operations but the very identity of the academic library, pushing it toward a role as curator of data and steward of algorithmic literacy. Okunlaya, Syed Abdullah and Alias (2022) similarly argued that AI-driven service innovation constitutes a central pillar of the digital transformation of university education, rather than an optional technical enhancement.

The consequence is that libraries are increasingly evaluated not against other libraries but against the general standard of digital service quality set elsewhere in users' lives. Whether AI adoption helps libraries meet that standard, or merely introduces new sources of friction and distrust, is an empirical question that this study addresses.

1.2 Artificial Intelligence as an Enabling Technology in Libraries

Artificial intelligence in the library context is best understood not as a single technology but as a family of computational techniques—machine learning, natural language processing, computer vision, knowledge representation, and generative modelling—applied to information problems. Asemi, Ko and Nowkarizi (2021), reviewing the field, traced a lineage running from early expert systems through contemporary machine learning and robotics, noting that each wave promised comprehensive transformation and each delivered a narrower but real set of operational gains.

The concrete applications now visible in libraries cluster into several groups. Conversational agents handle routine reference and directional enquiries, extending service hours without proportionate staffing cost; Kaushal and Yadav (2022) documented experience-based evidence of chatbots absorbing repetitive queries in academic settings, while Nawaz and Saldeen (2020) examined their deployment specifically in reference services. Recommender systems surface materials related to a user's borrowing or reading history. Automated metadata generation and subject assignment reduce cataloguing backlogs. Optical character recognition and handwriting recognition unlock the content of digitised special collections. Semantic search engines interpret query intent rather than matching strings. More recently, large language models have introduced

generative capabilities into discovery and research support, a development Lund and Wang (2023) framed as posing simultaneous opportunity and disruption for academia and libraries, and which Panda and Kaur (2023) assessed as a potential successor to earlier rule-based chatbot systems.

Wheatley and Hervieux (2019), in an environmental scan of North American academic libraries, found that adoption was uneven and often exploratory, concentrated in institutions with existing technical capacity. Ali, Naeem and Bhatti (2020) reported comparable unevenness among university librarians internationally, where enthusiasm for AI tools frequently outpaced institutional readiness to support them. Ajani, Tella, Salawu and Abdullahi (2022) found in the Nigerian academic context that awareness of AI substantially exceeded actual readiness to integrate it into operations—a gap that appears to characterise many developing and transitional library systems.

1.3 Service Quality and User Satisfaction in the Library Context

Service quality in library and information science has long been theorised through the disconfirmation paradigm, in which satisfaction emerges from the gap between what a user expects and what the user perceives to have received. The SERVQUAL model, with its dimensions of reliability, responsiveness, assurance, empathy and tangibility, was adapted for libraries as LibQUAL+ and remains the dominant assessment framework in the field.

Applying this framework to AI-enabled services requires some conceptual care. Reliability, in an AI context, concerns not only whether a system is available but whether its outputs are accurate and consistent—a chatbot that answers confidently but incorrectly fails on reliability even while performing perfectly on availability. Responsiveness gains an unusual character, since AI systems respond instantly but may respond irrelevantly, and users appear to weigh relevance more heavily than speed once a baseline of speed is met. Assurance, traditionally about staff competence and courtesy, becomes partly a question of system trustworthiness and the user's confidence that the answer received is defensible. Empathy, the dimension most obviously tied to human interaction, presents the sharpest challenge: whether an algorithmic system can be experienced as attentive to individual need, or whether its deployment necessarily erodes the relational dimension of library service, remains contested.

Satisfaction, in turn, is not simply the sum of quality perceptions. It is mediated by trust, by prior expectation, and by the availability of alternatives. A user who distrusts a recommendation engine may rate its speed highly and its overall value poorly. This study therefore treats service quality as a determinant of satisfaction rather than as identical to it, and models the relationship explicitly.

1.4 Accessibility and Inclusion in AI-Mediated Services

An AI-enabled service that a user cannot reach, cannot operate, or cannot understand delivers no benefit regardless of its technical sophistication. Accessibility in this study is construed broadly, encompassing three overlapping layers. The infrastructural layer concerns the availability of stable connectivity, adequate devices, and sufficient bandwidth—conditions that cannot be assumed in many of the communities libraries serve. The competency layer concerns the digital and

information literacy required to formulate effective queries, interpret system outputs, and recognise when a machine-generated answer requires verification. The inclusive-design layer concerns whether systems accommodate users with visual, auditory, motor or cognitive disabilities, and whether they function for users operating in languages other than the dominant one.

There is a genuine tension here. AI has substantial potential to expand accessibility: text-to-speech and speech-to-text interfaces, real-time translation, automatic captioning, and simplified-language summarisation all lower barriers that print-centred and even conventional digital services impose. Yet the same technologies can widen the very divide they promise to close. Where AI-enabled services become the primary or default channel, users lacking devices, bandwidth or confidence are pushed further from the service rather than drawn toward it. Barsha and Munshi (2023), reviewing prospects and challenges in developing countries, emphasised precisely this infrastructural precondition, noting that implementation discussions imported from high-resource contexts often assume conditions that do not obtain.

The question for library practice is therefore not whether AI improves accessibility in the abstract, but under what conditions of deployment, supplementary support, and channel redundancy it does so for the actual population served.

1.5 Ethical Considerations in AI-Enabled Library Practice

Librarianship carries a distinctive ethical inheritance. Confidentiality of borrowing records, resistance to surveillance, commitment to intellectual freedom, and the principle of equitable access are not peripheral professional courtesies but constitutive commitments of the field. AI systems place each of these under strain.

Personalisation requires the retention and analysis of behavioural data that the profession has historically sought to minimise or discard. Recommendation and ranking algorithms exercise a selective function that is functionally editorial yet typically opaque, both to the user and often to the librarian administering the system. Training data drawn from historical collections and historical usage encodes historical bias, with the consequence that algorithmic surfacing may systematically under-represent minority scholarship, non-English material, or perspectives marginal to the corpus. Generative systems introduce a further hazard: the fabrication of plausible but non-existent sources, a failure mode that strikes directly at the library's core warrant of bibliographic accuracy. Lund, Wang, Mannuru, Nie, Shimray and Wang (2023) examined these dynamics in relation to scholarly publishing and authorship, raising questions about attribution and verification that libraries inherit as intermediaries.

Padilla (2019), writing for OCLC Research, framed the appropriate response as one of responsible operations—arguing that libraries adopting data science and machine learning assume obligations of documentation, review and accountability that must be built into workflow rather than appended to it. Arlitsch and Newell (2017) situated these obligations within a broader account of AI's societal effects, identifying a leadership opportunity for libraries in fostering public understanding of

algorithmic systems. Whether users themselves perceive and weigh these ethical dimensions, and whether such perceptions bear on their satisfaction with library services, is among the central concerns of the present investigation.

2. Review of Literature

The literature bearing on this study divides naturally along the three constructs under investigation. This review is organised accordingly, examining first the evidence on AI applications and service quality, second the treatment of accessibility and the digital divide, and third the developing scholarship on ethical challenges and algorithmic accountability.

2.1 Artificial Intelligence Applications and Library Service Quality

The earliest strand of this literature is largely descriptive, concerned with cataloguing what AI might do rather than measuring what it has done. Talley (2016), writing from the law library context, imagined intelligent agents assuming research support functions and anticipated a redistribution of professional labour toward higher-order consultation. Massis (2018) offered an early general account of AI's arrival in library settings, and Wood and Evans (2018) surveyed librarians' own perceptions, finding a characteristic mixture of professional optimism about service enhancement and apprehension about role displacement.

Empirical work assessing service outcomes emerged subsequently. Wheatley and Hervieux (2019) provided systematic evidence on the state of adoption across North American academic libraries, establishing that implementation was concentrated and partial rather than diffuse. Cox, Pinfield and Rutter (2019), through interviews with sector thought leaders, identified anticipated impacts spanning discovery, research data services, and the reconfiguration of professional roles. Asemi, Ko and Nowkarizi (2021) synthesised the technical literature, distinguishing expert systems, machine learning applications, and robotics, and noting the recurring gap between demonstrated laboratory capability and sustained operational deployment.

Studies focused on specific service points offer the most direct evidence on quality. Nawaz and Saldeen (2020) examined chatbot deployment in reference services, finding gains in availability and in handling of repetitive directional queries, alongside limitations in managing complex or ambiguous requests. Kaushal and Yadav (2022) reported experience-based findings from academic libraries broadly consistent with this pattern: chatbots performed well on bounded, factual, high-frequency questions and poorly where interpretation of user need was required. Hussain (2023) and Jha (2023) each reviewed prospects and challenges across the range of library services, converging on the assessment that AI augments rather than replaces professional mediation, and that user satisfaction depends heavily on whether escalation to a human remains available and visible.

Yoon, Andrews and Ward (2022) contributed a comparative dimension of direct relevance to the present study, examining perceptions among both public and academic librarians in North America and finding differences in adoption drivers and perceived barriers across the two sectors. Subaveerapandiyan (2023) reported similar findings in a different national context. The

cumulative picture is one of consistent operational benefit in narrow domains, considerable variance in implementation quality, and a persistent finding that perceived service quality tracks the appropriateness of the application rather than the sophistication of the technology.

2.2 Accessibility, the Digital Divide, and Equitable Service Provision

A second body of work addresses whether the benefits of AI-enabled services are distributed equitably. Ali, Naeem and Bhatti (2020) surveyed university librarians internationally and documented a marked disparity in institutional capacity to deploy and sustain AI tools, with resource-constrained institutions expressing interest without corresponding infrastructure. Ajani, Tella, Salawu and Abdullahi (2022) sharpened this finding in the Nigerian context, reporting that librarians' awareness of AI applications considerably exceeded their institutions' readiness to implement them—a mismatch producing frustration rather than service improvement.

Barsha and Munshi (2023) reviewed implementation prospects in developing countries specifically, identifying connectivity, power supply reliability, funding, and staff capability as binding constraints, and cautioning against the uncritical transfer of implementation models developed under different conditions. Their analysis implies that accessibility must be treated as a design parameter rather than an outcome to be assumed.

Within the inclusive-design literature, the evidence is more optimistic but less mature. AI-driven assistive capabilities—screen reading, automated captioning, translation, and text simplification—have documented potential to serve users with disabilities and users operating outside the dominant language of the collection. Okunlaya, Syed Abdullah and Alias (2022) incorporated accessibility considerations into their conceptual framework for AI-enabled service innovation in university education, positioning inclusive access as integral to the transformation rather than a compliance overlay. However, systematic empirical assessment of whether deployed library AI systems actually meet accessibility standards remains sparse, and studies measuring user-perceived accessibility of such systems are rarer still. This constitutes a clear gap that the present study addresses.

2.3 Ethical Challenges, Privacy, and Algorithmic Accountability

The third strand engages the normative dimension. Arlitsch and Newell (2017) offered an early framing of AI's societal implications for libraries, arguing that the profession's public-interest orientation created both an obligation and an opportunity to shape public understanding of algorithmic systems. Padilla (2019) developed the most influential practical framework, articulating a programme of responsible operations covering documentation of data provenance, review of algorithmic outputs, institutional accountability structures, and the development of staff capability to interrogate systems they administer.

Privacy occupies a central place in this literature, and for structural reasons: the profession's commitment to confidentiality of user records stands in direct tension with the data appetite of personalisation systems. The difficulty is compounded where AI capabilities are delivered through third-party vendor platforms, since the library's ability to enforce its own privacy standards

depends on contractual terms it may have limited power to negotiate and limited technical means to verify.

Algorithmic bias and opacity form the second cluster. Where discovery systems rank results according to models trained on historical usage, the effect is to amplify existing patterns of attention—advantaging already-visible material and further marginalising the peripheral. Because such systems typically expose neither their ranking logic nor their confidence, neither user nor librarian can readily assess whether a given result set is representative. Lund and Wang (2023) and Lund et al. (2023) extended this concern to generative systems, addressing the ethics of large language models in scholarly contexts, including questions of authorship, attribution, and the verification burden that fabricated citations impose on information professionals.

What is largely absent from this literature is the user's perspective. The ethical analysis has been conducted principally by and for professionals, with limited empirical investigation of whether library users themselves perceive privacy risk, notice algorithmic opacity, or allow such considerations to affect their evaluation of and engagement with library services. The present study contributes directly to this gap by measuring user-perceived ethical risk and modelling its relationship to trust and satisfaction.

3. Research Methodology

3.1 Research Design

The study adopts a quantitative descriptive survey design, appropriate for establishing the prevalence of attitudes across a defined population and for testing hypothesised relationships among measured constructs. A cross-sectional approach was used, with data collected at a single point in time.

3.2 Population and Sampling

Sample size refers to the number of respondents selected from the target population for participation in a research study. The selection of an appropriate sample size is essential because it influences the accuracy, reliability, validity, and generalisability of the research findings. A sufficiently large sample provides greater statistical precision, minimises sampling error, and enhances the representativeness of the population under investigation. In quantitative research, the sample size should be adequate to perform the proposed statistical analyses and to ensure that the findings accurately reflect the characteristics and opinions of the target population. For the present study entitled "Role of Artificial Intelligence in Modern Library Services: Opportunities and Ethical Challenges," a total sample of 400 respondents was selected from the target population comprising librarians, library assistants, Library and Information Science (LIS) faculty members, research scholars, and students associated with different types of libraries and higher educational institutions in Madhya Pradesh.

3.3 Instrumentation

Data were gathered using a structured questionnaire organised into five sections. Section A recorded demographic and institutional characteristics. Section B measured awareness and

frequency of use of specific AI-enabled services. Section C measured perceived service quality on an adapted SERVQUAL instrument covering reliability, responsiveness, assurance, empathy and tangibility. Section D measured perceived accessibility across infrastructural, competency and inclusive-design dimensions. Section E measured perceived ethical risk across privacy, transparency and algorithmic bias, together with overall trust and overall satisfaction. Sections C through E employed a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

3.4 Validity and Reliability

Content validity was established through expert review by faculty in library and information science, whose comments informed revision of item wording and the removal of redundant items. Construct reliability was assessed using Cronbach's alpha computed for each multi-item scale, with the conventional threshold of 0.70 adopted as the criterion for acceptable internal consistency. Reliability coefficients are reported in the results section.

3.5 Techniques of Data Analysis

Data were analysed using descriptive statistics (frequency, percentage, mean and standard deviation) to characterise the sample and summarise responses on each construct. Inferential analysis proceeded through Pearson product-moment correlation to test H_1, H_2 and H_3; independent samples t-test to test H_4; chi-square test of independence to examine the association between demographic category and level of AI service use; one-way analysis of variance to test for differences across user categories; and multiple linear regression to test H_5 and to establish the relative predictive contribution of each construct. All hypotheses were tested at the 0.05 level of significance.

3.6 Ethical Considerations of the Study

Participation was voluntary and informed consent was obtained prior to administration of the instrument. No personally identifying information was collected, responses were stored in aggregate form, and respondents were advised of their right to withdraw at any stage without consequence.

4. Results and Discussion

Testing of Hypothesis H1

Statement. H1: Artificial intelligence has a significant positive effect on enhancing core library functions such as cataloguing, indexing, and information retrieval.

Null hypothesis. H01: There is no significant relationship between ai adoption (familiarity and usage index) and core library functions ($\rho = 0$; $\beta = 0$).

Statistical tests. Pearson product-moment correlation followed by simple linear regression; N = 400; df = (1, 398); $\alpha = .05$ (two-tailed).

Table 4.1: Descriptive Statistics of the Variables (H1)

Variable	N	Mean	Std. Deviation
AI Adoption (Familiarity and Usage Index) (IV)	400	3.24	1.06

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Variable	N	Mean	Std. Deviation
Core Library Functions (DV)	400	3.73	0.61

Table 4.2: Pearson Correlation between AI Adoption (Familiarity and Usage Index) and Core Library Functions

Variables	N	Pearson r	Sig. (2-tailed)	Interpretation
AI Adoption (Familiarity and Usage Index) ↔ Core Library Functions	400	.580	< .001	Large positive, significant

Table 4.3: Regression Model Summary (H1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.580	0.336	0.335	0.498

Table 4.4: ANOVA of the Regression Model (H1)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	49.945	1	49.945	201.76	< .001
Residual	98.523	398	0.248		
Total	148.468	399			

Table 4.5: Regression Coefficients (H1)

Model	B	Std. Error	Beta (β)	t	Sig.
(Constant)	2.649	0.080		33.07	< .001
AI Adoption (Familiarity and Usage Index)	0.334	0.023	0.580	14.20	< .001

Tables present the results of the statistical analyses examining the relationship between AI adoption and the enhancement of core library functions. The descriptive statistics indicate that respondents reported a moderate level of AI adoption (M = 3.24, SD = 1.06) alongside a favourable evaluation of AI's contribution to core library functions (M = 3.73, SD = 0.61), suggesting that respondents generally perceive artificial intelligence as beneficial for activities such as cataloguing, indexing, classification, and information retrieval.

The Pearson product-moment correlation analysis revealed a significant positive relationship between AI adoption and core library functions ($r = .580$, $p < .001$). According to Cohen's guidelines, this represents a large positive correlation, indicating that greater familiarity with and use of AI technologies are associated with stronger perceptions of improvements in essential library operations. The significance level below .001 confirms that the observed relationship is statistically significant and unlikely to have occurred by chance.

The simple linear regression analysis further supports this finding. The regression model was statistically significant ($F(1, 398) = 201.76$, $p < .001$), demonstrating that AI adoption is a meaningful predictor of improvements in core library functions. The model explained 33.6% of

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the total variance in the dependent variable (R^2 = .336; Adjusted R^2 = .335), indicating moderate explanatory power. The regression coefficient (B = 0.334) shows that a one-unit increase in AI adoption is associated with an average increase of 0.334 units in the perceived enhancement of core library functions. Furthermore, the standardised regression coefficient (β = .580, t = 14.20, p < .001) confirms a strong positive effect of AI adoption on core library functions.

Since both the Pearson correlation and regression analyses produced statistically significant positive results (p < .001), the null hypothesis (H01) is rejected, and the research hypothesis (H1) is accepted. The findings therefore confirm that artificial intelligence has a significant positive effect on enhancing core library functions, including cataloguing, indexing, classification, metadata management, and information retrieval, highlighting AI as an important technological driver for improving the efficiency and effectiveness of modern library operations.

Testing of Hypothesis H2

Statement. H2: AI-driven user services significantly improve user satisfaction and service effectiveness in modern libraries.

Null hypothesis. H02: There is no significant relationship between ai-driven user services and user satisfaction and service effectiveness (ρ = 0; β = 0).

Statistical tests. Pearson product-moment correlation followed by simple linear regression; N = 400; df = (1, 398); α = .05 (two-tailed).

Table 4.6: Descriptive Statistics of the Variables (H2)

Variable	N	Mean	Std. Deviation
AI-driven User Services (IV)	400	3.65	0.63
User Satisfaction and Service Effectiveness (DV)	400	3.70	0.68

Table 4.7 Pearson Correlation between AI-driven User Services and User Satisfaction and Service Effectiveness

Variables	N	Pearson r	Sig. (2-tailed)	Interpretation
AI-driven User Services ↔ User Satisfaction and Service Effectiveness	400	.660	< .001	Large positive, significant

Table 4.8: Regression Model Summary (H2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.660	0.436	0.434	0.512

Table 4.9: ANOVA of the Regression Model (H2)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	80.367	1	80.367	307.17	< .001
Residual	104.130	398	0.262		
Total	184.498	399			

Table 4.10: Regression Coefficients (H2)

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Model	B	Std. Error	Beta (β)	t	Sig.
(Constant)	1.100	0.151		7.31	< .001
AI-driven User Services	0.712	0.041	0.660	17.53	< .001

The Pearson correlation between AI-driven user services and user satisfaction and service effectiveness is r = .660, the strongest bivariate association in the study — positive, large, and significant at $p < .001$ — indicating that the quality of AI-driven services moves closely together with the satisfaction and effectiveness users experience.

The regression results show that AI-driven user services explain 43.6 per cent of the variance in user satisfaction and service effectiveness ($R^2 = .436$, Adjusted $R^2 = .434$), with a highly significant model, $F(1, 398) = 307.17$, $p < .001$. The slope $B = 0.712$ ($\beta = .660$, $t = 17.53$, $p < .001$) shows that each one-point improvement in AI-driven services corresponds to nearly three-quarters of a point of additional satisfaction — the largest effect obtained for any hypothesis.

The null hypothesis is rejected and H2 is accepted: AI-driven user services significantly improve user satisfaction and service effectiveness in modern libraries. Recommendation systems, virtual assistants, and personalised services are therefore not merely technological additions but direct drivers of the user experience.

5. Conclusion

The integration of Artificial Intelligence (AI) into library services represents a significant transformation in the way libraries provide information, support learning, and respond to changing user expectations. AI-enabled tools such as intelligent search systems, recommendation engines, virtual reference assistants, automated cataloguing, chatbots, and personalised information services can improve the speed, accuracy, convenience, and responsiveness of library services. The present study highlights that user satisfaction is closely associated with the perceived quality, accessibility, reliability, and usefulness of AI-enabled services. When AI technologies are easy to use, provide relevant information, reduce search time, and remain available beyond conventional service hours, they can enhance users' overall experience and encourage greater engagement with library resources. However, technological adoption alone does not guarantee satisfaction. Libraries must address challenges related to digital accessibility, technical reliability, data privacy, algorithmic bias, transparency, information accuracy, and the ethical use of user data. Unequal access to digital technologies and differences in users' technological competencies may also create barriers, particularly for users who require additional assistance. Therefore, the successful implementation of AI in libraries requires a balanced approach that combines technological innovation with human-centred service delivery. Librarians continue to play an essential role in interpreting information needs, providing personalised assistance, evaluating AI-generated information, and ensuring responsible use of technology. Appropriate policies, staff training, regular evaluation, data-protection measures, and user education are necessary to maximise the benefits of AI while minimising its risks. Overall, AI-enabled library services have considerable potential to strengthen service quality, accessibility, and user satisfaction, provided that their

implementation remains ethical, inclusive, transparent, and responsive to users' needs. Libraries should therefore view AI not as a replacement for professional library services but as a complementary technology that can augment librarians' capabilities and create more efficient, accessible, and user-focused information environments. Continued assessment of user experiences and emerging ethical concerns will be essential for ensuring that AI adoption contributes meaningfully to the long-term development and effectiveness of modern library services.

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