Virtual Assistants in Philippine Academic Libraries: A Comparative Analysis of Features, Accessibility, and User Engagement

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Abstract: This study examines the implementation of different virtual assistants (VAs) in academic libraries across various Philippine universities to determine the best features of different VAs, and to explore the role of VA platforms in accessibility and effectiveness of the services. Web content analysis is used in collecting data from ten (10) academic institutions based from Commission on Higher Education (CHED) list of Higher Education Institutions (HEIs), revealing a mix of VA types, including live librarians, chatbots, and AI-driven systems, supported by platforms such as TAWK.to, Springshare, Freshworks, Tidio, and PureChat. The analysis highlights the following: 1) types of VAs and platforms used by academic libraries, 2) comparing the different features and technical specifications, and, 3) accessibility and effectiveness of VA platforms. The study underscores the need for enhanced platform integration and improved AI capabilities to optimize user experience in Philippine academic libraries.

Keywords: Virtual Assistant (VA), Library Services, Library Support, Academic Libraries, and Philippines

1. Introduction

In the rapidly evolving landscape of academic libraries, the integration of technology has become pivotal in enhancing service delivery and user experience. Virtual assistants (VAs), powered by artificial intelligence (AI) and natural language processing (NLP), have emerged as transformative tools in library services, offering innovative ways to facilitate information retrieval, user interaction, and remote access to resources. In the context of Philippine academic libraries, where resources are usually limited yet user needs remain very diverse, VAs hold significant potential to bridge gaps in service

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accessibility and engagement. Digital tools, ranging from chatbots to voice-based assistants, are increasingly adopted to address inquiries, provide research support, and enhance user interaction in a cost-effective and scalable manner (Bode, 2023). However, the implementation and utilization of VAs in Philippine academic libraries remain underexplored and underutilized, particularly in terms of their features, accessibility, and impact on user engagement.

The adoption of VAs in academic libraries aligns with global trends in leveraging AI to streamline library operations and improve service efficiency. Studies have shown that VAs can enhance information retrieval, automate repetitive tasks, and provide personalized user experiences, thereby optimizing library services (Vincze, 2017; Nwosu et al., 2018). In the Philippines, VAs offer a promising solution to meet these demands. For instance, during the COVID-19 pandemic, virtual reference assistants (VRAs) in academic libraries in Iloilo proved effective in supporting remote access to resources, highlighting their role in maintaining service continuity (Bode, 2023). Yet, the diversity of VA platforms, their technical capabilities, and their effectiveness in addressing accessibility needs remain critical areas for investigation.

This study aims to fill this gap by conducting a comparative analysis of virtual assistants deployed in Philippine academic libraries, focusing on their features, accessibility, and user engagement. By examining the types of VAs and platforms in use, their technical specifications, and their role in enhancing service delivery, this research seeks to explore the current landscape of VAs in Philippine academic libraries and to provide a comprehensive understanding of how these tools are shaping the library services. The study is guided by the following research questions:

1. What are the types of virtual assistants (VAs) and platforms that are being used in Philippine academic libraries?
2. How do these different VAs and platforms compare in terms of their best features and technical specifications?
3. What role do VA platforms play in the accessibility and effectiveness of virtual assistant services in these libraries?

Drawing on existing literature, such as studies on virtual reference services and AI-driven library tools (Bode, 2023; Vincze, 2017; Nwosu et al., 2018), this research will contribute to the global discourse on technology integration in librarianship while providing practical insights for Philippine academic libraries to optimize their VA implementations.

2. Related Studies

The integration of virtual assistants (VAs) into academic libraries represents a transformative shift in how library services are delivered, offering enhanced accessibility, efficiency, and user engagement. In Philippine academic libraries, VAs are increasingly adopted to provide 24/7 support, assist with resource navigation, and address user inquiries. This literature review synthesizes existing research on the role of VAs in academic libraries, focusing on their technical features, accessibility, user adoption, implementation challenges, and best practices. While the review prioritizes studies relevant to the Philippines, it also draws on global research to provide a comprehensive foundation for understanding VA implementation in this unique setting.

The Role of Virtual Assistants in Libraries

Virtual assistants and AI-powered chatbots are increasingly being integrated into academic libraries to enhance user experiences and improve service delivery. These tools offer dynamic and context-aware reference interactions, facilitating personalized learning pathways and resource discovery (Adetayo, 2023). They can provide instant user support, automate routine tasks, and optimize collection management, reshaping traditional library practices (Senthilkumar et al., 2024). Interestingly, while some studies focus on commercial virtual assistants like Bing Chat (Adetayo, 2023), others explore the development of custom chatbots using platforms like Google's Dialogflow (Rodriguez & Mune, 2022). This diversity in approaches highlights the flexibility libraries have in implementing AI-driven solutions. However, challenges such as accuracy, privacy concerns, and algorithmic bias require careful consideration when deploying these technologies (Adetayo, 2023; Panda et al., 2024). These studies also show that virtual assistants in academic libraries show promise in improving accessibility, efficiency, and user engagement. Key features for success include empathy, relational behavior, and self-disclosure (Curtis et al., 2021). However, ongoing research is needed to address challenges and optimize design for long-term user engagement. As AI technology evolves, academic libraries must balance innovation with ethical considerations to ensure these tools enhance rather than replace human-driven services (Hamad & Shehata, 2024; Panda et al., 2024).

Virtual Assistants user engagement and adoptions

Virtual assistants have expanded into various domains including home use, business applications, and educational settings due to a multitude of factors. Research indicates that habit, trust, and personal innovation are significant factors impacting the adoption of virtual assistants (García De Blanes Sebastián et al., 2022). While perceived privacy risk was not found to be a significant factor in users' intention to adopt these services, effort expectancy emerged as the most dominant antecedent of AI-powered virtual assistant (AIVA) adoption,

followed by perceived innovativeness (Pandey & Rai, 2023). This suggests that users prioritize ease of use and innovative features over privacy concerns when considering virtual assistant adoption. Contradictory findings exist regarding the role of performance expectancy: some studies indicating it as a non-significant factor (García De Blanes Sebastián et al., 2022), while others suggest it positively influences behavioral intention to use AI virtual assistants (Xiong et al., 2023). Additionally, the uncanny valley paradigm, which typically suggests that human-like features in technology can create discomfort, may not always apply in the context of virtual assistants (Pandey & Rai, 2023). In conclusion, to enhance user engagement and adoption of virtual assistants, developers should focus on creating user-friendly interfaces that require minimal effort, incorporate innovative features, and build trust through reliable performance. Empathy, relational behavior, and self-disclosure in virtual assistants have been shown to positively impact user experience (Curtis et al., 2021). Furthermore, considering the growing application of virtual assistants in various sectors, including education and healthcare, future research should explore domain-specific factors influencing adoption and engagement to optimize their design and implementation.

Best Practices on Virtual Assistants

Virtual assistants and AI-powered chatbots are increasingly being integrated into academic libraries to enhance user experiences and improve service delivery. Several best practices have emerged from recent studies: Personalization and context-awareness are key features that make virtual assistants effective in academic library settings. Bing Chat, for example, offers a conversational interface that facilitates dynamic and context-aware reference interactions, fostering user empowerment and personalized learning pathways (Adetayo, 2023). This aligns with the broader trend of AI applications enhancing efficiency, user experiences, and information management in libraries (Senthilkumar et al., 2024). Integration with existing library resources is crucial for maximizing the utility of virtual assistants. Bing Chat's integration enhances resource discovery, navigational assistance, and engagement with visual content (Adetayo, 2023). Similarly, chatbots developed using platforms like Google's Dialogflow can be populated with current library information sources and trained to address typical information inquiries (Rodriguez & Mune, 2022). However, implementing virtual assistants is not without challenges. Issues related to accuracy, privacy, and algorithmic bias require careful consideration (Adetayo, 2023). Additionally, the digital divide, privacy concerns, and technical complexities need to be addressed when integrating AI and metaverse technologies in academic libraries (Amzat & Adewojo, 2023). In conclusion, while virtual assistants offer significant potential for improving library services, their successful implementation requires a balanced approach. Libraries should focus on personalization, integration with existing resources, and addressing ethical concerns to ensure the effective use of these technologies in academic settings.

3. Methods of the Study

This study utilized a web content analysis to investigate the implementation of virtual assistants (VAs) in Philippine academic libraries. Purposive sampling was employed to select ten academic libraries from the Commission on Higher Education (CHED) list of Higher Education Institutions (HEIs) (https://ched.gov.ph/list-of-higher-education-institutions), based on the availability of publicly accessible library websites explicitly featuring VA services. Data collection occurred from January to March 2025, involving a systematic review of each library's website to identify VA types, platforms used, and key features. To evaluate chatbot functionality, interactions were initiated at specific times: once during office hours on a weekday and once during off-hours, to assess responsiveness and performance across different operational contexts. Technical specifications and accessibility features were analyzed by reviewing platform documentation and testing VA interfaces for compliance with WCAG 2.1 standards where applicable. Data were tabulated and compared to assess the distribution, functionality, and effectiveness of VAs deployment in the Philippine academic libraries.

4. Results and Discussions

Insights into the deployment of virtual assistants (VAs) across 10 academic libraries in the Philippines are shown in Table 1. The data reveals a diverse mix of VA types, with live librarians being the most common (60%, 6 out of 10 libraries), followed by chatbots (20%, 2 libraries) and AI-driven assistants (20%, 2 libraries). This suggests a preference for human-mediated support, likely due to its flexibility in addressing complex queries.

Table 1. Distribution of VA Types in Philippine Academic Libraries

Type of Virtual Assistants	**No. of Academic Libraries**	**Percentage (%)**
Artificial Intelligence (AI)	2	20%
Chatbot	2	20%
Live Librarian	6	60%

The key features align with VA types: live librarians offer real-time chat and personalized support (e.g., via Springshare and PureChat), chatbots provide pre-programmed responses (e.g., via Freshworks and TAWK.to), and AI systems deliver automated, keyword-based interactions (e.g., via TAWK.to). This distribution suggests varying levels of technological sophistication, with live librarians offering the most dynamic engagement, while chatbots and AI may enhance efficiency but lack adaptability. Overall, the table underscores the need for consistent platform adoption and advanced AI integration to optimize user experience in these libraries.

Table 2. The platforms supporting these VAs vary, with TAWK.to being the most utilized (40%, 4 libraries), followed by Springshare, Freshworks, Tidio, PureChat, and Library-developed chatbot platforms each appearing once (10% each). The prevalence of TAWK.to indicates its reliability or cost-effectiveness, while the presence of Library-developed chatbot platforms in two instances (20%) highlights potential gaps in standardization or documentation.

Table 2. Distribution of VA Platforms in Philippine Academic Libraries

Type of VA Platforms	**No. of Academic Libraries**	**Percentage (%)**
Freshworks	1	10%
Library-developed chatbot	2	20%
PureChat	1	10%
Springshare	1	10%
TAWK.to	4	40%
Tidio	1	10%

Table 3 shows comparisons of six virtual assistant/chatbot platforms commonly considered or used in academic library websites: TAWK.to, Springshare (LibChat), Freshworks (Freshchat), Tidio, PureChat, and library-developed chatbots. Data was acquired from their respective websites and focuses on best features, technical specifications, and other important information relevant to academic libraries, such as ease of integration, accessibility, and support for research-related queries.

Table 3. Comparison of Virtual Assistants for Academic Library Websites

Platform	*Best Features*	*Technical Specifications*	*Other Information*
TAWK.to	*- Free live chat: Completely free with unlimited agents and chat history, ideal for budget-constrained libraries.* *- Knowledge base integration: Supports sharing resources with patrons, useful for FAQs and guides.* *- Geo-tracking and analytics: Tracks visitor location and engagement, aiding in understanding patron demographics.* *- Mobile compatibility: Accessible via smartphones for librarians and patrons.*	*- Hosting: Cloud-based, no server setup required.* *- Integration: JavaScript code snippet for website embedding; integrates with CMS like WordPress.* *- AI Support: Optional AI chatbot ($29/month) or virtual agents ($7/hour).* *- Customization: Limited widget customization; "Powered by TAWK.to" branding removable for $19/month.* *- APIs: Open API for custom integrations.* *- Scalability: Handles high chat volumes, suitable for large universities.*	*- Pros: Cost-effective, easy setup, robust analytics for tracking usage.* *- Cons: Limited AI capabilities in free plan; branding may be intrusive for professional library websites.* *- Academic Use: Suitable for libraries needing live chat with minimal setup but may lack advanced automation for complex research queries.* *- Support: Email-only support in free plan; paid plans offer live chat support.*

Springshare (LibChat)	*- Library-specific design: Tailored for academic libraries, integrates with LibGuides, LibAnswers, and other Springshare tools.* *- Omnichannel support: Combines chat, email, SMS, and social media for seamless patron communication.* *- Proactive chat: Triggers chat invitations based on patron behavior (e.g., time spent on a page).* *- Knowledge base: Links to library FAQs and guides, reducing repetitive queries.*	*- Hosting: Cloud-based, managed by Springshare.* *- Integration: Native integration with Springshare suite (LibGuides, LibAnswers); supports API for external systems.* *- AI Support: Limited; relies on LibAnswers for FAQ automation, not true AI chatbots.* *- Customization: Highly customizable widgets to match library branding.* *- Scalability: Designed for academic institutions, handles multiple librarians and departments.* *- Accessibility: WCAG 2.1 compliant, ensuring accessibility for all patrons.*	*- Pros: Seamless integration with library systems, robust for academic environments, accessible.* *- Cons: Subscription-based (pricing not public; varies by institution size), limited AI capabilities.* *- Academic Use: Ideal for libraries already using Springshare tools; supports research queries via integration with library resources.* *- Support: Dedicated support for libraries, including training and webinars.*

Freshworks (Freshchat)	*- AI-powered chatbots: Automates responses for common queries (e.g., library hours, resource access).* *- Omnichannel: Supports live chat, email, social media, and video calls.* *- CRM integration: Tracks patron interactions, useful for personalized research assistance.* *- Custom workflows: Automates tasks like ticket assignment or query escalation.*	*- Hosting: Cloud-based.* *- Integration: Integrates with Freshdesk, CRM systems, and e-commerce platforms; API available.* *- AI Support: Advanced NLP for human-like conversations; supports multilingual chatbots.* *- Customization: Highly customizable widgets and workflows.* *- Scalability: Suitable for large institutions with high patron volumes.* *- Accessibility: Compliant with accessibility standards (e.g., WCAG).*	*- Pros: Robust AI and automation, omnichannel support, strong analytics.* *- Cons: Pricing starts at $15/agent/month (free plan limited); may be costly for small libraries.* *- Academic Use: Good for libraries needing AI-driven automation and CRM for patron management.* *- Support: 24/7 support via chat, email, and phone for paid plans.*

Tidio	*- AI chatbot (Lyro): Handles natural language queries, ideal for automating routine library questions.* *- Live chat: Real-time engagement with patrons, with visitor tracking.* *- Multichannel: Integrates with email and Facebook Messenger.* *- No-code chatbot builder: Easy to create chatbots for lead generation or FAQs.*	*- Hosting: Cloud-based.* *- Integration: Supports WordPress, Shopify, and major CMS; API available.* *- AI Support: Lyro AI uses NLP for conversational responses; limited in free plan.* *- Customization: Extensive widget customization options.* *- Scalability: Free plan supports 100 chatbot-reachable visitors; paid plans ($59/month Growth) for larger volumes.* *- Accessibility: Generally accessible, but specific WCAG compliance not detailed.*	*- Pros: User-friendly, affordable free plan, strong AI in paid plans.* *- Cons: Free plan lacks advanced features (e.g., live typing, visitor notes); AI limited to paid plans.* *- Academic Use: Suitable for small to medium libraries needing affordable AI and live chat.* *- Support: Email support in free plan; paid plans include live chat support.*

PureChat	*- Simple live chat: Quick setup (<3 minutes) for real-time patron support.* *- Free plan: Includes unlimited chats, three operators, and basic customization.* *- Visitor tracking: Monitors patron behavior on library websites.* *- Mobile app: Allows librarians to respond on the go.*	*- Hosting: Cloud-based.* *- Integration: Simple code snippet for website embedding; limited integrations (e.g., WordPress).* *- AI Support: No AI chatbot; focused on live chat only.* *- Customization: Basic widget customization.* *- Scalability: Free plan suitable for small libraries; paid plans for larger teams.* *- Accessibility: Limited information on WCAG compliance.*	*- Pros: Easy to use, free plan sufficient for basic needs, fast setup.* *- Cons: No AI capabilities, limited features compared to competitors.* *- Academic Use: Best for small libraries needing simple live chat without automation.* *- Support: Email and chat support; response times vary for free plan.*

Library-Developed Chatbot	*- Customizability: Tailored to specific library needs (e.g., catalog search, research guide navigation).* *- Integration with library systems: Can connect directly to OPAC, institutional repositories, or databases.* *- Branding: Fully branded to match library identity.* *- Open-source options: Platforms like Rasa or Botpress allow cost-effective development.*	*- Hosting: Varies (cloud, on-premises, or hybrid); depends on library resources.* *- Integration: Custom-built to integrate with library systems (e.g., ILS, LibGuides).* *- AI Support: Varies; advanced NLP possible with frameworks like Rasa or Dialogflow.* *- Customization: Fully customizable, but requires technical expertise.* *- Scalability: Depends on infrastructure; may struggle with high traffic without optimization.* *- Accessibility: Must be designed with WCAG compliance in mind.*	*- Pros: Highly tailored, no recurring costs if open-source, full control.* *- Cons: Requires significant development time, technical expertise, and maintenance.* *- Academic Use: Ideal for libraries with unique needs and IT resources; examples include chatbots for catalog searches or research consultations.* *- Support: Relies on library IT staff or community support for open-source tools.*

Table 4. Provides comparisons of six virtual assistant/chatbot platforms—TAWK.to, Springshare (LibChat), Freshworks (Freshchat), Tidio, PureChat, and library-developed chatbots—based on user experience (UX) and accessibility features. These factors are critical for academic libraries to ensure intuitive interactions, equitable access, and compliance with accessibility standards like WCAG 2.1, supporting diverse patrons such as students, faculty, and those with disabilities.

Table 4. User Experience and Accessibility Features of Virtual Assistants for Academic Library Websites

Platform	**User Experience Features**	**Accessibility Features**	**Other Information**
TAWK.to	- Intuitive interface: Simple chat widget with clear prompts for patrons. - Multilingual support: Translates chats in real-time, aiding international students. - Mobile responsiveness: Fully functional on smartphones and tablets. - Proactive triggers: Initiates chats based on page dwell time, enhancing engagement.	- WCAG Compliance: Limited documentation; partial WCAG 2.1 compliance (e.g., keyboard navigation supported but not fully optimized). - Screen reader support: Basic compatibility with JAWS and NVDA, but may require customization. - Text size/contrast: Adjustable via browser settings, not native to widget.	- Pros: Free, multilingual, mobile-friendly; good for basic UX. - Cons: Accessibility features not robust; branding in free plan may disrupt professional UX. - Academic Fit: Suitable for libraries prioritizing cost and basic engagement but may need tweaks for full accessibility.
Springshare (LibChat)	- Library-focused UX: Designed for academic patrons, with links to library resources (e.g., LibGuides, FAQs). - Customizable widgets: Matches library website branding for seamless integration. - Omnichannel continuity: Patrons can switch between chat, email, or SMS without losing context. - Usage analytics: Tracks patron interactions to improve UX over time.	- WCAG 2.1 Compliance: Fully compliant, ensuring accessibility for all users. - Screen reader support: Optimized for JAWS, NVDA, and VoiceOver. - Keyboard navigation: Fully supported, critical for motor-impaired users. - High-contrast mode: Native support for visual impairments.	- Pros: Tailored for libraries, strong accessibility, seamless resource integration. - Cons: Subscription cost may limit adoption; less focus on advanced AI-driven UX. - Academic Fit: Ideal for libraries needing accessible, library-centric UX with robust compliance.

Freshworks (Freshchat)	- AI-driven UX: Natural language processing (NLP) provides human-like responses, reducing patron frustration. - Personalized interactions: CRM integration tailors responses based on patron history. - Rich media support: Shares images, PDFs, or videos (e.g., research tutorials). - Proactive engagement: Smart triggers based on user behavior (e.g., search page visits).	- WCAG 2.1 Compliance: Compliant, with focus on inclusive design. - Screen reader support: Compatible with major screen readers. - Multilingual accessibility: Supports diverse languages with accessible interfaces. - Customizable fonts/contrast: Adjustable for visual accessibility.	- Pros: Advanced AI enhances UX, strong accessibility, omnichannel support. - Cons: Paid plans required for full features; may be complex for small libraries. - Academic Fit: Great for libraries wanting AI-enhanced, accessible UX with CRM capabilities.
Tidio	- Conversational AI (Lyro): Simplifies queries with natural responses in paid plans. - Visual customization: Widgets align with library aesthetics for cohesive UX. - Live typing preview: Enhances real-time interaction for patrons. - Mobile-first design: Optimized for student-heavy mobile usage.	- WCAG Compliance: Partial compliance; lacks detailed documentation on WCAG 2.1 adherence. - Screen reader support: Functional but not optimized for all screen readers. - Keyboard navigation: Supported but may require testing for full accessibility. - Language support: Multilingual, aiding accessibility for non-English speakers.	- Pros: Affordable, visually appealing, good mobile UX. - Cons: Accessibility features less robust; free plan limits AI-driven UX. - Academic Fit: Suitable for small to medium libraries needing cost-effective, mobile-friendly UX.

PureChat	- Simple UX: Minimalist chat interface, easy for patrons to navigate. - Quick response times: Real-time chat with librarian availability indicators. - Mobile compatibility: Functional on mobile devices. - Custom greetings: Tailors initial messages to library context (e.g., "Need research help?").	- WCAG Compliance: Limited information; not fully WCAG 2.1 compliant. - Screen reader support: Basic compatibility, but not optimized. - Keyboard navigation: Partially supported; may pose issues for some users. - Text adjustments: Relies on browser settings, not native.	- Pros: Simple, free, quick to deploy for basic UX. - Cons: Minimal accessibility features; no AI for enhanced UX. - Academic Fit: Best for small libraries with basic needs but less ideal for diverse or accessibility-focused patron bases.
Library-Developed Chatbot	- Tailored UX: Designed for specific library workflows (e.g., catalog search, booking study rooms). - Contextual responses: Integrates with library databases for relevant answers. - Branding control: Fully aligns with library website design. - Feedback loops: Can collect patron input to refine UX over time.	- WCAG Compliance: Varies; compliance depends on development (e.g., using accessible frameworks like React). - Screen reader support: Possible with intentional design but requires expertise. - Keyboard navigation: Customizable but needs explicit implementation. - Accessibility tools: Can include high-contrast modes or text-to-speech if designed.	- Pros: Highly customizable UX, full control over accessibility. - Cons: Requires technical expertise, time, and resources to ensure accessibility. - Academic Fit: Ideal for libraries with IT resources to build accessible, tailored chatbots for unique patron needs.

5. Recommendations

The findings of this study provide a foundational understanding of virtual assistants (VAs) in Philippine academic libraries, yet several avenues for future research and development remain. First, longitudinal studies could explore the long-term impact of VA adoption on user engagement and satisfaction, particularly as AI technologies evolve. Investigating user feedback through surveys or usability testing would offer deeper insights into patron experiences, addressing gaps in current UX evaluations. Second, future research should focus

on enhancing AI capabilities, such as advanced natural language processing (NLP) and machine learning, to improve the adaptability of chatbots and AI-driven VAs for complex research queries. This is particularly relevant given the study's observation that live librarians dominate due to their flexibility, suggesting a need for more sophisticated AI solutions to complement human-mediated support. Third, exploring the integration of VAs with emerging technologies, such as voice-activated assistants or augmented reality for library navigation, could further enhance accessibility and engagement, especially for diverse student populations. Additionally, standardizing platform adoption across Philippine academic libraries could address inconsistencies in implementation, potentially through collaborative frameworks or shared resources among institutions. Finally, future studies should prioritize accessibility, ensuring that VA platforms fully comply with WCAG 2.1 standards and cater to patrons with disabilities through rigorous testing and inclusive design practices. These directions would not only optimize VA implementation but also align Philippine academic libraries with global trends in technology-driven librarianship.

6. Conclusions

This study provides a comprehensive comparative analysis of virtual assistants (VAs) in Philippine academic libraries, highlighting their types, platforms, features, accessibility, and user engagement. The findings reveal a predominant reliance on live librarian-based VAs (60%), supported by platforms like TAWK.to, Springshare, and others, with chatbots and AI-driven systems each constituting 20% of deployments. While live librarians offer flexibility for complex queries, platforms like Freshworks and Tidio demonstrate potential for automation through AI and NLP, though their adoption is limited by cost and scalability challenges. Accessibility remains a critical concern, with Springshare leading in WCAG 2.1 compliance, while other platforms, such as TAWK.to and PureChat, require improvements to fully engage users. The study underscores the need for enhanced AI capabilities, better platform integration, and standardized adoption to optimize user experience and address resource constraints in Philippine academic libraries. By aligning VA implementations with global technological advancements and local needs, these libraries can enhance service delivery, improve accessibility, and foster greater user engagement, contributing to the broader evolution of academic librarianship in the digital age.

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