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Navigating the Future of Technologies: Lived Experiences of TUP Librarians on the Use of Artificial Intelligence Tools

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Abstract
Aim: The study aimed to explore the lived experiences of TUP librarians using artificial intelligence tools, examine their familiarity with them, analyze how they utilize AI tools in the profession, and investigate drawbacks and opportunities learned from their experiences.
Methodology: The mixed-methods approach is particularly suitable for investigating TUP librarians' lived experiences in using Artificial Intelligence (AI) tools. The quantitative portion utilized a descriptive approach, while the qualitative portion utilized a case study approach. A structured interview protocol with open-ended and closed-ended questions was observed to gather detailed information about librarians' experiences and perspectives on AI tools. Frequency and percentage were used to determine the most frequently used AI tools. Thematic analysis was used to analyze statements from the informants, leading to codes and themes.
Results: Grammarly was revealed to be the most familiar AI tool among TUP librarians. On the contrary, Research Rabbit, Litmaps, Kuki, and Endnote were the least familiar among the informants. Moreover, informants use AI tools in writing and editing tasks, marketing, promotion, instruction, and referencing and citation. The informants utilized three major mechanisms and strategies: (1) adaptation, (2) specificity, and (3) cost-efficiency. The informants perceived multiple advantages and disadvantages of using AI tools.
Conclusion: The TUP librarians were using AI tools to ease their day-to-day transactions in the profession. Various mechanisms and strategies were used to maximize the potential of AI in librarianship. Since the librarians were aware of the disadvantages of AI tools, their need for continuous updates on the trends may minimize the risks of these disadvantages.

Keywords: familiarization, utilization, Artificial Intelligence (AI), librarianship

INTRODUCTION

Artificial Intelligence (AI) integration in libraries has become increasingly prominent in recent years, offering numerous benefits and challenges for librarians and library operations (Cox, 2022). Rapid improvements in technological advances, including the remarkable progress of artificial intelligence (AI), are evident in various sectors of our society. Rapid improvements in technological advances, including the remarkable progress of artificial intelligence (AI), are evident in various sectors of our society such as local governance (Distor, Khaltar & Moon, 2021), banking (Amodia, Gabriel & Mapa, 2021) and education (Estrellado & Miranda, 2023).

The utilization of Artificial Intelligence (AI) in libraries can be traced back to the 1940s and 1950s, when the conceptual foundations of AI were initiated by Alan Turing through the Turing Test in 1950 to assess a machine's intelligence. Moreover, the Dartmouth Conference in 1956 started using the term "artificial intelligence," leading to early programming efforts. The libraries began adopting emerging AI technologies for information retrieval and cataloging during the 1960s. The ELIZA, a language processing program of 1966, demonstrated potential applications for efficient user-client interactions in libraries but encountered major challenges due to decreasing interest and funding ("Library Guides", 2024; Miller, 2024). The resurfacing of machine learning started the advent of inclusion of algorithms which led to improvement of cataloging processes and strategies sustaining user engagement. During this period,

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digital libraries began to rise which made resources accessible to the public (Halburagi & Mukarambi, 2024). In the present, the inclusion of deep learning and generative AI tools revolutionized the library operations which allowed users to attain personalized services and resource access and generation (Haesen, 2024; Randtke, 2023). Moreover, the rise of language models allowed further discussion on ethical considerations on AI applications within the contexts of libraries (Halburagi & Mukarambi, 2024).

Multiple benefits of the use of Artificial Intelligence (AI) in the library were highlighted in various studies. For instance, Maraon and Agcito (2024) explored the integration of emerging technologies, where artificial intelligence (AI) is one, into library services within higher education institutions in the CARAGA Region and Northern Mindanao. As libraries integrated technological advancements such as online service delivery, digitized collections, and tools for resource monitoring and data analysis, they aimed to enhance operational efficiency and user experiences.

Moreover, AI has been remarked as a tool to improve library services and operations with its ability to provide suitable recommendations and make data-based rational decisions and observations in the study of Mallikarjuna (2024). The importance of AI in libraries was briefly discussed, which includes enhanced user experience, improved efficiency in cataloging and data management, efficient data collection and analysis, better discoverability and accessibility, prediction needs and trends, test and data mining for research.

Manjunatha (2023) identified areas of AI application in libraries in this study as cataloging and classification, reference service, collection management, and security systems. The findings from the study of Manjunatha (2023) revealed that most of the respondents were aware of AI library services. This suggested that AI-based library services were well-known in the scope area of the study. Moreover, the expansion of digital collections and accessibility appeared to be the most important features for the utilization of AI libraries, followed by the enhancement of user experience and personalization, which were also mentioned in the previous studies of Amodia, Gabriel, and Mapa (2021), Maraon and Agcito (2024), and Mallikarjuna (2024).

Furthermore, in their study, libraries utilizing AI and some other technological advancements were called smart libraries by Gul and Bano (2019). They discussed integrating emerging technologies in library services by extensively reviewing literature from Clarivate Analytic's Web of Science and Sciverse Scopus. Overall, the study presumed that modern libraries are becoming smarter because of the broader utilization of AI and other technological tools. Librarians' work and capabilities are enhanced, which satisfies the users and their customers. AIs and other smart technologies also helped libraries evolve as targeted learning hubs promoting knowledge vision and widening the reach of physical spaces. The gap in rapid change and support in the users' competing needs, including associated services, has slowly been bridged.

Similarly, Subaveerapadiyan (2023) studied the application and impact of AI on library operations. Subaveerapadiyan (2023) concluded that AI could revolutionize library operations and enhance user experiences through various applications such as AI chatbots, intelligent libraries, and more. AI can also improve information retrieval, automate routine tasks, personalize user interactions, and provide innovative services, thereby increasing user acceptance and adoption of such tools. Despite the benefits, challenges such as ethical concerns, privacy issues, and the need to maintain fair access to information must be addressed. Libraries must balance embracing these AI advancements while upholding human values, ensuring that AI enhances rather than replaces librarians' roles. Continued research and collaboration between libraries, researchers, and technology developers are essential to develop AI solutions tailored to library needs.

AI significantly affected library search and resource discovery, allowing faster data searches. However, AI in libraries also presents several challenges, as disclosed by Mallikarjuna's (2024) study. One of these is the cost. AI technology can be expensive, whereas libraries may not have the resources to invest in it. Other challenges may include data privacy and security. Libraries must ensure that user data is protected. The use of AI may also stimulate bias and hesitance of customers to use AI. Lastly, it must be kept in mind that libraries must have staffs trained in AI technology to be able to implement it effectively. Libraries must collaborate with professionals to adopt an effective approach to AI use in their field. They must put effort in overcoming this technological change to enhance their services and operations successfully.

Research on artificial intelligence and librarianship remains limited, making this a driving gap in the current research study. Accordingly, Wheatley and Hervieux (2019) conducted a similar study of artificial intelligence in academic libraries in the United States and Canada. None of the university libraries covered by the study publicly mentioned AI in their strategic plans, and no initiatives were specifically aimed to address AI in their statements and events on their websites, as noted by the results of this study. Furthermore, only a few libraries offered programs and services particular to AI. In the field of information services, specifically librarianship, there are still lingering questions regarding the impact of artificial intelligence on library services. Additionally, it was noticeable that the lack of human

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touch, personalized assistance, ethical considerations, and biases were the underlying constraints in utilizing AI in library services, which agreed with Mallikarjuna's (2024) study. Nevertheless, libraries must be aware of AI's significant strengths and its interruptions, challenges, and impact on traditional library operations.

In line with this literature, the University of the Philippines has been actively engaged in developing AI in the country, and its librarians are expected to be at the forefront of adopting and utilizing these technologies. However, there is a lack of research on the specific AI tools TUP librarians use and how they utilize them in their profession.

The study aimed to identify the AI tools commonly encountered by selected TUP librarians, examine their familiarity with them, analyze how they utilize AI tools in the profession and investigate success factors, drawbacks, and opportunities learned from their experiences. By addressing these objectives, this case study aims to contribute to the growing body of knowledge on the role of AI in university libraries and provide valuable insights for librarians and library administrators seeking to integrate AI technologies into their operations.

Objectives

The general problem of this paper is "What are the lived experiences of the TUP Librarians in the use of Artificial Intelligence (AI) tools?"

Specifically, this study sought answers to the following question:

1. What AI tools were familiar to the selected TUP librarians?
2. What specific dimension of the field of librarianship were the AI tools utilized by the selected TUP librarians?
3. What mechanisms or strategies did the selected TUP librarians apply in utilizing AI tools in the profession?
4. What were the perceived potential advantages and disadvantages of the AI tools identified by the selected TUP librarians?

METHODS

Research Design

The research methodology employed in this study is a mixed-methods approach, which is particularly suitable for investigating the lived experiences of Artificial Intelligence (AI) tools among selected Technological University of the Philippines (TUP) librarians. This approach allows for in-depth exploration of the experiences and perspectives of the librarians, matched with both quantitative and qualitative data, providing rich and detailed insights into their encounters with AI tools, familiarity with these tools, and strategies for utilizing them in their profession.

To quantify the most and least frequently used AI tools of the informants, the descriptive approach was harnessed by the researchers where an explicit count on the familiarization and utilization of each known AI tool were identified. Moreover, this led to a common understanding of the rankings of the most and the least familiar AI tools within the TUP libraries.

The case study approach is applied for this kind of research because it is well-suited for investigating complex, nuanced phenomena that are dependent on the surrounding environment. It provides a detailed and contextualized understanding of the librarians' experiences and perspectives, which is essential for understanding the intricacies of AI tool utilization in their profession. Additionally, the case study approach allows for exploring subjective and qualitative aspects of the librarians' experiences, which is critical for understanding the human-centered aspects of AI tool utilization.

Population and Sampling

The researchers looked for informants that would meet the following inclusion criteria: (1) a campus librarian in TUP, and (2) completed a degree in library science or any allied courses. The twelve (12) librarians from the multiple campuses of the Technological University of the Philippines (TUP) were involved in the study. Generally, as the population of twelve librarians across the four campuses of the TUP met the inclusion criteria, no sampling method has been used, as the population is equal to the sample.

The selected participants engaged in answering close-ended questions in a virtual Focus Group Discussion (FGD) and in-depth interviews. To aid in the data collection process, interview questions were presented on a slideshow presentation or an online message for easier viewing. All interviews were digitally recorded for later transcription and coding. Appropriate handling of quantitative and qualitative data was observed during the process.

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Instrument

The structured interview protocol used a combination of open-ended and closed-ended questions to gather detailed information about librarians' experiences and perspectives on AI tools. Open-ended questions were designed to elicit detailed and nuanced responses, allowing the researchers to understand better the librarians' thoughts and feelings about AI tools. These questions were often broad and non-leading, encouraging the librarians to share their personal experiences and insights. For example, the researcher asked, "What mechanisms or strategies did you apply in utilizing AI Tools in your profession?" or "What do you think are the advantages and disadvantages of using AI tools?" These questions allowed the librarians to freely share their thoughts and opinions, providing rich and detailed data for analysis. In contrast, closed-ended questions were used to gather more specific and quantifiable information, such as the frequency of AI tool usage, particularly by selecting the AI tools that they have already used in the profession. By combining both open-ended and closed-ended questions, the researchers gathered a comprehensive and well-rounded understanding of the librarians' perspectives on AI tools.

To ensure the validity of the instrument, the researcher sought expertise from a librarian and a technical expert in mixed-methods research. The instrument was said to have content validity and construct validity leading to effectively answering the posed research questions.

Data Collection

The data gathering procedures for this study on the lived experiences of TUP librarians on the use of AI technology were carefully designed to yield comprehensive insights into their experiences. The researcher obtained permission from the head librarian and used purposive sampling to select participants with relevant experience, ensuring a diverse range of perspectives across different campuses. A structured interview protocol, featuring both open-ended and closed-ended questions, was developed to capture detailed responses and specific quantifiable information. Online interviews were conducted during the first and second weeks of June 2024, allowing flexibility for both the researcher and participants. Responses were meticulously recorded, and transcripts were created for analysis using narrative analysis techniques to gain deeper insights into the librarians' experiences with AI tools. To enhance the validity of the data collection instrument, feedback was obtained from an experienced librarian and a technical expert in qualitative research, ensuring the interview questions effectively addressed the research objectives.

Data Analysis

The quantitative portion of the study entails the utilization of frequency and percentages to determine the most and least familiarized and utilized Artificial Intelligence (AI) tools used by the TUP librarians in their daily transactions. A frequency table indicating the known AI tools in the field of librarianship was presented in the subsequent portions to summarize the frequency of familiarization of the TUP librarians in the categorized AI tools.

For the qualitative portion of the study, the researcher used thematic analysis to transcribe the responses of the TUP librarians. Through thematic analysis, the researcher identified the patterns evident in the informants' statements, leading to evident themes and codes.

The researcher utilized in vivo, process, affective, and descriptive coding for the initial coding process. In vivo coding, often called verbatim coding, utilizes codes from the actual language used by the participants in qualitative data, especially in their hands-on experiences in utilizing Artificial Intelligence (AI). On the other hand, process coding utilizes gerunds, or verbs ending with -ing, to express the action or observable task in each qualitative data, particularly in digging deep to the encountered key processes. Moreover, affective coding allowed the researcher to capture the emotions experienced by the librarian-informants. Nonetheless, descriptive coding was utilized to indicate the key features on the utilization and familiarization of AI, which provided a deeper interpretation of the quantitative results (Saldaña, 2021). Through such, a hybrid approach to coding was applied wherein both inductive and deductive coding was applied to develop categories, eventually, leading to themes (Saldaña, 2021).

For instance, the researcher inspected their common perceptions on familiarization and utilization of AI, generating a pattern leading to a general theme. This analytic method can also identify the undertaken procedures upon its implementation, to whether AI can lead to future library advancements. Nonetheless, the highlights of the utilization of AI were also derived through a single theme covering the key ideas. After generating themes, the qualitative responses of the learners were analyzed against the quantitative results garnered from the statistical application. The coding results were also validated by a coding expert and a master's degree holder in the field of education. Through such, the researchers were able to present both quantitative and qualitative data and create meaningful results that responded to the need of the current endeavor.

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Ethical Consideration

In conducting the case study research on the familiarization and utilization of AI tools by selected librarians at the Technological University of the Philippines (TUP), several ethical considerations were meticulously observed to ensure the integrity of the research process and the protection of participants' rights in line with the Data Privacy Act of 2012.

An informed consent was obtained from all participants involved in establishing the inclusion criterion before initiating the research. Participants were thoroughly informed about the research objectives, which included clear explanations of the purpose and goals of the study, the methods used to gather data, potential risks associated with their participation, and the benefits that might arise from the research findings. They were also assured of their right to withdraw from the study at any stage without facing any negative consequences.

In addition, to protect participants' privacy, assurances were given regarding confidentiality and anonymity. Participants' identities and sensitive information would remain confidential unless explicit consent for disclosure were provided. Additionally, all documents and data sources utilized in the research were anonymized during reporting, ensuring that individual contributions could not be traced back to specific participants unless permission was granted. In line with this, each informant is assigned a letter from A to represent their personal code of reference.

Moreover, the study adhered to strict data protection protocols to ensure the security of collected data. All data were stored securely, in compliance with relevant data protection regulations. Access to the data was limited to individuals directly involved in conducting the research, thereby minimizing the risk of unauthorized access or breaches. Additionally, the study committed to transparency in reporting, pledging to provide honest results while avoiding data manipulation or selective presentation.

RESULTS and DISCUSSION

This chapter presents and analyzes the key findings from the study on using AI tools by librarians at the Technological University of the Philippines (TUP). The chapter introduces the subjects of the study - the twelve TUP librarians interviewed across the university's four campuses - and provides an overview of the TUP library system and its history.

1. Informants of the Study

Table 1

Informants of the Study: TUP Librarians from Multiple Campuses

Code Name	Age	Sex	TUP Campus
Informant A	35	Male	Taguig
Informant B	41	Female	Taguig
Informant C	24	Female	Taguig
Informant D	32	Female	Manila
Informant E	31	Female	Manila
Informant F	28	Female	Visayas
Informant G	40	Female	Visayas
Informant H	28	Male	Visayas
Informant I	26	Male	Cavite
Informant J	22	Female	Manila
Informant K	26	Male	Manila
Informant L	35	Male	Manila

Table 1 presents the informants of the study who are TUP librarians across multiple campuses. Informant A is a 35-year-old male librarian from the TUP Taguig Campus, with 13 years of experience as a librarian in both private and public institutions. He has attained a master's degree in library and information science.

Informant B is a 41-year-old female librarian from the TUP Taguig Campus, with 18 years of experience as a librarian in public institutions. She is a graduate of library and information science and is currently pursuing a Master of Arts in Education with a major in library and information science.

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Informant C is a 24-year-old female librarian from the TUP Taguig Campus, with 3 years of experience as a librarian in both private and public institutions. She is a graduate of library and information science.

Informant D is a 32-year-old female librarian from the TUP Manila Campus, with 11 years of experience as a librarian in both private and public institutions. She is a graduate of library and information science and is currently pursuing a Master of Library and Information Science.

Informant E is a 31-year-old female librarian from the TUP Manila Campus, with 7 years of experience as a librarian in both private and public institutions. She is a graduate of library and information science.

Informant F is a 28-year-old female librarian from the TUP Manila Campus, with 5 years of experience as a librarian in public institutions. She is a graduate of library and information science and is currently pursuing a Master of Library and Information Science.

Informant G is a 40-year-old female librarian from the TUP Visayas Campus, with 19 years of experience as a librarian in public institutions. She is a graduate of library and information science and has attained a Master of Education with a major in library and information science.

Informant H is a 28-year-old male librarian from the TUP Visayas Campus, with 8 years of experience as a librarian in both private and public institutions. He is a licensed professional teacher and has attained a master's degree in library and information science.

Informant I is a 26-year-old male librarian from the TUP Cavite Campus, with 3 years of experience as a librarian in both private and public institutions. He is a graduate of library and information science and is currently pursuing a Master of Arts in Education with a major in library and information science.

Informant J is a 22-year-old female librarian from the TUP Manila Campus, with 2 years of experience as a librarian in public institutions. She is a graduate of library and information science.

Informant K is a 26-year-old male librarian from the TUP Manila Campus, with 2 years of experience as a librarian in both public and private institutions. He is a graduate of library and information science and currently pursuing a Master of Arts in Education major in Library and Information Science.

Informant L is a 35-year-old male librarian from TUP Manila Campus, with 3 years of experience as a librarian both public and private institutions and has attained a master's degree in library and information science.

2. AI Tools Familiar to TUP Librarians

Table 2
Frequency of Familiarization of TUP Librarians with Selected AI Tools Per Category

AI Tools	*f*	%
Literature Review and Discovery		
Semantic Scholar	4	33.33
Connected Papers	2	16.67
Research Rabbit	0	0
Litmaps	3	25
Writing and Editing		
Grammarly AI	12	100
Quillbot	9	75
Ref-N-Write	2	16.67
Reference Management		
Zotero	5	41.67
Mendeley	5	41.67
Endnote	0	0
Natural Language Processing Chatbot		
OpenAI	8	66.67
Google Bard	4	33.33
Copilot	2	16.67
Microsoft BingChat	2	16.67
Kuki	0	0
Pi.ai	2	16.67

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AI Tools	*f*	*%*
Virtual Assistants		
Alexa	4	33.33
Siri	6	50
Google Assistant	5	41.67
Bixby	2	16.67
Graphic design AI Platforms		
Canva AI	12	100
Stencil	2	16.67
Craiyon	2	16.67
Lumen5	2	16.67
Total	**12**	**100**

The data in Table 2 shows TUP librarians' level of familiarity with various AI tools across different categories. The highest percentage of familiarity is 100% for Grammarly AI in the writing and editing category, indicating that all TUP librarians are familiar with this tool. This is likely because Grammarly AI is a widely used and well-known tool for grammar and spell-checking, making it a staple in many libraries. Moreover, OpenAI, such as the ChatGPT is also another familiar AI tool among the librarians, of which 66.67% of the informants utilize this in their daily transactions. This is attested with the observations of Hosseini and Holmes (2023) where the generative AI has been actively monitored and guided within its use in the institutions. They affirmed that the use of generative AI allows easier transactions and made the development of content easier within the context of the libraries.

On the other hand, the lowest percentage of familiarity is 0% for Research Rabbit, Litmaps, and Kuki in the literature review and discovery category, as well as Endnote in the reference management category. This suggests that these tools are not as well-known or widely used among TUP librarians, possibly due to their relatively new or less popular nature. Contrary to the study of Kumar and Jyoti (2024), librarians utilize information retrieval databases and catalogs, which allow clients look for suitable materials easier and faster. This may be because these kinds of databases were not yet procured or acquired by public libraries, which can be room for future improvements in the library setting.

3. Use of AI Tools in the Field of Librarianship

Table 3
Structured Interview Responses focused on Use of AI Tools in Librarianship

Themes	Sub-themes	Codes	Sample Responses
Use of AI Tools in Librarianship	Writing and Editing Tasks	MAKING LETTERS AND PROPOSALS	Informant A: "Grammarly and ChatGPT. Usually, we use these tools when making letters and proposals. It made our daily transactions easier."
		FILTER AND EVALUATE	Informant B: "OpenAI. It helps my profession by providing basic templates for tasks such as writing a request letter. This tool allows me to filter and evaluate the content of the provided sample template to ensure it is accurate and grammatically correct."
		PARAPHRASE	Informant C: "Quillbot is also useful for paraphrasing when you need to construct new statements or ideas to write in your research or presentations." Informant F: "Quillbot helps me rephrase words not to make the letter sound dull."
		WRITE CAPTIONS	Informant G: "We use Grammarly and Quillbot to write captions and meaningful reports."
	Marketing, Promotion, and Instruction	PRESENTATIONS	Informant A: "We also use Canva for presentations."
		MARKETING TOOLS	Informant C: "Also, Canva helped make creative presentations, posters, etc., used as marketing tools for libraries, and it is very efficient, but we make sure to create our own designs or modify the templates we have already made."

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Themes	Sub-themes	Codes	Sample Responses
		INSTRUCTIONAL MATERIALS	Informant E: "Canva. for LIB market and promotion, LIB instructional materials"
		APPEALING INFOGRAPHICS	Informant G: "…we use Canva AI to create appealing infographics to be posted on our social media platforms"
Use of AI Tools in Librarianship	Marketing, Promotion, and Instruction	GRAPHIC DESIGNS	Informant H: "I used CanvaAI to create graphic designs for library marketing and promotion."
		CREATING BROCHURES	Informant I: "Canva is one of the powerful AI tools that I used as a librarian. This tool was used to create brochures and other informational materials for promotion."
	Referencing and Citations	REFERENCE MANAGEMENT	Informant C: "As librarians, we promote using Mendeley and Zotero for reference management, including them in our library instruction program so that students will have ease of access to reliable peer-reviewed journals and promote efficiency in managing their research."
		ORGANIZE RESEARCH MATERIALS	Informant D: "Zotero. This tool helps me organize research materials, track references, and quickly generate citations. It streamlines the research process, making managing large volumes of information easier."

As shown in Table 3 through a narrative-thematic analysis, the librarians interviewed have identified a common set of AI tools that they utilize in their profession, including Grammarly, OpenAI, Quillbot, Canva, and Zotero. These tools have been selected based on their ability to address specific needs and tasks that librarians commonly encounter. Three major tasks embedded in the field of librarianship emerged as sub-themes in the given narrative analysis. These include (1) writing and editing tasks, (2) marketing, promotion, and instruction, and (3) referencing and citation.

Grammarly and Quillbot are used for writing and editing tasks, helping to ensure the accuracy and clarity of letters, proposals, reports, and other written content. These tools are valuable in streamlining daily transactions and enhancing the professionalism of the librarians' work. This finding is affirmed by Gain, Rao, and Bhat (2019) where the use of Grammarly in a health science library allows the librarians to identify contextual spelling and grammar mistakes in the publications of their clients, which made their services in research related tasks seamlessly done.

Canva is popular among librarians, enabling them to create visually appealing and engaging materials for marketing, promotion, and instructional purposes. The librarians emphasize the importance of creating their own designs or modifying templates to maintain a unique and tailored approach. Hussain (2022) affirmed the fact that tasks that AI automates allows librarians to focus on demonstrating creativity in projects and proposals which can contribute to the library's development.

Zotero is highlighted for its utility in organizing research materials, tracking references, and generating citations. This tool streamlines the research process, making it easier for librarians to manage large volumes of information and efficiently support their patrons. In addition, OpenAI is used for its ability to provide basic templates and ideas, particularly for tasks like writing request letters. This allows the librarians to save time and ensure their correspondence is well-structured and grammatically correct. This is like the perspective of Adetayo (2023) where AI is perceived to make time-consuming processes more convenient such as cataloging, indexing, and data analysis which allows them to focus on more personalized processes in a library.

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4. Mechanisms & Strategies of TUP Librarians in Using AI Tools

Table 4

Structured Interview Responses focused on Mechanisms and Strategies in Using AI Tools

Theme	Sub-themes	Codes	Sample Responses
Mechanisms and Strategies Employed by Librarians in Using AI Tools	Adaptation	REPHRASED PARAGRAPHS	Informant A: "I feed details and information to the said apps. I rephrased paragraphs and sentences to adapt them to my needs. "
		GOOD LETTER CONTENT	Informant B: "It helps me make a good letter content."
		UPDATED WITH NEW FEATURES	Informant D: "I incorporate AI tools into my daily tasks, ensuring I stay updated with the latest features and improvements. I also attend training sessions and workshops to learn new ways to use these tools effectively."
		ENHANCE IDEAS	Informant E: "…to enhance my constructed ideas. I'll rephrase all words from the AI tools that I commonly use."
	Specificity	BE SPECIFIC	Informant C: "I always make sure to be specific when I try to search for ideas, whether in paraphrasing words and searching designs or when searching on databases; that way, it could be more efficient. I also make sure to proofread it, then make corrections and paraphrase it again in case it might have errors and irrelevant information, which can be common when using AI."
		AVOID VAGUE RESULTS	"Informant G: I always try to keep my keywords or terms specific to avoid results that are too vague or to avoid confused results from the AI Tools."
	Cost-Efficiency	UPLOAD PICTURES FROM THE INTERNET	Informant I: "With the use of artificial intelligence Canva, not all features are free; there are subscriptions here, so one of the strategies I use is to upload pictures that can be found on the internet to be placed in the info mats I make. With that strategy, you won't have to pay for the subscription to avail yourself of other features."

As emphasized in Table 4, librarians utilize AI tools in their profession by employing several mechanisms and strategies to ensure effective integration. Three major mechanisms and strategies were utilized by the TUP Librarians, namely (1) adaptation, (2) specificity, and (3) cost-efficiency.

One key strategy is adapting AI-generated content to their needs by rephrasing paragraphs and sentences. This involves feeding details and information to the apps and refining the output to suit their requirements. Another approach is to be specific when searching for ideas, whether paraphrasing words, searching designs, or querying databases. This specificity helps to minimize errors and irrelevant information that can arise when using AI tools. By keeping keywords or terms specific, librarians can avoid vague or confusing results from AI tools, ensuring they receive accurate and relevant information. Librarians often rephrase words from the AI tools used to enhance their constructed ideas. This refining process helps to refine the output and make it more suitable for their purposes. Furthermore, librarians understand the capabilities and limitations of AI tools, enabling them to use them effectively without overreliance on their capabilities. This is affirmed by the findings of Han (2021), where the combination of AI and human knowledge will produce more significant and relevant results, leading to an improved library management practice. Moreover, Enakrire and Oladokun (2024) noted that AI tools allow librarians to continuously interact with machines that allow more effective knowledge generation processes, which refine their outputs better.

Regarding cost-effective strategies, librarians may use free internet pictures in Canva to avoid subscription fees. This approach allows them to access additional features without incurring additional costs. Additionally, librarians ensure they stay updated with the latest features and improvements in AI tools by attending training sessions and workshops. This is in line with the recommendation of Akinyemi (2023) that librarians must keep up with the advancements in the use of AI, especially in adapting to the modern trends on generated AI geared towards improving academic experiences.

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5. Perceived Potential Advantages and Disadvantages of Using AI Tools of TUP Librarians

Table 5
Structured Interview Responses focused on Potential Advantages and Disadvantages in Using AI Tools

Theme	Sub-themes	Codes	Sample Responses
Perceptions Towards Use of AI Tools in Libraries	Advantages	TRANSACTIONAL	Informant A: "Easy composition of letters, proposals, helps in day-to-day transactions, makes life easier."
		PERSONALIZED	Informant D: "Personalized learning, automates tasks, saves time"
		PROMPT ASSISTANCE	Informant E: "Prompt assistance, creative teaching approaches, interactive learning"
		EASIER WORK	Informant F: "Easier work, knowledge of limits and responsibilities"
		REDUCTION OF LOAD	Informant G: "Reduces repetitive tasks, helps create reports"
		ANALYSIS OF STUDENT PERFORMANCE	Informant H: "Analyzes student performance, assists in lesson planning, aids students with disabilities"
		LOW COST	Informant I: "Low cost, handles repetitive tasks"
	Disadvantages	DEHUMANIZED INTERACTIONS	Informant A: "Over-reliance on AI, deterioration of human interaction, obsolescence of human skills like arts"
		DEPENDENCY	Informant B: "Dependency on AI, hinders creativity, risk of plagiarism" Informant E: "Technology dependence"
		MISACCURACY	Informant C: "Lack of funding, accuracy issues, over-reliance on instant answers, potential misinformation"
		BREACH ON DATA PRIVACY	Informant D: "Data privacy concerns, over-dependence on AI, hinders critical thinking and problem-solving skills"
		MISUSE	Informant F: "Open to misuse, potential harm"
		REPLACEMENT OF HUMAN JOBS	Informant G: "Dependency on AI, potential job loss, unemployment"
		TECHNOLOGICAL DIVIDE	Informant H: "Dependency, unequal access to technology"
		LOWER CREATIVITY	Informant I: "Lack of creativity development"

As shown in Table 5, the use of AI tools in education, particularly in the field of librarianship, offers several advantages and disadvantages. Various codes were identified to determine the perception of TUP Librarians on the advantages and disadvantages of AI tools in the profession.

On the positive side, AI tools enhance personalized learning by adapting to individual student needs, making education more accessible and engaging. They also automate administrative tasks, saving time and allowing educators to focus more on teaching. AI tools provide prompt assistance to students and educators, making the learning and teaching process more exciting and creative. Additionally, they reduce repetitive and time-consuming tasks, such as creating activity reports, and assist teachers in lesson planning. AI tools can also help educators analyze student performance data to identify trends, strengths, and areas for improvement and assist students with disabilities through text-to-speech and speech-to-text features. These positive features of the utilization of AI in the libraries were affirmed by Panda and Chakravarty (2022) where chatbots allows personalized and virtual assistance to the users which serves as easier bridge to look for references. Moreover, Tredinnick (2017) fostered the positive use of AI by finding materials that can be easily accessed by users through its established databases, where the time-consuming tasks were made simpler.

However, there are also several disadvantages to consider. One major concern is that students and faculty may become too dependent on AI tools, hindering their creative minds and critical thinking skills. Another issue is the potential for plagiarism and lack of awareness about the consequences of using AI-generated content. Furthermore, AI tools can be expensive, requiring financial support to afford them, especially online databases. This is confirmed by

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Farag et al. (2021) where the lack of physical equipment may hinder the development of AI utilization in libraries. There are also concerns about data privacy and the potential for AI tools to cause students to rely too heavily on instant answers rather than developing their own analytical skills. Hence, it was recommended by Williams (2019) to allow libraries to establish protocols that secure the users on the handling of information.

Moreover, AI Tools can lead to technological dependency, which can diminish the ability of students and teachers to think critically and make decisions independently. Not all students and teachers have equal access to technology, which can divide educational opportunities. AI tools may also hinder the development of creativity, as they provide instant solutions rather than encouraging students to think creatively. Lastly, using AI tools can lead to unemployment as clerical jobs are diminished. The same concern was identified by Orr and Niegaard (2020) and Oladokun et al. (2023), where traditional librarian jobs may be displaced due to the rise of AI tools and automation in the workplace.

Conclusions

The researchers drew the following conclusions from the research paper's salient findings.

1. TUP librarians were most familiar with utilizing the writing and editing category of AI tools. However, they are least familiar with the literature review and discovery category of AI tools.
2. TUP librarians use AI tools in (1) writing and editing tasks, (2) marketing, promotion, and instruction, and (3) referencing and citation.
3. Three major mechanisms and strategies were utilized by the TUP Librarians, namely (1) adaptation, (2) specificity, and (3) cost-efficiency.
4. AI tools are perceived by the TUP librarian to provide easier workloads, to assist library users, to reduce heavily time-consuming work, and to improve transactional processes in the library. However, they believe that AI tools may decrease human interactions, strike fear on replacement of human jobs, lean towards overdependency and technological issues.

Recommendations

In line with the research's salient findings and key conclusions, the researcher presents the following recommendations to the academic community in line with the lived experiences of TUP librarians of Artificial Intelligence (AI) tools in their libraries.

1. Librarians: Adapt AI-generated content to meet specific needs and integrate AI tools into their daily work. Foster collaboration and networking to share best practices and experiences in using AI tools.
2. Head of Libraries: Provide regular training and workshops for librarians to stay updated with the latest features and improvements in AI tools. Educate librarians about the capabilities and limitations of AI tools to ensure effective utilization. Continuously monitor the effectiveness of AI tools in enhancing library operations and identify areas for improvement.
3. Future Researchers: Investigate the lived experiences of other librarians in multiple locations to compare whether the same patterns exist within their locality.

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