

Perceived Use of Artificial Intelligence on Library Operations

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Abstract:

This study aims to determine the perceived use of AI in library operations in selected HEI libraries in Southern Part of Region 2, specifically in the provinces of Isabela, Quirino and Nueva Vizcaya. The 40 respondents were chosen using numerical enumeration to have a wide array of perceptions and experiences. Quantitative design was used to determine the data on frequency and percentage of the perceived use of AI which were gathered by utilizing an adapted questionnaire which was contextualized in the concept of AI in HEI libraries in Region 2. It was found out that most of the respondents use AI and are working in a private institution having a user size group of 501-2,000. It is also notable that AI technology is most frequently used in Circulation. Furthermore, AI is useful in the four library operations, namely acquisition, reference, circulation and weeding. It is then recommended to continue using AI for those libraries that have it and acquire AI for those libraries who don't have it- for a more efficient and effective library operation. Moreover, in conclusion, though some libraries have AI and they revealed its value and usefulness in library operations, there are still some who don't have it.

Keywords —Artificial Intelligence, acquisition, reference, circulation, weeding

I. INTRODUCTION

Artificial Intelligence (AI) has made life easier and more convenient. This made AI one of the things that helps work areas, professions and services more efficient and effective. The growing popularity of AI is evident in the United Kingdom, China and other parts of the world (Huang, Cox & Cox, 2023). Moreover, in order to remain viable and continue offering their clients the greatest services possible, librarians and information specialists are embracing new methods and technology in response to changes in the current information landscape (Bansal, Arora, Kumar & Suri, 2020). Libraries are moving closer to implementing AI to offer services to patrons. Thus, libraries are also adapting to this scene where AI is utilized for better service provision. Intelligent library systems make use of AI technology to offer staff and patrons knowledge-based services. In this

regard, AI has the potential to impact not only the collaborations the library has with academic colleagues in the fields of research and scholarship, but also the various service areas that it offers, which can help librarians stay up to date with the latest technological advancements and continue to be a leading center of technology (Massis, 2018).

AI is a vast and complex field of research that can be challenging for non-specialists to comprehend (Asemi & Asemi, 2018). Though difficult to fully comprehend, it is crucial to have a broader conversation about this topic because AI and robotics present a number of pedagogical, practical, ethical, and social justice issues (Cox, 2021). Despite several challenges and restrictions, libraries have kept up with the rapid advancement of technology (Li, 2020). This study will help understand how AI is perceived by librarians and how to improve library operations through AI.

One of the advancements brought about by technology is the Artificial Intelligence or AI. According to Chhetri (2023), AI is the idea and creation of computer systems that can carry out tasks that would typically require human intelligence, such as speech recognition, decision-making, visual perception, and language translation and it can also be referred to as the practice of employing cutting-edge computing technology to simulate human intellect and decision-making processes in robots. Furthermore, AI can be used in libraries since adapting to the digital era is somewhat convenient and the demands of users and technological improvements drive libraries' constant evolution and transformation. AI also relates to some of the systems that use various types of intelligence, including learner systems, inferior systems, systems that can understand or interpret natural language, systems that can perceive visual scenes, and systems that can carry out other tasks that call for human-like intelligence such as management, library and information science, social sciences, psychology, and behavioral sciences (Asemi, Ko & Nowkarizi, 2020). In recent years, the public, government, and academia, including libraries, have shown a great deal of interest in the potential of artificial intelligence (AI) and robots to transform our future (Cox, 2021) and with the advent of AI technology in governmental processes and public-sector ecosystems, traditional modalities of service supply, policy-making, and enforcement may shift drastically in the future (Zuiderwijk, Chen & Salem, 2021).

Subsequently, Bassegy and Owushi (2023) made mention that because of the advancement of artificial intelligence, the field of library and information science has also undergone radical upheaval and traditional libraries, like in Nigeria, have now resorted to technological advancement such as electronic resources, CCTV cameras, social media, computers, scanning and printing equipment, and, most recently, RFID technology to make various processes, operations and services easier.

Moreover, libraries have created clever strategies employing artificial intelligence and the internet as tools to position the library as a significant information source, marketing library services and drawing patrons in addition to offering a wide range of physical resources and services (Yu & Huang, 2020). However, they also pointed that some patrons serve as nothing more than a form of technological innovation, an ideology slogan, or advertising for a sophisticated library. Such users may oppose user orientation intended to help them better comprehend and use library resources since they are unfamiliar with intelligent library services. Furthermore, similar worries exist about how far and how much information technology will intrude into the roles of librarians and archivists in the information field, where the digitization process has increasingly made library and archival resources accessible via the web. As technology continues to integrate into the information profession, educators within the information field are faced with waves of challenges related to student preparation (Li, 2020).

II. METHODOLOGY

This study utilized the quantitative survey method of research to collect data from the respondents through an adapted questionnaire to determine the perceived use of AI on library operations. Quantitative survey method was used to gather statistically significant data from the 40 respondents. Quantitative method was used in this study since the final results can be shown as a numerical representation. Online questionnaires, online polls, and surveys are some of the tools used to do this. In this case, this study utilized a questionnaire. This questionnaire was adapted from the studies of Hervieux and Wheatley (2021) and Lund et al.

This study was conducted in selected HEI libraries in Southern Part of Region 2, specifically in the provinces of Isabela, Quirino and Nueva Vizcaya. The respondents of the study were the librarians in the selected HEI libraries in some

specific provinces of Region 2. The respondents differed in type of academic library they work in, their sample user group- the size of clientele they serve, the availability of AI technology or virtual assistant devices in their libraries, and what AI technology they frequently use in their day-to-day library operations. These respondents were chosen since they are within the delimitation of the study. Furthermore, these respondents are registered librarians from both private and public libraries. According to Philippine Librarians Association, Inc., Cagayan Valley Region Librarians Council (PLAI-CaVRLC) directory as of, there are 35 librarians in Isabela, 30 librarians in Nueva Vizcaya and 4 librarians in Quirino who are members of the organization. But this data is just an estimate for there are some librarians who are not registered with the organization and unaccounted for. In addition, there is no specific number of libraries yet because there are limited related studies done with the same locale.

This study examined 40 respondents from the provinces in Region 2 such as Nueva Vizcaya, Quirino and Isabela. This sample size is ideal to have a wide array of perceptions and experiences. Moreover, this sample size allowed the researcher to formulate generalizations about the population. As per the data from PLAI-CaVRLC, there are 23 HEI libraries and 35 librarians in Isabela which are members of the said organization and there are 6 HEI libraries and 30 librarians in Nueva Vizcaya which are members of PLAI-CaVRLC and there 3 HEI libraries and 4 librarians in Quirino. Although, these are only records from PLAI-CaVRLC, there are still a lot of libraries in the region which may not be accounted for.

The researcher used a survey questionnaire. Furthermore, this utilized an adapted survey questionnaire based on some studies on the use of Artificial Intelligence in library operations. The survey questionnaire consists of two parts: Part I. Respondent's Profile and Part II. The perceived impact of AI on library services. The questionnaire

adapted the statements from the studies of Hervieux and Wheatley (2021) and Lund et al. 2020 on AI which were changed for use in selected HEI libraries in Region 2 to determine the perceived use of AI on library operations. Furthermore, the researcher seek authorization from these researchers to adapt their survey questionnaire through an email. The questionnaire were presented to the panel of experts and research adviser, to ensure validity as well as usability. In the gathering of the data, (1) the researcher sent an email to the authors for the adaption of their questionnaire which was used in this study, (2) the researcher sought approval from the school administration, through a letter of request to conduct study, (3) the researcher distributed the letter to the respondents seeking the participation of the respondents in the study. The letter informed the respondents of the title of the study and the assurance of compliance with the Data Privacy Act of 2012 to protect the information of the respondents gathered. (5) The researcher distributed the questionnaire in printed form to the librarians who are able to answer it face-to-face and in google form to the other librarians in selected libraries in Region 2, specifically in Isabela, Nueva Vizcaya and Quirino.

Upon collection of the questionnaire, the researcher coded the data. After which, the researcher ran the data through SPSS to determine the profile of the respondents as well as their perception on the use of AI on library operations. In addition, to treat the gathered data, the following four-point scale was used to further explain the results of the data:

Table 1. Four Point Scale

Scale	Interval	Interpretation
4	3.50-4.00	Strongly Agree
3	2.50-3.49	Agree
2	1.50-2.49	Disagree
1	1.00-1.49	Strongly Disagree

Since this study is descriptive in nature and used survey method, the four-point Likert scale was employed. The scale ranges from 1.00-4.00 and each range has its qualitative description. If the range of the result is from 1.00-1.49, then the respondents strongly disagree to the statement. If the range of the result is from 1.50-2.49, then the respondents disagree to the statement. If the range of the result is from 2.50-3.49, then the respondents agree to the statement. If the range of the result is from 3.50-4, then the respondents strongly agree to the statement. To analyze the profile and the perceived use of AI in library operations, the frequency, mean and percentage were used.

III. RESULTS AND DISCUSSION

1. Distribution of the Respondents According to their Demographic Profile

Table 2. Profile of the Respondents

Type of Library	F	%
Private	22	55
Public	18	45
Size of User Group	F	%
Below 500	11	27.5
501-2,000	14	35
2001-5000	11	27.5
5001 Above	4	10
Do you use AI in your library?	f	%
Yes	23	57.5
No	14	35
Not Sure	3	7.5
Which of the following AI do you use?	f	%
Ask a Librarian	17	42.5
Library H3lp	0	0
Google Colab	2	5
Generative AI	3	7.5
No AI	4	10
Others	14	35
Which of the following library operations is AI technology frequently used	f	%
Acquisition	13	32.5
Circulation	15	37.5
Reference	12	30
Weeding	0	0

Based on the table presented, out of the 40 respondents, 22 (55%) work in private libraries while the remaining 18 (45%) work in public libraries. Furthermore, when it comes to the size of

user group, 501-2,000 users got the highest frequency with 14 (35%) respondents while 5001-above users got the lowest frequency with 4 (10%) respondents. In addition, with regards to the use of AI in their library, majority of the respondents, 23 (57%) agreed that they use it while 3 (7.5%) respondents are not sure if they use it or not. In addition, two of these respondents are working in a private library and one is working in a public library which may have something to do with orientation and proper information dissemination from some concerned people. This implies that there are still some librarians who aren't aware of the applications and software used by their library. Moreover, based on the specified AI applications or software that are used in library operations, *Ask a Librarian* is used by majority of the respondents, 17 (42.5%), it is also notable that 2 (5%) respondents use *Google Colab*. Moreover, some respondents specified some AI that they currently use which are not included in the choices provided in the questionnaire such as *ILS Destiny Library Manager* and *Virtual Assistants*. But even though some libraries use AI in library operations, it is still far-fetched for some libraries and the evidence is clear because it was found out that 4 (10%) respondents said that they don't have AI in their library. Subsequently, regarding which library operations is AI frequently used; circulation got the majority with 15 (37.5%) respondents while it is also notable that AI is not used in weeding.

2. Perceived Use of Artificial Intelligence on Library Operations.

2.1. Table 3. Perceived use of Artificial Intelligence on Acquisition

Statement	M	INTERPRETATION
1. AI improves the selection process of the library.	3.13	Agree
2. AI improves the evaluation of available resources.	3.15	Agree
3. AI makes it easier to identify reputable library resources	3.18	Agree
4. AI helps in checking the availability of library resources for purchase.	3.08	Agree

5. AI makes communication with the supplier easier and faster.	3.08	Agree
6. AI makes the ordering of library resources easier and faster.	2.83	Agree
7. AI helps in the mechanical and technical preparation of library resources.	3.18	Agree
8. AI helps in the overall acquisition process of the library.	3	Agree
Category Mean	3.08	Agree

Note: M = 3.08 (Agree)

It can be deduced from the table that AI is useful in making identification of reputable library resources easier (M=3.18) and in the mechanical and technical preparation of library resources (M=3.18) which got the highest mean. Though it got the lowest mean (M=2.83), it is still notable that AI helps in making the ordering of library resources easier and faster. Moreover, the overall mean 3.08 indicates that AI is useful on acquisition as a library operation.

In addition, the study of Daimari, Mondal, Brahma and Nag (2023) supports the data presented above for they found out that AI is useful in identifying and classifying books that are vital in the collection of the library such as favorite books and others. Furthermore, AI such as Chatbot is very useful in the acquisition and descriptive cataloging of acquired library resources (Ajakaye, 2022).

2.2. Table 4. Perceived use of Artificial Intelligence on Reference

Statement	M	INTERPRETATION
1. AI helps in finding the required information on behalf of the users, or assisting users in finding information.	3.33	Agree
2. AI helps in the instruction in the use of library resources and services	3.30	Agree
3. AI improves user guidance in selecting the most appropriate information sources and services.	3.23	Agree
4. AI saves time in locating books on the shelves	3.05	Agree
5. AI helps users obtain materials that are not available in the library's collection by borrowing them from other libraries	2.93	Agree
6. AI helps users with specialized research needs, such as in-depth research for graduate-level studies or research in a specific subject area	3.28	Agree
7. AI helps in developing and maintaining reference collections, including print and electronic	3.03	Agree

resources.		
8. AI helps in the overall reference service of the library.	3.20	Agree
Category Mean	3.17	Agree

Note: M = 3.17 (Agree)

It can be inferred from the table that AI is useful in finding the required information on behalf of the users, or assisting users in finding information (M=3.33) which has the highest mean, on the other hand, AI is useful in helping users obtain materials that are not available in the library's collection by borrowing them from other libraries (M=2.93) which has the lowest mean. Moreover, the overall mean 3.17 indicates that AI is useful on reference as a library operation.

Moreover, the study of Das and Islam (2021) suggests that AI do work as virtual reference librarian which enable the enhancement of day-to-day interaction for library tour guides, automated virtual reference assistants, readers' advisory-librarians, and virtual story tellers.

2.3. Table 5. Perceived use of Artificial Intelligence on Circulation

Statement	M	INTERPRETATION
1. AI helps in facilitating the borrowing process for library patrons.	2.95	Agree
2. AI helps in tracking the status of all patron accounts.	3.05	Agree
3. AI helps in tracking and management of materials throughout their lifecycle.	3.00	Agree
4. AI helps in promoting resource accessibility.	3.18	Agree
5. AI helps in enhancing user experience through efficient borrowing activities.	3.03	Agree
6. AI helps in ensuring the enforcement of due dates and manage fines for overdue materials.	2.98	Agree
7. AI helps in providing statistics relating to the circulation of library resources.	3.13	Agree
8. AI helps in the overall circulation service of the library.	2.98	Agree
Category Mean	3.03	Agree

Note: M = 3.03 (Agree)

Based on the table presented, promoting resource accessibility is useful since it has the highest mean (M=3.18). In addition, though it has the lowest mean among the statements in this table,

AI still helps in facilitating the borrowing process for library patrons. Moreover, the overall mean 2.98 indicates that AI is useful on circulation as a library operation.

Furthermore, AI is very useful in the circulation operation of the library since it helps in the book recommendation process, reader ratings and bibliographic data of the resources in the library (Das & Islam, 2021). In addition, according to More (2024) AI helps Examine the borrowing habits and preferences of users to make the most use of resources and suggest appropriate readings.

2.4. Table 6. Perceived use of Artificial Intelligence on Weeding

Statement	M	INTERPRETATION
1. AI helps in evaluating the library resources that are candidate for weeding.	2.90	Agree
2. AI helps in locating materials that are superseded by newer, revised, or updated editions that may be weeded.	3.00	Agree
3. AI helps in identifying rare books that cannot be weeded.	2.85	Agree
4. AI helps in deleting the records of weeded items in the collection.	2.90	Agree
5. AI helps in reviewing the weeding guidelines to ensure relevancy and accuracy.	2.95	Agree
6. AI helps in disposing of weeded materials through book donation.	2.78	Agree
7. AI helps in disposing of weeded materials through online book sales.	2.95	Agree
8. AI helps in the overall weeding of the library.	2.93	Agree
Category Mean	2.91	Agree

Note: M = 2.91 (Agree)

It can be seen from the table that AI helps in locating materials that are superseded by newer, revised, or updated editions that may be weeded got the highest mean (M=3.00) while AI helps in disposing of weeded materials through book donation got the lowest mean (M=2.78). Subsequently, the overall mean 2.91 indicates that AI is useful on weeding as a library operation.

According to Nelson et al. (2020), AI can be useful in the formulation of deselection criteria which are used to evaluate the collection. In doing so, it is easier to identify library materials or

resources which are not being used and that are already for weeding to make room for other newly acquired materials for the library.

IV. CONCLUSIONS

1. Majority of the respondents work in private libraries while the remaining respondents work in public libraries;

1.1 When it comes to user group, most of the respondents have user group of 501-2000 while least of the respondents have a user group of 5001 and above;

1.2 On the specified AI applications or software that are used in library operations, *Ask a Librarian* is used by majority of the respondents, while *Google Colab* was the least used by respondents. In addition, Moreover, some respondents specified some AI that they currently that are not in the choices provided in the questionnaire such as *ILS Destiny Library Manager* and *Virtual Assistants*;

1.3 Regarding which library operations is AI frequently used; circulation got the majority while it is also notable that AI is not used in weeding.

2. Perceived use of AI on library operations;

2.1 AI is useful in making identification of reputable library resources easier and in the mechanical and technical preparation of library resources which got the highest mean. Though it got the lowest mean, it is still notable that AI helps in making the ordering of library resources easier and faster. Moreover, the

overall mean 3.08 indicates that AI is useful on acquisition as a library operation;

- 2.2 AI is useful in finding the required information on behalf of the users, or assisting users in finding information which has the highest mean, on the other hand, AI is useful in helping users obtain materials that are not available in the library's collection by borrowing them from other libraries which has the lowest mean. Moreover, the overall mean 3.17 indicates that AI is useful on reference as a library operation.
- 2.3 Promoting resource accessibility is useful since it has the highest mean. In addition, though it has the lowest mean among the statements in this table, AI still helps in facilitating the borrowing process for library patrons. Moreover, the overall mean 2.98 indicates that AI is useful on circulation as a library operation.
- 2.4 AI helps in locating materials that are superseded by newer, revised, or updated editions that may be weeded got the highest mean while AI helps in disposing of weeded materials through book donation got the lowest mean. Subsequently, the overall mean 2.91 indicates that AI is useful on weeding as a library operation.

V. RECOMMENDATIONS

1. Given that majority of the respondents in this study came from private libraries, it is also recommended to study respondents from public libraries for better

understanding of how libraries in private and public differ from each other.

2. It is also recommended to further research on libraries with higher user group to further understand the libraries' practices given the number of the populace.
3. It is still imperative to utilize AI in the library since it greatly aids in the total operations of the library. Though some AI applications or software are expensive, there are still some which offer open access control which can be used to make library operations more efficient and effective.
4. Regarding which library operations, it is still recommended to incorporate AI in providing services since it is evident that AI helps in the overall library operations.
5. It is recommended that AI must be used in the acquisition as an operation because it is useful in making identification of reputable library resources easier and in the mechanical and technical preparation of library resources and AI also helps in making the ordering of library resources easier and faster. Moreover, the overall mean 3.08 indicates that AI is useful on acquisition as a library operation that is why it is imperative to make use of it.
6. AI must be used in finding the required information on behalf of the users, or assisting users in finding information, in helping users obtain materials that are not available in the library's collection by borrowing them from other libraries, among others. Moreover,

the overall mean 3.17 indicates that AI is useful on reference as a library operation which strongly suggests that it is indeed helpful.

7. It is also recommended to use continuously use AI in promoting resource accessibility, in facilitating the borrowing process for library patrons. Moreover, the overall mean 2.98 indicates that AI is useful on circulation as a library operation.

Moreover, it is recommended to utilize AI in the weeding process since helps in locating materials that are superseded by newer, revised, or updated edition and in disposing of weeded materials through book donation. Subsequently, the overall mean 2.91 indicates that AI is useful on weeding as a library operation.

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