Optimizing Library Services through Mediated Communication Exploring Human-Machine Interaction in the Digital Age

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Abstract

Chatbots have become an integral part of our digital lives, presenting new ways of interacting with machines and information. Communication is mediated through chatbots, where humans and machines exchange information and ideas through chats, opening up new opportunities and challenges in how we communicate. The library, as the main unit of a university, has the primary task of providing services for librarians to feel comfortable in finding and obtaining the necessary references. Based on the concepts of mediated communication, digital libraries, and chatbots, we will also use literary analysis, focused group discussions, and narrative analysis. The library must be able to adapt and adapt to technological developments, in providing its services to librarians. This article provides an overview of the form of communication media as a means of facilitating librarians in obtaining information quickly and accurately. A library is a service unit, so the input from a librarian is the ammunition for the existence of a library. Before getting a service, of course, sufficient information is needed, accurate and quick so that librarians can more easily browse the references in the library, especially in today's digital age, where we have to revolutionize ourselves to respond to technological changes. From the discussion and analysis of some literature, this article provides an overview of the need for mediated communication patterns in providing more effective and efficient services, in this case through Chatbot.
Keywords: Chatbots, digital library, mediated communication.

INTRODUCTION

Mediated communication refers to communication that occurs through a specific medium, such as communication technology or artifacts. This field of study has been rapidly growing in recent decades. As communication technology advances, the way we interact with each other has changed drastically. Research on mediated communication seeks to understand the impact of these changes on the way we communicate, build relationships, and understand the world around us, including interactions that occur in libraries. In this article, the focus is on college libraries. College libraries are vital in supporting the implementation of the Tri Dharma of Higher Education, which involves education, research, and community service [1]. The main goal of university libraries is to provide maximum service to all academics throughout Indonesia, which is realized in various library services. One of these services is information service for the academic

community to help search for information, find material sources, and answer relevant questions needed by the academic community. Currently, digital library services have revolutionized the way we access and utilize information in the digital era [2]. This evolution aligns with the development of communication and information technology, resulting in a significant shift in service trends, particularly the development of library services to facilitate communication and expand the reach of services that are less accessible through face-to-face interactions.

Technological advancements have alerted library managers to the importance of offering prompt and accurate assistance to their patrons. One method to achieve this is through the use of communication technology, such as answering machines, to aid users in finding answers. The advent of artificial intelligence (AI) technology has compelled librarians to familiarize themselves with and implement new technology to facilitate library management operations. Consequently, librarians serve as catalysts for technological progress, enhancing management services within libraries [3].

The use of Artificial Intelligence (AI) has become essential in improving library efficiency and productivity. Rapid developments in AI have led to significant practical advances [4;5]. One of the notable results of these technological advances is the use of smart robots (chatbots) based on AI, which enable libraries to engage in interactive conversations with users for virtual referrals. According to Jha [6], AI chatbots facilitate interaction between users and librarians, as well as with AI databases. This implementation lightens the workload of librarians, thereby enhancing productivity. A well-designed AI chatbot system can improve service quality, introduce new services, and implement new information technology.

Mulyadi defines a digital library as one based on information technology, also known as an electronic library, hyper library, virtual library, or library without walls [1]. This library system offers various services and information objects accessible through digital devices. It is interconnected with other sources, and its information services are open to the global community. A digital library must be capable of providing a wide range of offerings to comprehensively meet user needs and allow convenient access. Its collection of books and library materials is available in digital format and can be accessed via the Internet. The Open University Library, along with its Digital Library, is a crucial resource for the Open University. It serves the academic community's information needs, especially for students spread throughout Indonesia. Unlike traditional universities, the Open University functions as a distance learning institution, offering programs online. Consequently, its academic community is geographically dispersed. Therefore, the Open University Library focuses on effectively and efficiently providing long-distance services using an artificial intelligence-based communication technology approach. This article aims to outline the benefits of implementing AI chatbots to meet the information needs of students spread across Indonesia and in more than 50 countries.

METHOD

With the understanding that a chatbot is an application that uses natural language to interact with humans or users [7]. Chatbots can have functions that help libraries manage thousands of incoming messages through various communication channels and a program can be created to manage these messages [8]. This technology is experiencing a significant increase in trend because of the convenience and benefits it provides [5]. In Indonesia, the use of chatbots has also increased due to this [7]. Another factor that

48

supports the high use of chatbots in Indonesia is the high number of chat application users and Indonesia's increasingly high internet penetration [5]. Chatbots have been used by various institutions and sectors and have proven to be useful in various sectors and institutions [8]. Therefore, if the Chatbot implemented in the Open University Library is developed and implemented, it is hoped that it can maximize library services to the academic community spread throughout Indonesia, so this article was written using the Literature Study method by reviewing various studies and documents related to the development of AI chatbots. Apart from that, this literature study also conducted an assessment of AI chatbots for library services from various local and international universities or institutions, which was deepened through focused discussion groups.

RESULTS AND DISCUSSION

This article is the beginning of a desire to provide the best service for users. Starting with the various questions that often appear through the Frequently Ask Question (FAQ) rubric, it inspired me to make everything in the FAQ into a form of artificial intelligence (AI) to make interactions more lively. The following is a small portion of data regarding FAQs containing various questions from users, which will later be included in the Chatbot program.

We often receive various questions via the website or directly about visiting the UT Library. Some common inquiries include:

o How can I visit the library?
o What are the operational hours for visiting the UT Library?
o What are the rules and regulations for visitors to the UT Library?
o How can I purchase modules/books, specifically the Printed Basic Materials (BMP-UT)?
o How can I recommend books, references, or other collections of library materials to be made available at the UT Library?
o How can I buy printed Module Books / Basic Material Books (BMP-UT)?
o What is the PJJ Corner?
o Does the online database that UT subscribes to only contain journals?.

Understanding the opportunities and challenges of mediated communication is crucial to navigating the constantly evolving digital landscape. By striking a balance between technology and human interaction, we can create a future in which communication empowers connections, promotes understanding, and propels positive change. On the other hand, the use of digital technology has created a new idea for the library concept and ecosystem. This ecosystem makes the library and all the devices in it smarter, or the term that is formed is a smart library with smart service or smart service is one of the dimensions that build the smart library concept where this dimension refers to services that focus on user satisfaction. Sugiono explains that a smart library is a library ecosystem that is formed using digital technology as its fundamental component [8]. Schopfel said that a library can be said to be smart and modern if the institution continues to improve the quality of its services, develop new services, and implement information and communication technology [9]. Ecosystem Aithal also stated that in this new ecosystem, all resources and information will be centralized and converted into digital form so that they can be accessed by the public as well as educational and research

institutions via digital devices [8].

Chatbots itself, according to Ehrenpreis and DeLooper simulate a person's conversation with a user [9]. Chatbots are a form of artificial intelligence (AI), where a computer program generates responses to questions based on an existing knowledge base [10;11]. Typically, chatbots are placed in strategic places on websites in places where users interact a lot, such as the home page or contact page. There are three goals for implementing chatbots in college libraries [12]:

1. Please ensure that the chatbot effectively responds to students' common queries on the library website. These questions may pertain to library hours, accessing electronic resources from off-campus, and other related topics.
2. Additionally, the chatbot should be able to track the types of topics students are searching for based on their questions.
3. Make the chatbot serve as another access point for basic reference questions to free up the librarian doing the chat reference, who can then focus on the research question.

CONCLUSION

As artificial intelligence (AI) technology advances, chatbots will continue to develop and become more sophisticated. Future chatbots are expected to understand natural language better, demonstrate empathy and emotional intelligence, and adapt to users' individual needs. It can be concluded that Chatbots have advantages and disadvantages. The advantages of chatbots include: Accessibility and Convenience: Chatbots offer 24/7 access to information and services, allowing users to get help whenever and wherever they need it. This is especially beneficial for individuals with limited mobility or limited internet access Efficiency and Automation: Chatbots can automate repetitive tasks, freeing up human staff time to focus on work that is more complex and requires a human touch. This can increase efficiency and productivity in various industries.

- Personalization and Engagement: Chatbots can be personalized to provide a more targeted and engaging experience for users. They can be used to gather feedback, answer questions, and provide recommendations, thereby increasing customer engagement and satisfaction.
- Scalability and Reach: Chatbots can handle multiple inquiries simultaneously, allowing businesses to reach a wider audience and increase the scalability of their operations.

Technology, however, remains an inanimate object that lacks a human touch. So the challenges that must be faced are: Natural Language Limitations: Chatbots still struggle to understand the human natural language perfectly, which can lead to misunderstandings and frustration for users. Lack of Empathy and Emotional Intelligence: Chatbots may not be able to provide the same level of empathy and emotional intelligence as human-to-human interactions, which can leave some users feeling alienated or dissatisfied.

- Dependence on Technology: Over-reliance on chatbots can lead to social isolation and reduced interpersonal communication skills.
- Privacy and Security Concerns: Chatbots collect and store user data, raising concerns about data privacy and security.

50

By utilizing internet technology, the Open University Library can improve library services and minimize current problems and can adapt to changes and user needs [13;14]. Apart from that, libraries can also provide services to users more efficiently and of higher quality because the use of the internet can enable users to enjoy library services such as borrowing and borrowing books without being limited by space and time, making reservations easier, and being able to obtain the latest information about book collections. or loans just by using a device [15;16]. By increasing the quality and efficiency of services, libraries can run more effectively and improve services better and can become complete libraries. One technology that can be applied to improve library services is using chat robots or chatbots

Chatbot-mediated communications will continue to play an important role in how we interact with the world around us. By understanding the benefits and challenges, we can leverage this technology to improve communications and the overall user experience. The implementation of chatbots in libraries, especially in remote universities, will make library services reach the unreachable and will certainly make libraries more meaningful.

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