



Study of Chat GPT influence on Academic World for Learning and Research Activities

P. Raghavaiah¹, Karnati Srikanth²

*Librarian, VNR Vignana Jyothi Institute of Engineering & Technology
Bachupally, Hyderabad, Telangana, India
{raghavaiah@vnrvjiet.in}*

*²Librarian, Mahindra University, Bahadurpally, Hyderabad
Telangana, India
{srikanth.karnati@mahindrauniversity.edu.in}*

ABSTRACT

Since the ChatGPT was announced in November 2022, there has been buzz that this technology will change the information retrieval behaviour of academicians worldwide. This paper has attempted to diagnose the implications of chat GPT on academic activities and libraries. Chat GPT is a revolutionary invention, and content generation is becoming accessible, unlike before. Earlier, there was a need to check hundreds of documents based on the query terms. Now, the chat GPT will provide only the most relevant documents with sum-up information, which looks like a subject expert or a colleague offers it.

Received: 17 August 2023
Revised: 28 October 2023
Accepted: 9 November 2023
Copyright: with Author(s)

Keywords: Chat GPT, Academic Library, Reference Librarian, Content Generation

1. Introduction to Remote Access and Methods

Nowadays, technology is essential to adopting the teaching-learning process in education. It is visible in all levels of education, from kindergarten to PhD level. In 2020, the epidemic era made way for the emergence of online learning platforms and Edu tech firms that did not maintain the large learning gap with kids despite the closure of schools. Even though technological solutions have made more resources accessible to students and teachers, they have also raised inequities and created distractions in the classroom. Technology in the school is here to stay, for better or worse, and new solutions are constantly being provided. In 2022, the public was first given access to the generative AI Natural Language Processing (NLP) platform called ChatGPT by OpenAI, a corporation that does artificial intelligence research and development. Anyone with a device and internet access can use ChatGPT, a free program.

Open AI developed chat Generative Pre-Trained Transformer (ChatGPT). It is a chatbot with a large language model that was released on November 30th, 2022. This enables users to improve and direct conversation towards the preferred volume, structure, mannerisms, and terminology. The sequence of questions and

answers is used at each conversational level to take the context into account. It also goes by the name *prompt*. It is based on the Google-developed *transformers* architecture and is generated using GPT-3.5 or GPT-4—members of OpenAI's exclusive line of generative pre-trained transformer (GPT) models. It employs supervised and reinforcement learning strategies tailored for conversational applications and is initially offered as a free tool to preview research. Chat GPT is now on an annual contract due to its immense popularity. Users can access the GPT-3.5-based version for free. The upgraded GPT-4 version, marketed as "ChatGPT Plus," offers additional features and total settling subscribers.

By January 2023, this tool had gained over 100 million users, made Open AI the fastest-growing software company, and increased its valuation to \$29 billion. Companies like Google, Baidu, and Meta improved the creation of Bard, Ernie Bot, and LLMA, three of their rival technological innovations. Microsoft launched their Bing Chat service based on Open AI's GPT-4. Some observers became concerned about how ChatGPT and related programs would replace or deteriorate human intelligence, enable plagiarism, or promote misinformation. Academicians believed that the GPT would handle everything and that a library is irrelevant in the information world. The same problem existed when e-books first appeared on the market in 1996, following the development of the Internet, yet physical books are still used in academic and non-academic settings. Let's examine the impact of Chat GPT in the academic setting.

2. What Distinguishes ChatGPT from Google

The methods employed by Google, ChatGPT, and Google to obtain information, interpret it, and provide answers to queries are similar but distinct. As a colleague or expert would, ChatGPT determines the question, examines its database, and provides a dialogue-based response. Contrarily, Google takes the query, searches it across billions of web pages, and presents relevant web pages that might have the answer. Thus, google or other search engines offer referral services, whereas ChatGPT functions as an information delivery mechanism. ChatGPT extracts answers from several sources, combining and arranging the content logically with a clear presentation. This is possible using several billion parameters, each performing one specific function. For example, sentence construction and language perfection alone inject thousands of parameters. These parameters can be called conditions and rules for the construction of sentences.

3. Potential Usage and limitations of chat GPT in academic setting

ChatGPT can be used in the academic world in several ways. It can be used for discovery and search, reference and information services, and content creation.

Discovery and search: ChatGPT offers an intriguing alternative mechanism to search engines. ChatGPT's ability lies in its ability to answer specific questions, providing an expert explanation of a topic or factual answers—all without the user having to scroll through dozens of responses. It differs from the search mechanism and works like an information-answering mechanism. Unlike Google, it can learn your information needs and preferences and provide personalized, relevant information to suit your query.

Reader Services: ChatGPT can aid with technical and reader services such as answering basic reference inquiries, navigating the library website, and aiding with research, cataloguing, classification, and collection development. Like Google, it can recognize your informational requirements and preferences and deliver tailored, pertinent results.

Reference and information services: ChatGPT can help with technical and reader services such as basic reference questions, using the library website, and supporting research, cataloguing, categorization, and collection development.

Content creation: Chat GPT can create content, including essays and research papers. However, there are worries that the possibility of bias in the training data and coding process of AI-driven language models like GPT-3 threatens the objectivity of scientific research. Copyright, citation standards, and the potential effect on the "Matthew Effect" in scholarly publishing are further ethical considerations. However, the primary issue is the lack of objectivity in source content, affecting creativity. Thus, it violates research ethics.

Research activity: While Chat GPT and other AI technologies have great potential to improve library services and research capacities, it is vital to remember that they should only be used sparingly. Libraries should regularly examine these resources for their communities' practical education and theoretical understanding. Research improvement will be affected due to the drawing of already published information and manipulating the words to reflect the proxy information. For the research process, the use of ChatGPT is deplorable, and it has a negative impact.

Some examples of these applications include reader's advice (recommending books to users) and addressing various reference and research-related queries. The fact that AI is capable of many of these tasks admirably, even at this point in its development, is undeniable, but a key question here is whether or not the general public will continue to ask librarians the kinds of questions that ChatGPT can answer, or if they will use it themselves and bypass the library entirely.

It is crucial to remember that librarians continue to have the expert judgement and best ability to analyse ChatGPT output and integrate it with their expertise. Expertise may still be required to formulate the inquiry because ChatGPT frequently needs to be fed particular inquiries to respond well. Moving on, many libraries also see advantages in using ChatGPT for work related to outreach and displays, such as creating lists of book titles or quotes around a certain theme like World War 1 and 2, American history, Black History Month, etc.

Information Literacy: ChatGPT's impact on information literacy is more generally discussed in other library uses of AI. People visit libraries to find information, and a key tool in the librarian's toolbox is determining the reliability of sources they find on social media and in Google search results. and websites accessed via social media. Currently, ChatGPT cites sources like journal papers that sound legitimate but are false the most frequently in the academic community. Libraries need to keep an eye on these topics to educate their communities effectively and for their theoretical understanding. For instance, how will AI change human perceptions of information creation and authority?

Assisting Librarians: In the setting of an academic library, librarians may also be able to use their experience with AI tools to assist academics in designing and redesigning discipline assignments (as well as creating their own). In the era of artificial intelligence, stressing the process is a common theme for undergraduate projects. Instead of focusing on the result that a bot might produce, explain your method (for instance, how did you create and develop a core idea). Other suggestions include contrasting ChatGPT's response to a question with what a student would have written or using ChatGPT to create a counterargument to our position.

User queries: Similar to this, librarians and chat GPT have been taught to infer the meanings of user queries from the format of the questions they are asked. Specific libraries already employ AI chatbots to answer simple, routine reference enquiries and direct more difficult ones to librarians. Simply put, ChatGPT is an expansion of the existing service. Since librarians are trained to find relevant information using appropriate keywords, they can help researchers by offering advice on formulating the best queries to ask. These technologies will free up the librarian's time so they can concentrate on more demanding research jobs or enquiries. Additionally, they offer round-the-clock assistance, meeting a demand that librarians may not always be able to.

Digital Reference service: A digital reference librarian can be created for ChatGPT. It can assist users with their research, respond to reference inquiries, guide users through databases and other resources, and collect and analyse data on user interactions with the service. However, it should be emphasized that ChatGPT is an AI-based system that might restrict how sophisticated questions can be, the kind of queries it can address and the degree of expertise it can offer. Because of this, it could be necessary to have human librarians on hand to handle particularly difficult or specific reference queries.

Because it can be quickly integrated into a wide variety of applications and web platforms, ChatGPT's simple programming interface (API) is often regarded as a key benefit. In any model, information centres (libraries) can become more productive because of the simplicity of this implementation. Over the years, most information centres (libraries) have worked to digitize reference services to offer a library reference service online. Digital reference services, which are frequently Internet-based, leverage human specialists to deliver user information.

The introduction of OpenAI Chat technology can eliminate the need for a human expert because this technology can automatically provide the best solutions thanks to machine learning and intelligent algorithms, which increases productivity and decreases human error. This study will discuss how much ChatGPT can replace digital services. We speak with ChatGPT to find the answer to this query.

Teaching: The simplicity with which ChatGPT can respond to research inquiries may alter how we instruct. More difficult assignments related to the course material will be required rather than relying on tests of factual understanding or essay assignments. The current tendency of adding more experiential and active learning opportunities to the curriculum might be helpful, particularly if assignments come in different formats like infographics, podcasts, or films. These kinds of creative and learning possibilities are already supported by academic libraries in terms of services and spaces. Librarians can assist professors in coming up with such tasks.

Syllabus framing: Syllabi, model lesson plans and the text for a Lib Guide can all be quickly created using ChatGPT. Some have even proposed that ChatGPT serves as a graduate assistant to a class, helping students with tutoring needs. Ideas for using ChatGPT in the classroom may be found on websites like the Sentient Syllabus3 and "Understanding AI Writing Tools and their Uses for Teaching and Learning" from the University of California-Berkeley.

Textbooks: Academic libraries have a significant financial stake in assisting academics in producing OER. ChatGPT can write textbooks that used to take a year to write in hours in response to a series of questions. The final material will need to be updated and checked to verify the accuracy and quality of the information. More free textbooks will be available to teachers if the time it takes to generate OERs is sped up, allowing them to select and adapt them to particular courses, improving their teaching and helping students save thousands of dollars. Information and digital literacy will become more crucial than ever, thanks to AI tools like ChatGPT and DALL-E. Librarians can work with teachers to help students develop the critical thinking skills needed to verify information, assess the quality of ChatGPT's responses, or determine if a Matisse picture is actually by Matisse or artificial intelligence (AI) created in his likeness. Teaching students and staff information literacy skills will enable them to make educated estimates through critical analysis of what is given, even though it may be challenging to identify a work produced or created by a student instead of a bot.

Writing and creation: ChatGPT and other AI technologies, in the words of Anand Rao, chair of the Department of Communications and Digital Studies at the University of Mary Washington in Virginia, "change the nature of knowledge production itself. ChatGPT can generate a rough draft of text that can serve as inspiration for your work rather than starting from scratch. DALL-E can produce fresh, motivational art that can be imported into photo editing software like the Adobe Creative Suite and modified to produce unique art pieces. The same is true when using ChatGPT to compose music and lyrics. Additionally, ChatGPT "may aid engineers in producing better code at a faster rate.

Plagiarism: ChatGPT is a language model that produces text using training data. It doesn't purposefully steal content from other websites. However, the generated responses may employ already used words and phrases, which could cause similarities to already published content.

1. Therefore, checking the created text for plagiarism is crucial. A free AI detector from Scriber can recognize content made using ChatGPT.
2. With high confidence levels, it can detect GPT2, GPT3, and GPT3.5. Additionally, Honorlock offers a plagiarism detector that can detect ChatGPT plagiarism.
3. It's also vital to remember that some plagiarism detectors only look for ChatGPT plagiarism in groups of answers to broad prompts. Recently, many plagiarism detection tools have incorporated AI similarity.

Consequently, they could risk missing ChatGPT-generated content in response to particular directives. Turnitin tracks duplicate text in publications. As seen in the sample below, the basic information is displayed in multicolour with 63 %, and the conversation content generated by the GPT is displayed in sky blue. It is 19%. Chat GPT is also acting as a content generator and plagiarism controller.

Artificial intelligence is used by the chatbot ChatGPT to generate text. To find out whether a text

was written with ChatGPT or another AI technology, use the ChatGPT plagiarism checker¹²³. Two examples of ChatGPT plagiarism checkers are the websites GPTZero and AI Content Detector, which enable you to paste or upload the text and receive a score based on how likely it is that AI created the content. The websites GPTZero and AI Content Detector, which let you paste or upload the text and receive a score based on the likelihood that the text is AI-generated, are two examples of ChatGPT plagiarism checkers. While ChatGPT content is not plagiarism, it might not be appropriate to use it for academic purposes.

Ethical Issues: Finding authorship and selling the results of AI tool searches both present ethical challenges. Students who submit work from ChatGPT as their own, according to faculty, are plagiarising. Though, are they? According to the definition of plagiarism, it means "presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement." No, ChatGPT is not "someone." Should students include ChatGPT in their citations or list them as co-authors? Academic magazines like Nature are concerned about how AI technologies undermine open science and students submitting papers created using ChatGPT. Scientists are concerned that "researchers could simplistically use LLMs and produce unreliable work" or "pass off LLM written text as their own." (Farid Rahimi 2024)

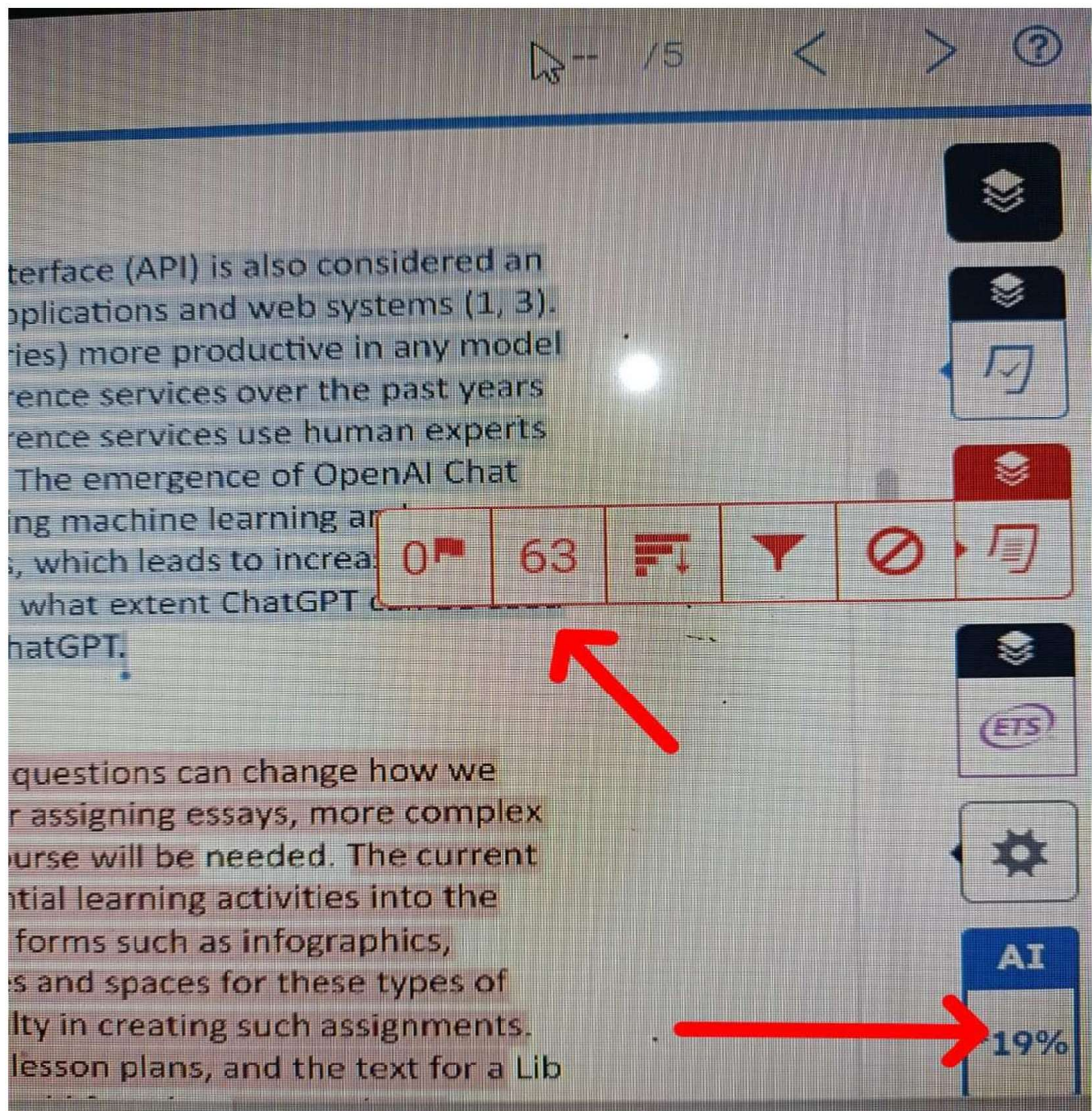


Figure 1. Turnitin screenshot with AI generated Plagiarism Report

Several submissions using ChatGPT as a co-author have already been made to Nature. Scientists are divided about whether ChatGPT can meet this need because it cannot accept responsibility for the content it is producing or provide its consent to a journal's rules. What scientists are concerned about is the urgent need for policies. To facilitate these discussions and promote policies that assure transparency and acknowledge authorship, librarians can work with educators, researchers, and publishers.

Productivity: Using AI techniques, librarians can increase their output differently. ChatGPT may create emails encouraging faculty members to use the library's e-reserve service, like a cold call. It can provide a list of books or read-alikes for a thematic display. AI queries can be used to draft press releases, event posters, and other marketing materials. The possibilities for how AI tools may speed up and simplify writing and image creation seem endless.

Equity and inclusion: AI tools might be biased based on prejudices, just like any other creation, or the integrity of the information sources used in their design. Librarians might advise students to be mindful of any biases in ChatGPT's responses. Concerns about the future of this product are raised by OpenAI's present monetization of ChatGPT, which offers a paid "pro" version, promising more dependable access and quicker response times. A model like that might result in a knowledge exchange where some can afford it and others can't. Both have merits and faults.

3.1. Google vs. ChatGPT: Reliability

We've all searched the internet to verify claims in the past, right? While ChatGPT allows the same task, the error margin is higher than Google's. It's easy to understand why ChatGPT is a machine learning model whose accuracy is based on the text data it was trained on and the user's input. Especially when it comes to current events or information that is fast changing, it may provide inaccurate information.

3.2. ChatGPT merely provides an answer

Most crucially, unlike Google, ChatGPT does not identify the information source. As a result, it cannot be traced using paper trails, experts, reference lists, reliable websites, etc. The answers are the result of extraction from multiple sources and combined using LL models with parameters so that the output resembles a human answer.

3.3. What search engine rivals Google in quality?

The best search engine could be compared to one's needs and usefulness. distinct search engines have distinct strengths and limitations. Despite Microsoft's debut of Bing Chat with GPT-4, Google may still win.

4. A comparative analysis of AI assistants between Google Bard and Chat GPT

Google Bard, which tries to compete with the growingly well-liked ChatGPT, has recently caused a stir in the AI community. It is appropriate to compare these AI helpers in several categories now that they have both shown promise. Remember that both tools will get better with time. (Amenda Hetler of Techtargt (2023).

1. Basic Inquiries: *Both AI assistants provide accurate responses to fact-based questions, albeit occasionally, fact-checking is necessary. Google Bard and ChatGPT performed equally well in this category, resulting in a tie. Question Type*

2. Complex: *Google Bard loses ground against Bing's ChatGPT for complicated queries. thanks to its programmable creativity slider and capacity for more complex responses. Additionally, ChatGPT frequently cites its sources, which gives the comments additional authority. Category*

3.Executing Jobs: *Regarding carrying out activities, Bing's ChatGPT proves to be more adaptable and powerful, especially when handling trickier jobs like coding. Although Google Bard is quicker and easier for basic activities, ChatGPT triumphs in this category due to its variety. Summary of Information, Category*

4.The ability of AI helpers to summarize data is useful: *ChatGPT comes in second to Google Bard in this category, providing clear and accurate summaries of events and material. Both technologies, however, offer development opportunities.*

5.Using Creativity: *Bing's ChatGPT outperforms Google Bard in inventiveness with astounding*

responses like alliterations and even producing a script for a made-up film. The creative potential of ChatGPT seems to be greater than that of Bard's more straightforward strategy. The competition between ChatGPT and Google Bard is tight, with each AI helper demonstrating strengths and flaws. ChatGPT stands out for its customizability, capacity for handling complex tasks, and creative prowess, even though Google Bard is quicker and easier. The development of both instruments will continue, and AI assistance has a promising future.

5. Chat GPT vs Intermediaries

Chatbots and librarians are two distinct things with distinct functions. While chatbots are computer programs that employ artificial intelligence to simulate conversations with human users, librarians are educated individuals who assist people in finding information and resources. ChatGPT is a particular kind of chatbot that creates responses to user inquiries using natural language processing and machine learning. It is intended to provide prompt, accurate responses to frequently asked inquiries, freeing librarians to concentrate on more challenging research queries or jobs. .(Curtis L. Kendrick, (2023).

While chatbots like ChatGPT can be helpful for simple enquiries, they cannot replace a skilled librarian's expertise and understanding. Librarians can assist readers in navigating challenging databases and search engines since they have years of expertise in finding information and resources. Finally, while chatbots like ChatGPT can be helpful for providing simple answers, they cannot take the position of a skilled librarian with skills and expertise. Librarians are a crucial resource for anyone trying to conduct research or acquire information.

6. FREE Chat GPT vs. Paid Chat GPT Plus Service

The conversational AI models ChatGPT and ChatGPT Plus were both created by OpenAI. A free research preview called ChatGPT may produce text and provide answers in response to user input. It is intended to be a quick and simple method of testing OpenAI's language models' capabilities.

1. Contrarily, ChatGPT Plus is a subscription-based service that offers further features and advantages. Subscribers to ChatGPT enjoy general access to the service for \$20 per month, including access during peak hours, quicker response times, priority access to new features and enhancements, and more. ChatGPT Plus is a fantastic option if you're a non-technical individual seeking an easy-to-use text creation service

2. However, ChatGPT API is a better choice if a developer or someone with some coding knowledge seeks additional freedom and control over the next-generation process.

Ultimately, ChatGPT is a free research preview that may produce text based on user input and answer questions. For \$20 per month, ChatGPT Plus is a subscription-based service that offers more features and advantages. ChatGPT Plus is a wise choice for an easy-to-use text creation service. However, ChatGPT API can be a superior choice if you want additional adaptability and control over the text-generating procedure.

7. Chat GPT vs. Google Scholar

Google Scholar and ChatGPT are two distinct tools with distinct uses. OpenAI created ChatGPT, a conversational AI model that responds to user inquiries using machine learning and natural language processing 1. It is intended to provide prompt and accurate responses to frequent queries. On the other hand, Google Scholar is a search engine that catalogues academic literature from many different fields. Users can search for articles, theses, books, abstracts, and court decisions from academic publishers, professional associations, online repositories, institutions, and other web sources. While ChatGPT can help provide straightforward answers, it cannot replace the skills and expertise of an experienced researcher or academic. Anyone wishing to conduct the study or find scholarly material should use Google Scholar.

ChatGPT and Google Scholar are two distinct technologies with distinct uses. ChatGPT is a conversational AI model created to respond promptly and accurately to common queries. A search engine called Google Scholar indexes academic publications. literature from various academic

fields is a crucial resource for anyone wishing to study or locate scholarly material.

8. Conclusion

Foreseeing the effects AI tools will have on librarianship is difficult. ChatGPT is similar to how society reacted to other ground-breaking inventions like calculators, cell phones, the World Wide Web, and Wikipedia in many aspects. Maybe we should also ask ourselves how we, as librarians, can incorporate these new technologies into our work. How can we aid in lessening their prejudices and enhancing the output quality? How can we include them in various levels of teaching and learning in the future? Despite the possibility that AI tools could make our lives better, they are unable to replace the interpersonal relationships that distinguish us from any technology, nor can they replace the lives of the people we serve. Libraries can embrace the AI revolution by assessing these novel tools and creating services to facilitate their use.

ChatGPT's advantages include enhanced search and discovery, reference and information services, cataloguing and metadata development, content creation, and the moral issues that must be considered, including bias and privacy. The author has demonstrated the substantial power of ChatGPT to make strenuous and fascinating new advances in academia and librarianship. But rather than abusing it or allowing it to abuse us in a rush to advance scholarly understanding and train the next generation of professionals, it is critical to think about how to use this technology responsibly and ethically and to identify ways that we, as professionals, can work alongside it to improve our work.

References

- [1] Aljanabi, Mohammad, Ghazi, Mohanad, Ali, Ahmed Hussein, Abed, Saad Abas, & ChatGpt. (2023). ChatGpt: Open Possibilities. *Iraqi Journal for Computer Science and Mathematics*, 4(1), 62–64.
- [2] Belkin, Douglas. (2023, January 15). Professors Turn to ChatGPT to Teach Students a Lesson: The Powerful Paper-Writing Chatbot Presents an Educational Challenge: Ban It or Build on It? *Wall Street Journal*.
- [3] Lund Brady, A. (2022, December). Chat with ChatGPT: How will AI and GPT impact scholarly publishing? DOI:10.13140/RG.2.2.34572.18565
- [4] Kirtania, Deep Kumar. (2023, April). Open AI ChatGPT for Library and Information Science (LIS) Professionals. DOI: 10.13140/RG.2.2.19151.97445
- [5] Verma, M. (2023). Novel Study on AI-Based Chatbot (ChatGPT) Impacts on the Traditional Library Management.
- [6] Fernandez, P. (2023). Through the looking glass: envisioning new library technologies - AI text generators as explained by ChatGPT. *Library Hi Tech News*.
- [7] Curtis L. Kendrick,. (2023). Changing the Racial Demographics of Librarians. Binghamton University--SUNY. April 18, 2023. Ithaka. <https://doi.org/10.18665/sr.318717>
- [8] Rahimi, F., Abadi, A. T. B. (2023). ChatGPT and Publication Ethics. *Archives of Medical Research*.