



Google Bard Generated Literature Review: Metaverse

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Abstract

Literature review articles aim to present studies in a field to researchers in a regular, systematic and meaningful way. It is often a very difficult process to reach all the studies in the field to be reviewed or to identify and evaluate the important ones. With this study, the use of Artificial Intelligence robots and moreover generative artificial intelligence in literature review processes is evaluated. Google Bard was used to detect artificial intelligence's ability to generate a literature review article. First, Bard was asked questions to write about some of the Metaverse-related topics in this article. Some of the texts in the study were generated entirely by the answers given to the questions asked by Bard. In addition, 10 articles on Metaverse published in the last three years (2021, 2022 and 2023) were collected by searching Google Scholar with the word "Metaverse". Afterwards, these studies were interpreted by Bard. Bard was told to paraphrase the summary parts of the related studies and the produced texts were shared in the study. All produced texts were checked through iThenticate and the results were evaluated. In addition, the texts were evaluated semantically. Additionally, a comparison with the capabilities of OpenAI ChatGPT is given. The results are promising; however, it was observed that the plagiarism matching rate of the paraphrased texts was higher when compared to the answers given to the questions. This article is an experiment to show that the collection and expression of knowledge can be accelerated with the help of artificial intelligence. It is considered that the relevant tools will be used more and more effectively in academic literature in the future.

Keywords: Google, Google Bard, Lambda, OpenAI ChatGPT, Artificial Intelligence, Metaverse, Academic writing, literature review

Cite this paper (APA)

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1. INTRODUCTION

Google Bard AI is a text-based artificial intelligence chatbot. Bard generates real-time answers using natural language processing and machine learning. The company says Bard can help with creative tasks, explaining complex topics, and generally extracting information from a variety of sources on the internet. It can also answer complex questions like finding recipes that fit the ingredients in your fridge. You can't answer such questions today using only a Google search. Bard turns Google from a humble search engine into a capable virtual assistant (Aguilar, 2023).

Google Bard is built on the Pathways Language Model 2 (PaLM 2), a language model released in late 2022. PaLM and its predecessor, Google's Language Model for Dialogue Applications (LaMDA) technology, are a language model released by Google in 2017. The neural network architecture is based on the Transformer. Transformer has served as the foundation for several effective AI tools, like the GPT-3 language model used in ChatGPT, ever since Google made it available as open source. Bard was created by considering search. It tries to make natural language search queries more prevalent in place of keywords. Bard's AI is honed via natural-sounding voice questions and answers. It provides the context of the answers, rather than just giving a list of answers. It's also intended to assist with follow-up queries, which is a novel search feature. In order to grow to many concurrent users, Bard's original edition of LaMDA employed a lighter model version that needed less processing resources. The inclusion of the PaLM language model allows Bard to be more visual in its responses to user queries (Patrizio, 2023).

Studies using different productive artificial intelligence tools (Aydin & Karaarslan, 2022) have taken place in the literature. In addition, in the literature reviews and evaluations, productive artificial intelligence and chat robots may have applications in different areas and the existing applications were grouped according to their operations (Aydin & Karaarslan, 2023). The purpose of this paper is to determine whether an academic literature review article on Metaverse can be written using an artificial intelligence chatrobot and whether the resulting text possesses qualities like originality and academic substance. In this study, all content except the "Abstract", "Introduction", "Method", "Findings and Results" and "Conclusion" subsections was created by Google Bard. The research cited to this article will be reviewed, and the efficacy and academic validity of the article will be interpreted through the citations, after the necessary sample size for the citations to this article is attained (at least 100 journal article citations).

The contribution of this study to the literature can be explained as follows. Artificial intelligence is used in many fields today. In addition, it continues to expand into new areas of use. One of the uses of artificial intelligence is to create academic articles or to assist authors in this process. Preparing especially the literature part of academic articles often costs a lot of effort and time for the authors. At this point, Artificial Intelligence can summarize the studies in the literature for the authors and present the needed information in an organized and concise manner. In this study, it is desired to evaluate this capability of generative artificial intelligence. Although there are examples of ChatGPT in previous studies (Aydin and Karaarslan, 2022; Rahman et al., 2023a, Libório et al., 2023), no study has been revealed about Google Bard yet. In this sense, the deficiency in the literature will be eliminated by evaluating the competence of Google Bard.

2. METHOD

In the method section of the study, it would be appropriate to share the materials, software and tools used in the study and how they were prepared and used, the research process, and how the measurements and evaluations were made.

The Google Bard Generative AI tool was used in the study. The related tool has recently been made available to everyone free of charge. You can access the vehicle via <https://bard.google.com> and access the system with your Google account, if any. If you do not have an account, you can use the system by creating a free



account.

It is helpful to state the study's goal once again. A good illustration of how artificial intelligence may yield outcomes in academic paper writing is Google Bard. I want to make sure that a paper is authored by artificial intelligence at a fundamental level and then I want to examine its academic reliability. For this reason, it was decided that Google Bard should be used to interpret the abstracts of the results from a search on the topic (Metaverse) that I chose as a research approach on Google Scholar. Also "*What is the Metaverse?*" Google Bard was asked to answer the question. These two titles are placed after the literature title in the article.

Google Bard was asked to paraphrase the abstracts of the articles. A question was asked to Google Bard as "*Paraphrase this article abstract 'Abstract text is here'*". Google Bard replied this question as "*Sure, here is the paraphrased abstract: 'Paraphrased abstract is here'*".

Authentic plagiarism detection tool is used to examine texts written by paraphrasing using Google Bard and texts produced by the response of a question. An assessment is made about the degree of similarity to earlier research as a result of the evaluation.

It was decided to assess the academic validity of this study using the following methodology. This paper will be published on preprint environments such as SSRN, Arxiv, Techrxiv, Researchgate, Academia. We'll keep track of citations to this paper. After receiving a predetermined amount of citations (for instance, 100 journal article citations), these papers will next be analyzed and reviewed. The comments and criticisms in these quotations will be used to assess the academic validity of the text created by Google Bard.

3. LITERATURE REVIEW

The metaverse is a virtual universe that merges physical and digital reality. It is a persistent and ever-changing environment that allows users to interact with each other and with digital content in a variety of ways. The metaverse is made possible by the convergence of technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI).

The first iteration of the metaverse was a web of virtual worlds where users could create and interact with their own avatars. The contemporary iteration of the metaverse is more immersive and social, and it features social VR platforms, massive multiplayer online games, and AR collaborative spaces.

The metaverse has the potential to revolutionize the way we live, work, and play. It can be used for education, training, entertainment, and even social interaction. The metaverse is still in its early stages of development, but it has the potential to become a major part of our lives in the future.

Here are some additional details about the metaverse (Ning et al., 2023; Wang et al., 2022; Laeeq, 2022; Damar, 2021; Mystakidis, 2022):

It is a persistent and ever-changing environment. This means that it is always evolving and growing, and there is always something new to explore.

It is immersive and social. Users can interact with each other and with digital content in a variety of ways, including through VR and AR.

It is powered by new technologies. The metaverse is made possible by the convergence of technologies such as VR, AR, and AI.

It has the potential to revolutionize the way we live, work, and play. The metaverse can be used for education, training, entertainment, and even social interaction.

The metaverse is still in its early stages of development, but it has the potential to become a major part of our lives in the future. It is an exciting new technology with the potential to change the way we interact with



the world around us (Mystakidis, 2022).

The metaverse is a new paradigm for the next-generation Internet. It is a fully immersive, hyper spatiotemporal, and self-sustaining virtual shared space where humans can play, work, and socialize. The metaverse is made possible by recent advances in emerging technologies such as extended reality (XR), artificial intelligence (AI), and blockchain.

The metaverse has the potential to revolutionize the way we live, work, and play. However, there are also security and privacy concerns that need to be addressed before the metaverse can be widely adopted.

This paper presents a comprehensive survey of the fundamentals, security, and privacy of the metaverse. The paper first investigates a novel distributed metaverse architecture and its key characteristics with ternary-world interactions. Then, the paper discusses the security and privacy threats, presents the critical challenges of metaverse systems, and reviews the state-of-the-art countermeasures. Finally, the paper draws open research directions for building future metaverse systems.

The paper concludes that the metaverse is a promising new technology with the potential to change the way we interact with the world around us. However, there are also significant security and privacy concerns that need to be addressed before the metaverse can be widely adopted.

Here are some of the key security and privacy concerns that need to be addressed in the metaverse:

Privacy: The metaverse is a highly immersive environment where users can share a lot of personal information. This information could be used to track users, target them with ads, or even steal their identity.

Security: The metaverse is a complex system with many potential attack vectors. Hackers could steal users' data, disrupt the metaverse, or even take control of users' avatars.

Interoperability: The metaverse is still in its early stages of development, and there is no single standard for how it should work. This could make it difficult for users to move their data and assets between different metaverse platforms.

The paper discusses a number of potential solutions to these security and privacy concerns. These solutions include:

Privacy-preserving technologies: These technologies can be used to protect users' personal information while they are in the metaverse.

Security mechanisms: These mechanisms can be used to protect the metaverse from attack.

Interoperability standards: These standards can help to ensure that different metaverse platforms can work together.

The paper concludes that the metaverse is a promising new technology with the potential to change the way we interact with the world around us. However, there are also significant security and privacy concerns that need to be addressed before the metaverse can be widely adopted (Wang et al., 2022).

The metaverse is a hypothesized iteration of the internet as a single, universal and immersive virtual world that is facilitated by the use of virtual reality and augmented reality headsets. The metaverse has the potential to revolutionize the way we live, work, and learn. In education, the metaverse could be used to create new and immersive learning experiences that are more engaging and interactive than traditional methods.

There are four main types of metaverses: augmented reality (AR), lifelogging, mirror world, and virtual reality (VR). AR is a technology that overlays digital information onto the real world, while VR is a technology that



creates a fully immersive virtual world. Lifelogging is a technology that records a person's life in real time, and mirror worlds are digital representations of the real world.

The metaverse has the potential to revolutionize education in a number of ways. First, it can be used to create new and immersive learning experiences that are more engaging and interactive than traditional methods. For example, students could use AR to learn about different historical periods by overlaying digital information onto real-world objects. Or, they could use VR to explore different parts of the world without ever leaving their classroom.

Second, the metaverse can be used to create more collaborative learning experiences. Students can work together on projects in a virtual space, and they can even interact with experts from around the world. This can help students to develop their critical thinking and problem-solving skills.

Third, the metaverse can be used to provide students with access to resources that would not be possible in the real world. For example, students could use the metaverse to visit museums, libraries, and other educational institutions without ever leaving their home.

However, there are also some potential limitations to the use of the metaverse in education. First, the metaverse can be expensive to develop and maintain. Second, it can be difficult to ensure that the metaverse is used in a safe and ethical way. Third, there is a risk that the metaverse could be used to isolate students from the real world.

Despite these limitations, the metaverse has the potential to revolutionize education. With careful planning and implementation, the metaverse can be used to create new and innovative learning experiences that will benefit students of all ages.

Here are some future tasks that are suggested for the educational use of the metaverse:

Teachers should carefully analyze how students understand the metaverse. This will help teachers to design effective learning experiences that take advantage of the metaverse's unique capabilities.

Teachers should design classes for students to solve problems or perform projects cooperatively and creatively. The metaverse can be used to create a collaborative learning environment where students can work together to achieve common goals.

Educational metaverse platforms should be developed that prevent misuse of student data. This will help to protect students' privacy and ensure that their data is used in a safe and ethical way.

The metaverse is a new and emerging technology with the potential to revolutionize education. With careful planning and implementation, the metaverse can be used to create new and innovative learning experiences that will benefit students of all ages.

Here are some specific examples of how the metaverse could be used in education:

In medical school, students could use AR to learn about human anatomy. They could overlay digital information onto real-world objects, such as cadavers, to see inside the body.

In engineering school, students could use VR to design and test new products. They could create a virtual prototype of a product and then test it in a virtual environment.

In business school, students could use the metaverse to simulate real-world business situations. They could create a virtual company and then run it through different scenarios.

These are just a few examples of how the metaverse could be used in education. As the technology continues to develop, we can expect to see even more innovative and exciting applications (Kye et al., 2021).

The metaverse, a new buzzword that has caught the attention of both industry and academia, seamlessly



integrates the real world with the virtual world. It allows avatars to engage in a variety of activities, including creation, display, entertainment, social networking, and trading. The metaverse has the potential to create an exciting digital world and transform the physical world for the better.

This survey explores the metaverse by discussing how blockchain and artificial intelligence (AI) are being integrated into it. We investigate the state-of-the-art research on metaverse components, digital currencies, AI applications in the virtual world, and blockchain-empowered technologies. We believe that further research on the integration of AI and blockchain into the metaverse will require collaboration between academia and industry. We hope that this survey will help researchers, engineers, and educators build an open, fair, and rational future metaverse.

Here are some of the key points from the abstract:

The metaverse is a new virtual world that seamlessly integrates the real world with the virtual world.

Avatars in the metaverse can engage in a variety of activities, including creation, display, entertainment, social networking, and trading.

The metaverse has the potential to create an exciting digital world and transform the physical world for the better.

Blockchain and AI are being integrated into the metaverse to create a more secure, immersive, and interactive experience.

Further research on the integration of AI and blockchain into the metaverse will require collaboration between academia and industry.

We hope that this survey will help researchers, engineers, and educators build an open, fair, and rational future metaverse (Yang et al., 2022).

Previous studies on the metaverse focused on Second Life, a virtual world where users can create their own avatars and interact with other users. However, the current metaverse is based on the social values of Generation Z, who believe that their online and offline selves are not different.

The development of deep learning-based high-precision recognition models and natural generation models has made it possible to create more realistic and immersive metaverse experiences. Additionally, the rise of mobile devices has made it possible for users to access the metaverse from anywhere.

The integration of enhanced social activities and neural-net methods requires a new definition of the metaverse that is different from the previous definition. This paper proposes a new definition of the metaverse that is based on three components: hardware, software, and content. The paper also proposes three approaches to implementing the metaverse: user interaction, implementation, and application.

The paper then describes essential methods based on the three components and techniques to the metaverse's representative Ready Player One, Roblox, and Facebook research in the domain of films, games, and studies. Finally, the paper summarizes the limitations and directions for implementing the immersive metaverse as social influences, constraints, and open challenges.

Here are some of the key points from the abstract:

The current metaverse is based on the social values of Generation Z.

The development of deep learning-based high-precision recognition models and natural generation models has made it possible to create more realistic and immersive metaverse experiences.

The rise of mobile devices has made it possible for users to access the metaverse from anywhere.



The integration of enhanced social activities and neural-net methods requires a new definition of the metaverse.

The metaverse can be defined as a three-component system consisting of hardware, software, and content.

The metaverse can be implemented using three approaches: user interaction, implementation, and application.

The metaverse has limitations and challenges, such as social influences, constraints, and open challenges (Park & Kim, 2022).

The metaverse is a virtual world that has been discussed in the literature since the 1990s. However, it has recently gained popularity due to Mark Zuckerberg's press release about Facebook's plans to invest in the metaverse.

This study presents a bibliometric evaluation of metaverse technology. A field study was conducted to collect data on journals, institutions, prominent researchers, and countries in the field. The study found that there have been few studies on the metaverse in the past, but its popularity has increased in recent months. The study also found that the metaverse is being researched intensively in the fields of virtual reality, augmented reality, education, and digital marketing.

The study concludes that the metaverse is likely to become a major part of our lives in the next 15-20 years. It has the potential to revolutionize the way we work, learn, play, and interact with each other.

Here are some of the key points from the abstract:

The metaverse is a virtual world that has been discussed in the literature since the 1990s.

It has recently gained popularity due to Mark Zuckerberg's press release about Facebook's plans to invest in the metaverse.

A bibliometric evaluation of metaverse technology found that there have been few studies on the metaverse in the past, but its popularity has increased in recent months.

The metaverse is being researched intensively in the fields of virtual reality, augmented reality, education, and digital marketing.

The study concludes that the metaverse is likely to become a major part of our lives in the next 15-20 years. It has the potential to revolutionize the way we work, learn, play, and interact with each other (Damar, 2021).

The metaverse is a virtual world that people can interact with using augmented and virtual reality devices. It was first conceptualized about 20 years ago, but it has only recently gained popularity due to the efforts of social media giants and big technology companies.

The first applications of the metaverse were computer games that consisted of virtual worlds. Gaming companies were racing to offer more unique experiences to their users. Now, the metaverse is being touted as the future of the internet, and it is attracting the attention of the wider masses.

The concept of the metaverse has been the subject of academic studies in many different fields, from literature to art, from music to education. In this review article, a total of 40 journal articles containing the "metaverse" keyword in all fields in the Web of Science database were examined in terms of content and method. The outputs of this study provide a brief overview of the research area to both researchers and technology developers.

Here are some of the key points from the abstract:



The metaverse is a virtual world that people can interact with using augmented and virtual reality devices.

It was first conceptualized about 20 years ago, but it has only recently gained popularity due to the efforts of social media giants and big technology companies.

The metaverse is being touted as the future of the internet, and it is attracting the attention of the wider masses.

The concept of the metaverse has been the subject of academic studies in many different fields.

This review article provides a brief overview of the research area to both researchers and technology developers (Narin, 2021).

Social media data is a popular research subject, as it can provide insights into public opinion on events, situations, and concepts. In this study, the authors analyzed tweets about the metaverse, a virtual world that is being touted as the future of the internet.

The authors collected tweets that were sent in English with the hashtag "#metaverse" on Twitter one week before and after Mark Zuckerberg announced that his company, Facebook, would change its name to Meta. They then used sentiment analysis to analyze the tweets and determine the overall sentiment of the public towards the metaverse.

The results of the study showed that the public's sentiment towards the metaverse was mostly positive. The majority of tweets were either neutral or positive, with only a small number of negative tweets. The authors concluded that the public is generally optimistic about the metaverse and its potential to revolutionize the way we interact with the internet.

Here are some of the key points from the abstract:

Social media data can be used to gain insights into public opinion on events, situations, and concepts.

The metaverse is a virtual world that is being touted as the future of the internet.

The public's sentiment towards the metaverse is mostly positive.

The metaverse has the potential to revolutionize the way we interact with the internet (Ağralı & Aydın, 2021).

The metaverse is a virtual space where users can interact, create, and transact with digital assets. It represents a new frontier in human interaction and commerce, but it also presents a number of legal challenges.

One of the biggest challenges is intellectual property (IP). In the metaverse, users can create and share all sorts of IP-protected content, such as music, art, and videos. It is not yet clear how existing IP laws will apply to the metaverse, or how new laws will need to be created to protect IP in this new environment.

Another challenge is privacy. The metaverse is likely to collect and store a lot of personal data about users. This data could be used for a variety of purposes, such as targeted advertising or tracking users' movements. It is important to ensure that users' privacy is protected in the metaverse.

Finally, there is the issue of jurisdiction. The metaverse is not limited by physical borders, so it is not clear which laws will apply to it. This could lead to conflicts between different legal systems, and it could make it difficult to enforce laws in the metaverse.

The paper concludes by calling for interdisciplinary approaches to understanding and addressing the legal challenges of the metaverse. It also emphasizes the importance of creating specific laws, regulations, and policies that will balance the competing interests of different stakeholders.



Here are some of the key points from the paper:

The metaverse presents a number of legal challenges, including IP, privacy, and jurisdiction.

It is important to develop new laws and regulations to protect users' rights in the metaverse.

Interdisciplinary approaches are needed to understand and address the legal challenges of the metaverse.

It is important to balance the competing interests of different stakeholders in the metaverse (Kalyvaki, 2023).

The metaverse is a digital world where users can interact with each other and with virtual objects. It is often described as a "virtual reality" or "augmented reality" version of the internet. The metaverse has the potential to revolutionize education by making it more immersive, interactive, and accessible.

This study outlines the principles and approaches that can be used to transform education using the metaverse. The study uses a qualitative method to analyze the potential benefits of the metaverse for education. The study also outlines ten key techniques that can be used to create a quality metaverse education experience.

The study concludes by proposing a model of a metaverse classroom that can be used for group discussions, seminars, thesis meetings, and presentations. The study argues that the metaverse has the potential to improve education by engaging more students from developing and under-developed countries, and by providing more facilities and quality education.

Here are some of the key points from the study:

The metaverse has the potential to revolutionize education by making it more immersive, interactive, and accessible.

The metaverse can be used to create a more engaging and interactive learning experience.

The metaverse can be used to provide more personalized learning experiences.

The metaverse can be used to make education more accessible to students from all over the world.

The study concludes by calling for further research into the potential of the metaverse for education (Rahman et al., 2023b, Ning et al., 2023; Chengoden et al., 2022; Talan and Kalinkara, 2022; Han et al., 2023; Kaddoura and Al Hussein, 2023).

4. METAVERSE

Author: "Please define and explain the metaverse for my article"

Google Bard: "Sure, here is a definition and explanation of the metaverse that you can use for your article:

The metaverse is a hypothesized iteration of the Internet as a single, universal and immersive virtual world that is facilitated by the use of virtual reality (VR) and augmented reality (AR) headsets. In colloquial usage, a "metaverse" is a network of 3D virtual worlds focused on social and economic connection.

The metaverse is still in its early stages of development, but it has the potential to revolutionize the way we interact with the internet and with each other. It could be used for a variety of purposes, including:

Socializing: The metaverse could be used to connect with friends and family in a more immersive and engaging way. We could attend virtual parties, go on virtual dates, and even work together on virtual projects.

Learning: The metaverse could be used to provide a more immersive and interactive learning experience. Students could visit historical sites, conduct experiments, and even interact with virtual characters.



Entertainment: The metaverse could be used to play games, watch movies, and listen to music in a more immersive and interactive way. We could also attend concerts, sporting events, and other live performances.

Work: The metaverse could be used to work remotely in a more immersive and productive way. We could collaborate with colleagues on projects, attend meetings, and even give presentations.

The metaverse has the potential to be a powerful tool for connecting people, learning, and entertainment. However, it is important to be aware of the potential risks, such as addiction, privacy concerns, and the potential for misuse.

Here are some of the potential benefits of the metaverse:

It can provide a more immersive and engaging experience than traditional online platforms.

It can be used to connect people from all over the world.

It can be used to learn, collaborate, and play in new ways.

Here are some of the potential challenges of the metaverse:

It can be expensive to develop and access.

It can be addictive.

It can be used for malicious purposes, such as spreading misinformation or propaganda.

Overall, the metaverse is a promising new technology with the potential to change the way we live, work, and play. However, it is important to be aware of the potential challenges before we fully embrace it."

Author: "Please define and explain the metaverse for my article"

OpenAI ChatGPT: "The metaverse refers to a virtual reality-based space that encompasses a collective virtual universe, where users can engage in immersive experiences, interact with each other, and access digital content in a seamless and interconnected way. It is often described as a fully realized, persistent, and shared digital world that merges the physical and virtual realms.

In the metaverse, users can explore and interact with various virtual environments, ranging from social spaces and entertainment venues to educational simulations and commercial platforms. These experiences can include virtual reality, augmented reality, and mixed reality technologies, allowing users to engage with digital content and other users in real-time.

The metaverse aims to transcend the limitations of traditional online platforms by offering a more immersive and interconnected digital experience. It is characterized by its ability to seamlessly integrate different virtual environments and digital assets, creating a cohesive and interactive virtual ecosystem. Users can create and customize their avatars, traverse virtual landscapes, participate in events and activities, and even build and trade virtual assets or currencies.

The concept of the metaverse has gained significant attention in recent years due to advancements in virtual reality, augmented reality, blockchain, and other technologies. Several companies and developers are actively working towards creating their vision of the metaverse, envisioning it as a transformative platform that could revolutionize communication, commerce, entertainment, and various other aspects of our lives.

While the metaverse is still an evolving concept, it holds the potential to reshape the way we interact with digital content and each other, blurring the boundaries between the physical and virtual worlds. However, it also raises important considerations regarding privacy, security, accessibility, and inclusivity, which need to be addressed as the concept progresses."

5. FINDINGS AND RESULTS

The entire paper (excluding the bibliography) has a 30% similarity rate according to the Ithenticate Plagiarism Tool examination. When the texts written by the author and all the writings written by Google Bard are analyzed, this ratio is found. It is possible to break up the analysis of the entire document into three parts:

Part A contains the words authored by the paper's author.

Part B contains the article's abstract texts that Google Bard has paraphrased.

Part C: Google Bard generated text, which includes the response to a specific query

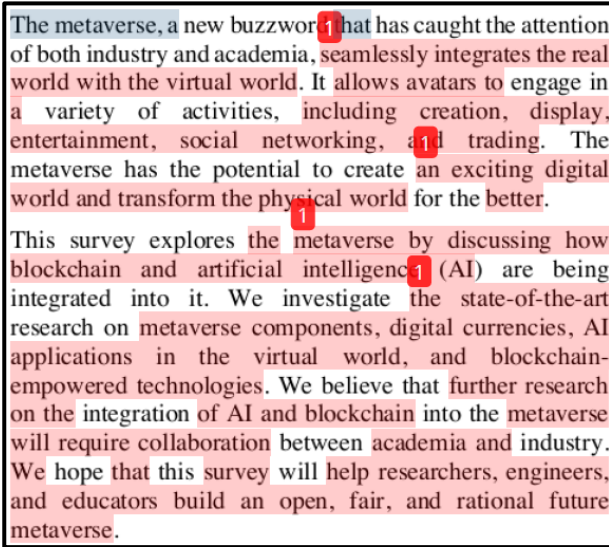


Figure 1. Plagiarism Tool Match Screenshots for Google Bard Paraphrased Abstract

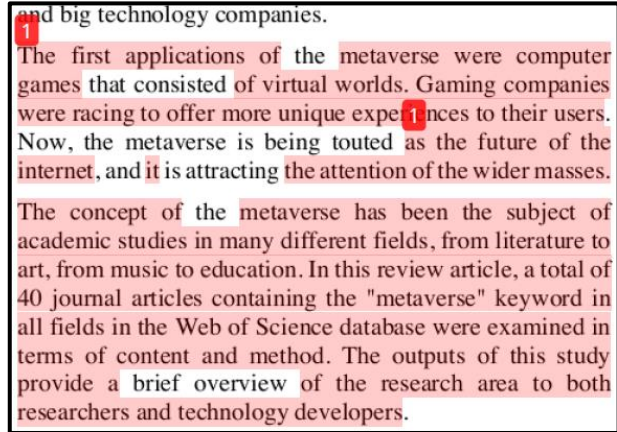


Figure 2. Plagiarism Tool Match Screenshots for Google Bard Paraphrased Abstract

There was no notable match in Part A. Figures 1 and 2 demonstrate a clear match in Part B. In Figure 3, the check of Part C is presented. These texts have somewhat fewer matches than the texts in Part B, but they still match more than the Part A texts. Some sources and matching rates can be seen in Figure 4 and Figure 5.

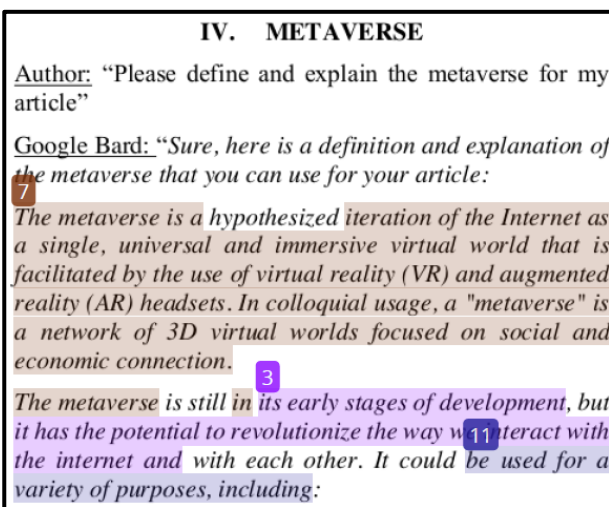


Figure 3. Plagiarism Tool Match Screenshot for Google Bard Generated Text as a Reply to our question

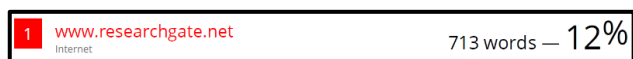


Figure 4. The source to which the matched text in Figure 1 and Figure 2

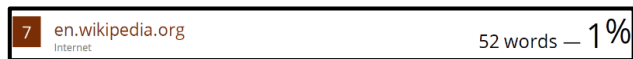


Figure 5. The source to which the matched text in Figure 3



6. GOOGLE BARD vs CHATGPT

When the texts in the article are evaluated, it can be seen that the texts produced by ChatGPT (Talan and Kalinkara, 2023a; Kasneci et al., 2023; Lo, 2023; Talan and Kalinkara, 2023b; Ram et al., 2023; Rahaman et al., 2023) and Google Bard as a result of the paraphrasing process have similarly high matches. For comparison, the study conducted by Aydın and Karaarslan (Aydın & Karaarslan, 2022) was used. When these two papers are evaluated, there is no significant difference in paraphrased texts. Neither of them could produce the abstract texts of the articles in such a way that they could not be detected in the plagiarism tool.

On the other hand, the texts produced for the questions asked by the authors were examined. Considering the match rates of the texts in these two studies, it can be said that the match rate of the texts produced by ChatGPT is relatively lower. Especially in the texts produced with Google Bard, it is seen that one sentence or more than one sentence is matched. It can be said that ChatGPT's matches are in the form of one word or multiple words.

7. CONCLUSION

In this study, we first had Google Bard paraphrased the abstracts of 10 articles about Metaverse written in the last 3 years. The literature review part of the article was created from these texts. Articles published between 2021-2023 were selected by searching on Google Scholar with the keyword "Metaverse". Then, the summaries of these studies were interpreted with Google Bard. Finally, we asked Google Bard a question and shared the answer in the study.

In the light of the findings and results obtained, the plagiarism tool matching rates of the texts written by the study authors are quite low. On the other hand, both types of text produced by Google Bard have a high match rate. When the two texts were compared, it was seen that the paraphrased texts had a higher match rate. From this information it can be concluded that Google Bard does not produce original texts after paraphrasing. In addition, it is thought that he had difficulties in producing original texts in his current form in the answers he gave to the questions. When compared to ChatGPT, a similar result was seen in paraphrased texts. On the other hand, the answers given to the questions showed that ChatGPT produced texts with less match rate.

The paper itself serves as an attractive and impressive illustration of how far artificial intelligence has progressed. With these and similar applications, it appears probable for the scholarly literature to arrive at a different conclusion. Artificial intelligence will speed up the collection and expression of knowledge while reducing the need for human-oriented methods in these operations.

Future references to the study will be made. New research will be proposed to assess the academic validity after this study has received a significant number of citations (for example, 100) from journal papers. The papers referring to this study will be categorized as either good, negative, or neutral. Evaluations of the article's suitability will be explored later. It will be known whether the academic community appreciates Google Bard's ability. The impact of this Google Bard application on the scholarly literature will next be evaluated.



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