

LEGAL DANGERS OF USING CHATGPT AS A CO-AUTHOR ACCORDING TO ACADEMIC RESEARCH REGULATIONS

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Abstract

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This article sheds light on the modern trend of many researchers towards relying on chat generative pre-trained transformer (ChatGPT) in the field of academic research, either as a co-author or as a reference (Teixeira da Silva, 2023). The chosen methodology by the authors is analyzing the ChatGPT's operating parameters as evidenced by its answers to questions addressed to it by the authors. The authors asked ChatGPT about its mechanism, analyzed whether it can be identified as a coauthor in the light of its terms of use, and presented a practical case study to examine whether ChatGPT should be considered a reference in academic writing. Doing so necessitated addressing legal and research concepts including authorship, copyrights, and plagiarism. The article argues that while ChatGPT represents an important technological advancement, it should not be listed as a co-author on any academic writing and should not be cited as a source of information. The article shows how researchers can benefit from this technological advancement without violating copyright law or rules of academic writing, especially plagiarism-related ones.

Keywords: ChatGPT, OpenAI, Academic Research, Co-Author, Copyright, Artificial Intelligence

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1. INTRODUCTION

Plagiarism is the ultimate crime in academia. Oxford University defines it as “*presenting work or ideas from another source as your own, with or without consent of the original author, by incorporating it into your work without full acknowledgement*” (University of Oxford, n.d.). Therefore, research regulations require authors to express their ideas in their own words. If they need to copy the idea of another author, they must paraphrase the expression and cite the original author (European University Institute, 2022). If they need to copy the expression of another author, they have to put the quoted expression between

quotation marks and cite the author. Failure to adhere to these standards results in accusations of plagiarism. Furthermore, such misconduct may lead to copyright infringement as well. However, copyright infringement occurs when the copied work is copyrighted rather than in the public domain and an author copies the expression rather than the idea only. It is well known that copyright does not protect ideas (Hunter, 2012).

The landscape of artificial intelligence (AI) is undergoing rapid changes (Grove et al., 2020). Towards the end of 2022, OpenAI allowed the public to use a chat generative pre-trained transformer (ChatGPT) to try a new artificial intelligence technology experience represented in a new

generation of chatbots. ChatGPT became very popular, gaining one million users within just five days. Unlike search engines, ChatGPT generates one answer to questions without the need to navigate endless websites or other sources to find the information one is looking for. Interestingly, it is almost impossible to make sure whether the writing is generated by ChatGPT or written by a human (Salvagno et al., 2023).

Due to its notable accuracy, ChatGPT has gathered attention in the academic community. Some researchers have even acknowledged it as a co-author after employing it to generate portions of their research. For instance, O'Connor employed ChatGPT to generate substantial parts of her publication (O'Connor & ChatGPT, 2023). Currently, ChatGPT is credited as a co-author in at least three academic articles. It has an author ID number on the renowned Scopus database with an h-index of 2 (Scopus, 2023). However, this practice has sparked controversy. The editorial board of *Nurse Education in Practice*, the journal that previously agreed to list ChatGPT as a co-author, later issued a statement asserting that such a listing was inappropriate (Siegerink et al., 2023).

Evidentially, the emerging trend of using ChatGPT created a significant gap in the literature. Using ChatGPT may have serious legal and ethical consequences. It is important to examine whether using ChatGPT complies with copyright law since ChatGPT might infringe on another author's copyrights. Similarly, an investigation should be conducted to check to what extent research regulations permit using ChatGPT so that the author is not accused of plagiarism.

Accordingly, taking into consideration copyright law and research regulations, this study aims to investigate whether ChatGPT can be acknowledged as a coauthor in academic research. Furthermore, it aims to examine whether ChatGPT can be used as a source that can be cited in such works.

This study holds significant importance as it seeks to integrate technological advancements like ChatGPT into academic research. Every researcher should employ new technological advances to enhance his/her research productivity. While such tools have the potential to enhance research outputs, it is imperative to ensure that their usage aligns with copyright laws and research integrity standards.

The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research on using ChatGPT in academia. Section 4 presents our study's findings. Section 5 discusses whether ChatGPT should be acknowledged as a coauthor and whether it should be used as a source in academic works. Finally, Section 6 presents concluding remarks.

2. LITERATURE REVIEW

Salvagno et al.'s (2023) article discussed using chatbots like ChatGPT in scientific writing. They claimed that ChatGPT is a useful tool in scientific writing, assisting researchers in drafting and proofreading their writings. While no publication in the critical care medicine field was prepared using

ChatGPT, the authors think this shall happen in the future. However, ChatGPT should not be used as a replacement for the human mind and the output must be reviewed by experts. Moreover, the authors note some ethical issues arise from using ChatGPT such as the risk of plagiarism, inaccuracies, and the potential imbalance in its accessibility among countries, especially if it becomes a paid service. The authors call for regulating the use of chatbots in scientific writing.

The article by Dwivedi et al. (2023) stated that while ChatGPT offers opportunities, it raises legal and ethical challenges. The article discusses the benefits of using ChatGPT in different fields. It concludes that ChatGPT can increase productivity in banking, hospitality and tourism, and information technology industries, and enhance business activities, such as management and marketing.

Additionally, Choudhary and Ali (2023) note that while the capabilities of ChatGPT have been examined extensively, their use in plagiarism needs to be examined as well. In academia, it is essential to investigate whether using ChatGPT qualifies as plagiarism. Moreover, there is still an ongoing debate on the owner of works generated by ChatGPT.

Moreover, Stahl and Eke (2024) examined the ethical aspects of ChatGPT. The article looks into both the positive sides and potential problems of using ChatGPT. It notes that while ChatGPT offers notable societal advantages, it also brings up ethical concerns about fairness, individual freedom, cultural values, and the environment. Main worries include who takes responsibility, inclusion, unity in society, safety, biases, and environmental effects. The authors assert that current discussions often focus on who gets credit for AI work, while their article suggests that a broader look at ethics is needed.

Finally, Ariyaratne et al. (2023) compared five ChatGPT-generated radiology articles to those written by humans. Results showed that four out of five ChatGPT articles contained significant inaccuracies and fake references. The authors point out though that untrained readers may think that ChatGPT-generated articles are authentic.

3. METHODOLOGY

The inspiration for this study emerged in January 2023 when ChatGPT was credited as a co-author of a paper entitled "*Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse?*" (O'Connor & ChatGPT, 2023) in the academic journal *Nurse Education in Practice*. This was followed by recognition of ChatGPT as a co-author of two other papers: AlJanabi et al. (2023) and Midgeville et al. (2023).

Our primary aim was to assess, from a legal standpoint, whether ChatGPT can be legitimately acknowledged as a co-author in academic publications, in addition to an examination of how researchers can benefit from the ChatGPT to improve their research output while conforming with the academic research integrity standards and regulations.

To scrutinize ChatGPT's parameters and operating modes, we registered an account on the OpenAI website and conducted multiple virtual interviews with ChatGPT, inquiring about its

foundational concept, data sourcing, and terms of service.

During these interactions, we posed several legal terminologies to ChatGPT, ensuring repetition in phrasing to assess consistency. We presented ChatGPT with a hypothetical scenario about song composition. The generated content was analyzed and its origins were traced to assess the originality and potential copyright violations.

Through our analysis, we found inconsistencies in ChatGPT's answers. Notably, it produced varied responses to identical questions and, in some instances, provided inaccurate citations, which violates standards of academic integrity regulations and copyright law. Moreover, our evaluation of its poetic compositions revealed that ChatGPT copied most of the poetic verses from other authors without attributing them as original authors, arguably violating copyright law.

Such findings underscore potential risks in employing ChatGPT in research, especially given the possibility of unintentional plagiarism and subsequent legal complications pertaining to copyright infringement.

While our method utilized virtual interviews and content analysis, other potential approaches could include a comparative study contrasting ChatGPT's responses with those of other artificial intelligence platforms, surveys, or questionnaires targeting academic researchers to understand their perspective on artificial intelligence authorship and analyzing the broader impact of AI-generated content in academic research.

Our methodology offered a deep dive into the capabilities and limitations of ChatGPT in the realm of academic research. Future studies should consider the evolving capabilities of AI tools and the consequent implications for academic integrity and legal considerations.

4. RESULTS

We reached several significant results during our study:

Firstly, ChatGPT is a form of technological advancement that could be useful even for researchers in various fields. It is an efficient tool to get information quickly.

Secondly, a researcher must use ChatGPT carefully and responsibly. There are concerns about breaking copyright law by accidentally copying others' works. Additionally, this can lead to violating the rules of plagiarism in academic writing.

Thirdly, we do not recommend crediting ChatGPT as a co-author in any academic research. It is also not suitable to directly quote from it, or even cite it in any scholarly work. Instead, think of ChatGPT as a tool to help get started.

Fourthly, ChatGPT can be used only as a tool to collect preliminary information about the research topic. ChatGPT is great for the early stages of research. It provides a quick look at a topic. But it shouldn't be the only source used for serious academic research.

Finally, if a researcher gets an idea from ChatGPT, he has to find where that information originally came from. This ensures the right people get credit for their work and keeps research honest. Failure to find the real source potentially violates copyright law and research regulations.

5. DISCUSSION

5.1. The mechanism of ChatGPT

We initially sought to utilize ChatGPT to gain a comprehensive understanding of its nature and functionality. Consequently, our preliminary inquiry was directed towards its self-definition.

Question: What is ChatGPT?

ChatGPT: "ChatGPT is a large language model developed by OpenAI. It is designed to be capable of generating human-like text in response to natural language queries or prompts. ChatGPT is based on the Transformer architecture, which uses attention mechanisms to weigh the importance of different parts of the input sequence when generating the output sequence. It has been trained on a massive corpus of text data and is capable of generating responses to a wide range of topics and questions" (OpenAI, 2023c).

Therefore, according to ChatGPT, it is a language model that relies on artificial intelligence to try to understand users' questions and to generate human-like answers using its massive

database. We subsequently inquired about the sources ChatGPT utilizes to respond to user queries for a deeper understanding of its functionality.

Question: What are the sources you use to answer my questions?

ChatGPT: "As a language model, I have been trained on a diverse range of text sources, including books, articles, web pages, and other written materials. My training data comes from a variety of sources, including online content such as websites, blogs, and news articles, as well as offline sources such as books and academic journals. My training data covers a wide range of topics, including science, history, literature, current events, and more.

When a user asks me a question, I use my understanding of the question and my knowledge of the relevant topics to generate a response. I do not search the internet for specific answers, but rather generate my response based on my training data and the patterns I have learned from it. However, I may occasionally reference specific sources to provide additional context or detail, depending on the nature of the question" (OpenAI, 2023c).

This answer shows that ChatGPT's databases include many sources. These sources are mostly copyrighted, especially books and academic journals. Therefore, users must be careful while using it to comply with copyright law. Moreover, researchers should pay more attention to complying with the standard research regulations.

5.2. The possibility of acknowledging ChatGPT as a co-author

This part addresses whether a researcher can list ChatGPT as a co-author, if ChatGPT generates some paragraphs that the researcher adds to the research. By analyzing the concept of a coauthor, this paper argues that ChatGPT should not be listed as a co-author for various reasons as illustrated below.

5.2.1. The concept of the author and the co-author according to research regulations

From a legal perspective, an author is simply any person who creates an original expression. The idea that the author expresses does not have to belong to him/her. In other words, the author needs to create an original expression rather than an original idea. A coauthor is a person who collaborates with the first author to produce the work. Like the author, he/she is protected under copyright law, although his/her contribution is less than that of the first author.

Copyright law protects both authors and coauthors. It grants them moral and material rights. According to Article 6bis of the Berne Convention for the Protection of Literary and Artistic Works, moral rights include the right to be identified as the author of the work. Moreover, the author has the right to protect the integrity of his/her work from any distortion or alteration that he/she deems prejudicial to his/her reputation. This category of rights belongs to personality rights. Thus, these rights are permanent, and cannot be waived or assigned.

Material rights refer to a set of exclusive economic rights that an author enjoys during his/her life in addition to the enjoyment of the same rights by his/her successors for at least 50 years after the author's death. These rights include the right to reproduce or make copies of the work in accordance with Art.9 of the TRIPS Agreement (World Trade Organization [WTO], 1994, p. 324). However, it is noteworthy that it is permissible to make a quotation from the work provided that

a mention is made of the source and its author's name (Berne Convention for the Protection of Literary and Artistic Works, Art. 10). These rights also include the right to publish the work. As a general rule, the author enjoys his/her copyright even if the work is not published. The author is free to decide whether to make his/her work public by publishing or distributing it.

The concepts above are adopted in national laws. For instance, according to Article 1 of the UAE Federal Law No. 38 of 2021, the author is defined as *"the person who creates the work, or the person whose name is mentioned thereon or if, upon publication, the work is attributed to him as being the author thereof unless otherwise proven. Shall also be considered author, whoever publishes anonymous or pseudonymous work, or in any other manner, provided that there is no doubt as to the true identity of the Author; otherwise, the publisher or producer of the work, whether a physical or juristic person, shall be deemed as representing the author in the exercise of his rights, until the true identity of the author is recognised"* (UAE Federal Decree Law No. 38, 2021, Art. 1).

5.2.2. OpenAI's terms of use do not consider ChatGPT a co-author

OpenAI is an American company that created ChatGPT. Its terms of use provide that: *"You may provide input to the Services ("Input"), and receive output generated and returned by the Services based on the Input ("Output"). Input and Output are collectively "Content". As between the parties and to the extent permitted by applicable law, you own all Input, and subject to your compliance with these Terms, OpenAI hereby assigns to you all its right, title and interest in and to Output. OpenAI may use Content as necessary to provide and maintain the Services, comply with applicable law, and enforce our policies. You are responsible for Content, including for ensuring that it does not violate any applicable law or these Terms"* (OpenAI, 2023a).

The terms of use suggest that OpenAI assigns all its rights over the generated writing to the user. Therefore, assuming that OpenAI holds any copyrights over writings generated by ChatGPT, these rights are assigned to its user.

Moreover, in answering one of our questions, ChatGPT confirmed that OpenAI waived the right of attribution. This means that any person may use the generated writings without being considered infringing on copyrights:

Question: Does OpenAI waive copyrights on ChatGPT's answers?

ChatGPT: *"Yes, OpenAI has released the GPT models, including the one used to create ChatGPT, under an open-source license that permits their free use and modification by anyone.*

The specific license used by OpenAI for GPT models is the Apache License 2.0, which allows users to freely use, modify, and distribute the software, subject to certain conditions, including attribution and copyright notices. This means that the answers generated by ChatGPT can be used and shared by anyone without infringing on any intellectual property rights held by OpenAI.

However, it's important to note that while the text generated by ChatGPT is not subject to copyright restrictions, there may be other legal and ethical considerations that govern its use. For example, you should not use the information provided by ChatGPT to engage in any illegal activities, or to mislead or harm others" (OpenAI, 2023b).

5.2.3. Legal challenges for considering ChatGPT a co-author

infringe copyrights. ChatGPT stated that this is a possibility while answering our questions:

ChatGPT itself claims that its answers cannot be copyrighted due to lack of originality, and it can

Question: Can your answers violate copyrights?

ChatGPT: “As an AI language model, I do not create original content that can be copyrighted. Instead, I generate responses to questions based on patterns and associations in the language data that I was trained on.

That being said, the responses I generate may sometimes include text or information that is protected by copyright. In general, I strive to provide information that is freely available and does not infringe on any intellectual property rights.

However, it is possible that my responses may unintentionally include copyrighted material. If you believe that any of my responses violate copyright laws or infringe on your intellectual property rights, please let me know and I will do my best to address the issue promptly” (OpenAI, 2023b).

Question: What sources do you use to answer my questions?

ChatGPT: “As an AI language model, I use a variety of sources to answer your questions. These sources include:

1. *Academic journals and research papers: I rely on peer-reviewed literature to provide accurate and trustworthy information.*
2. *Books and other publications: I refer to books and other publications to provide comprehensive information on a given topic.*
3. *Reputable news outlets: I use news sources to provide current and up-to-date information on events and developments.*
4. *Government websites: I refer to official government websites to provide accurate information on policies, regulations, and statistics.*
5. *Expert opinions: I sometimes use expert opinions and perspectives to provide nuanced or complex answers to questions.*

It's important to note that the sources I use can vary depending on the specific question and the available information on the topic. I always strive to provide the most accurate and reliable information available to me at the time of answering” (OpenAI, 2023b).

According to the first answer above, ChatGPT confesses that its writing lacks originality. It is well-known that originality is a preliminary requirement to consider a work copyrighted. Nonoriginal writing is not copyrightable. We asked ChatGPT about the source of its information to understand why it considers its answers nonoriginal. It stated that its answers are based on many copyrighted sources, as shown above.

Moreover, ChatGPT does not preclude the possibility that its answers infringe copyright law. Suppose that ChatGPT's writing violates copyrights, and the original author is entitled to compensation for the suffered damages. Seeking compensation from an AI system like ChatGPT remains implausible. This suggests that the copyright legal regime fails to provide the original copyright holder with the intended protection (Teixeira da Silva, 2023). As Thorp (2023) noted, ChatGPT is entertainment, not author.

Therefore, according to the abovementioned concepts of author and co-author in research regulations, researchers should not acknowledge ChatGPT as an author or a co-author. Academic research must be an original work, which is not the case with works generated by ChatGPT.

5.3. Using ChatGPT as a reference in academic research

This part addresses whether a researcher (human researcher) can depend on ChatGPT as a source of information, such as asking for a definition, conditions, requirements, and exceptions of any topic. Research regulations mandate that researchers use quotations when borrowing a phrase from a specific source and include it in their research, with the aim of benefiting from the intellectual efforts of others to reach the best possible treatment of the research topic. Although quoting is considered a necessity for scientific research, it should not be resorted to except when necessary. The number of paragraphs quoted should be as less as possible to avoid excessive quoting and to ensure that the research does not shift from embodying the personality and ideas of its author to embodying the personality and ideas of others (Kandeel & Obaidi, 2021).

Additionally, the citation is the researcher's attribution of the phrase or idea that he/she included in his/her research to the source from which it was taken. Research regulations necessities citing the resources in academic research with

the aim of respecting the intellectual rights of other researchers, adhering to the provisions of laws related to copyright, protecting against liability resulting from the quoted ideas and phrases, guiding the reader to the source of the quoted information, and facilitating access to it (Kandeel & Obaidi, 2021).

The subsequent sections argue that ChatGPT should not be used as a source in academic research for various reasons. If it is asked a question, ChatGPT generally does not provide citations to the original sources it relied on to answer the question. Although it may occasionally provide a citation when explicitly requested, it often gives a mere reference by naming the source without

pinpointing the exact location of the information within that source. This is compounded by occasional inaccuracies in the citations it does provide. Furthermore, some responses from ChatGPT are actually compiled from multiple sources.

5.3.1. ChatGPT provides different answers to identical questions

On two separate occasions, we queried ChatGPT about the definition of privacy rights using identical phrasing. Each time, it returned a different output. The first answer was as follows:

Question: Define the right to privacy.

ChatGPT: “The right to privacy is a *legal concept* that protects an individual's right to control access to their personal information and to be free from unwanted intrusion into their private affairs. It is recognized as a fundamental human right in many countries and is often protected by constitutional provisions or statutes.

The concept of the right to privacy includes several different aspects, including the right to be free from surveillance, the right to control how one's personal information is collected and used, and the right to be free from unwanted publicity.

In general, the right to privacy is intended to protect an individual's autonomy and dignity by allowing them to control the dissemination of information about themselves and to maintain a certain level of privacy in their personal lives.

The exact scope and limitations of the right to privacy can vary depending on the specific legal system and cultural context in which it is applied. However, it is generally considered to be an important legal and ethical principle that helps to safeguard individual rights and freedoms in modern societies” (OpenAI, 2023d).

The second answer was as follows:

Question: Define the right to privacy.

ChatGPT: “The right to privacy is a *legal and ethical principle* that recognizes an individual's right to keep their personal life and affairs free from unwanted or unauthorized intrusion, surveillance, or disclosure. It is a fundamental human right that is recognized in many countries around the world.

The right to privacy encompasses a range of different rights, including the right to control one's personal information, the right to be free from surveillance or intrusion into one's private life or home, and the right to protect one's personal reputation and dignity. It also includes the right to make personal choices about matters such as reproductive health, sexuality, and medical treatment without undue interference.

The right to privacy is often protected by laws and regulations that govern the collection, use, and disclosure of personal information, and that limit the power of the state or other entities to conduct surveillance or engage in other activities that might violate an individual's privacy rights. However, the limits of the right to privacy can be a subject of debate and legal interpretation.

In summary, the right to privacy is the right of individuals to control their personal information and to be free from unwanted or unauthorized intrusion, surveillance, or disclosure into their personal life or affairs. It is a fundamental human right that is essential for the protection of individual autonomy, dignity, and freedom” (OpenAI, 2023d).

The fact that ChatGPT delivers varying responses to identical queries underscores its unreliability as a citable source. The citation rationale requires that a reader encounters the same information when he/she references the cited source. This is not possible in the case of ChatGPT answers. With ChatGPT, this consistency is not

guaranteed. Even if another user poses the exact same question, without any variation in phrasing, there remains a high probability of receiving a different response.

We asked ChatGPT why it provides different answers to identical questions. Here is the reply:

Question: Why do you provide different answers if asked the same question with the same phrasing and identical words?

ChatGPT: “As an AI language model, I am designed to provide responses to user queries based on the input provided to me. Sometimes, users may pose similar questions but use different wording or phrasing, which can lead to variations in the answers I provide. Additionally, my responses may also vary based on the context of the conversation, the level of detail requested, and the information available to me.

Furthermore, as an AI model, I am constantly learning and adapting based on the data and information I am exposed to. This means that my responses may evolve over time as I continue to learn and refine my understanding of different topics.

Ultimately, my goal is to provide the most accurate and informative responses possible to help users find the information they are seeking. If you have any further questions or concerns, please feel free to ask” (OpenAI, 2023d).

ChatGPT’s answer provided logical reasoning for why it provides different answers. It stated that the answer shall depend on the context of the entire conversation. ChatGPT predicts the goal of the user’s question depending on the context of the conversation and tries to provide an answer that is relevant to this goal instead of giving the same answer. Therefore, the answer depends on the algorithm used to generate the response.

Moreover, OpenAI is supposed to add to ChatGPT’s databases. This should improve the quality of the answers over time. Also, ChatGPT itself learns from its mistakes using artificial intelligence mechanisms such as machine learning.

Therefore, it is possible that an answer provided by ChatGPT will not be generated in the future for another user, so it becomes impossible to verify the authenticity of the citation.

5.3.2. ChatGPT could provide inaccurate citations

When we prompted ChatGPT to define the right to privacy and provide a full citation of the definition, it generated a different definition and provided a citation that is missing the page number, as shown below.

Question: Define the right to privacy and mention a complete academic citation.

ChatGPT: “The right to privacy is a fundamental human right that is recognized in many legal systems around the world. It encompasses a range of different rights, including the right to control one’s personal information, the right to be free from surveillance or intrusion into one’s private life or home, and the right to protect one’s personal reputation and dignity.

One academic citation that provides a comprehensive overview of the right to privacy is: Solove, D. J. (2011). “A taxonomy of privacy”. *University of Pennsylvania Law Review*, 154(3), 477-560.

This article provides a detailed analysis of the different types of privacy rights and the legal and ethical frameworks that govern them. It also discusses the challenges and controversies surrounding privacy protection in the digital age” (OpenAI, 2023d).

Upon directing ChatGPT to specify the page number, it asserted that the referenced information was on the appropriate page.

Question: Can you add a page number to the citation?

ChatGPT: “Certainly! The full citation with page numbers for the article I provided earlier is: Solove, D. J. (2011). “A taxonomy of privacy”. *University of Pennsylvania Law Review*, 154(3), 477-560, at 478.

In this article, Solove provides a comprehensive taxonomy of privacy, categorizing privacy into different types and discussing the legal and societal implications of each type” (OpenAI, 2023d).

However, when we requested the citation to be formatted in the Bluebook style, a predominant citation method in the United States legal studies, it

correctly adopted the style but neglected to include the page number:

Question: Can you convert this citation to the Bluebook format?

ChatGPT: “Certainly, here’s the citation for the article *A Taxonomy of Privacy*” by Daniel J. Solove in Bluebook format: Daniel J. Solove, *A Taxonomy of Privacy*, 154 U. Pa. L. Rev. 477 (2006).

I hope this helps!” (OpenAI, 2023d).

On further pressing ChatGPT to incorporate the page number into the Bluebook citation, it then specified pages 483-484. Therefore, it stated that the page number is 478 in the first citation style and changed it to 483-484 in the second citation style.

Upon examining the reference supplied by ChatGPT, neither page 478 nor pages 483-484 contained a definition of the right to privacy, further underscoring the platform's unreliability. This proves that a researcher should not rely on ChatGPT even to write a citation. To maintain academic integrity and prevent plagiarism, it's imperative that researchers verify the accuracy of any references provided by ChatGPT before incorporating them into their work.

5.3.3. ChatGPT could provide answers merely a compilation of different copyrighted works

Copyright is one form of intellectual property rights that aims at protecting "creations of the mind". In copyright laws, creations of the mind are usually referred to as "works". A copyrightable work does not have a standard form. It can be a book, photo, music, song lyrics, movie, computer software, etc. To be copyrightable, the work must be original and creative.

On the one hand, the originality requirement is satisfied as long as the work is not a copy of another work. If one expresses an idea in his/her own words, this qualifies as an original work. A work does not have to be novel (Bainbridge, 2010). Expressing an old idea in a different phrasing qualifies as an original work.

On the other hand, while the work does not have to be novel, there must be a minimal degree of creativity. A derivative work, which is a work based on an old one, can be separately copyrighted as a creative work. For example, a movie based on a novel is a creative work, and thus copyrightable. Similarly, a book translation is a creative work, and thus copyrightable even if the original book is in the public domain.

By contrast, a list of ingredients in a recipe is not copyrightable due to a lack of creativity. Interestingly, a compilation of copyrighted works satisfies the creativity requirement and qualifies as a copyrightable work. However, compiling copyrighted works requires the compilation's author to obtain permission from the author of each work ("Compilations, collective and derivative works", n.d.).

We asked ChatGPT to write an original lyrics song about love. To verify the originality of these lyrics, we conducted an online search. We found that ChatGPT compiled segments of existing songs' lyrics

to produce what it presented as 'original' lyrics. It is presumed that these lyrics are under copyright protection. Since ChatGPT did not obtain authorization from the lyricists of the referenced songs, this constitutes a potential breach of copyright law.

An example of text generated by ChatGPT is provided in the Appendix.

6. CONCLUSION

This study addressed the debate on whether ChatGPT should be considered a co-author in academic research. We analyzed the operating parameters of ChatGPT as evidenced by its responses during several virtual interviews. We can conclude that considering ChatGPT as a co-author is against its creator's will to waive all its rights and raises several legal challenges related to copyright law. Furthermore, ChatGPT should not be used as a source in academic papers since it may provide different outputs to the same input, false or fake citations, and an output that could be merely a lacking-originality compilation of different copyrighted works.

Employing ChatGPT in academic research has several implications. Academic institutions and researchers must exercise caution, ensuring the authenticity of the sources they rely on, especially as artificial intelligence becomes increasingly capable of producing humanlike text. The legal community must undertake the responsibility to redefine and reframe copyrights in an era that witnesses a continuous evolution of artificial intelligence.

Our study has several limitations. First, it is limited to research papers where ChatGPT is listed as a co-author. Second, we collected the articles that analyze the possibility of listing ChatGPT as a co-author. Third, the methodology of this study is analyzing the responses generated by ChatGPT parameters during several virtual interviews. Lastly, several significant results have been included.

Finally, this paper opens future horizons for other researchers to examine several other issues. Future research could focus on whether intellectual property international instruments and local laws should be modified to adapt to the consequences of the emergence of AI technology like ChatGPT. Another issue is the extent of copyrightability of works generated by ChatGPT. Should the right owner be the ChatGPT developer or user, if new creative work is generated? Finally, what shall be the competent court to adjudicate disputes arising among ChatGPT users.

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APPENDIX

Question: Write original song lyrics about love.

ChatGPT:

[Verse 1]

"I never thought that I'd find love"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Cast-further-down-the-road-lyrics>, last accessed 21.03.2023).

"In a world that's so unsure"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Miles-kane-start-of-something-big-lyrics>, last accessed 21.03.2023).

But "then you came into my life"

(Note: This sentence was found online in another song lyrics at <https://genius.com/The-fatback-band-i-found-lovin-lyrics>, last accessed 21.03.2023).

And everything became so pure

[Chorus]

Love, love, it's a feeling that I can't deny

Love, love, it's the reason that I'm alive

With you by my side, I feel like I can fly

Love, love, it's the reason that I'll never die

[Verse 2]

"When I'm with you time stands still"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Makua-rothman-under-the-covers-lyrics>, last accessed 21.03.2023).

And "I can feel my heart beat again"

(Note: This sentence was found online in another song lyrics at <https://www.lyrics.camp/betsie-larkin/again-feat-rising-star.html>, last accessed 21.03.2023).

"You've shown me what it means to live"

(Note: This sentence was found online in another song lyrics at <https://eonia.bandcamp.com/track/forty-five>, last accessed 21.03.2023).

And now "my life will never end"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Simon-and-garfunkel-flowers-never-bend-with-the-rainfall-lyrics>, last accessed 21.03.2023).

[Chorus]

Love, love, it's a feeling that I can't deny

Love, love, it's the reason that I'm alive

With you by my side, I feel like I can fly

Love, love, it's the reason that I'll never die

[Verse 3]

And "even when the skies turn gray"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Dc-uk-lost-lyrics>, last accessed 21.03.2023).

You light up my world like a summer's day

"I'll always be here by your side"

(Note: This sentence was found online in another song lyrics at <https://genius.com/Gigi-dagostino-lamour-toujours-lyrics>, last accessed 21.03.2023).

With you, my love, I'll always abide

[Chorus]

Love, love, it's a feeling that I can't deny

Love, love, it's the reason that I'm alive

With you by my side, I feel like I can fly

Love, love, it's the reason that I'll never die

[Verse 4]

Love, love, "it's a feeling that will never die"

(Note: This sentence was found online in another song lyrics at <https://bdb24.com/love-poem-to-her/>, last accessed 21.03.2023).

With you by my side, I'll always be alive.