

The Five Pitfalls of Using ChatGPT for Your Research Assignment



Unless you chronically avoid reading the news, you've probably heard about Generative AI, Open AI's ChatGPT, and other Large Language Models (LLMs) like Google's Bard. According to the media, they will make your future job [obsolete](#), they will [transform education](#) as we know it, for good or for bad, all while investors are pouring [billions of dollars](#) and euros into these systems in the hope that they will change the world forever. But outside of all the hype, the doom saying, and PR campaigns there is one simple practical question that students here at the EUR need to ask:

What could go wrong if I use ChatGPT for a research assignment?

Before we can answer this question, I need to let you know something that is not a pitfall but an actual risk for your academic career when using ChatGPT for a research project. It has been decided by the EUR that the unauthorized use of Generative AI for assignments does count as [academic fraud](#). As the [EUR](#) puts it, "When a student uses AI software such as ChatGPT without permission from the examiner (the person who develops a course and its exam), this is considered plagiarism or ghostwriting by the examination board." So, before even thinking about using ChatGPT, you need to check in with your faculty and instructor to see if and how they allow the use of Generative AI. Now with that knowledge in hand, let's answer that question and look into five of the practical problems that come when using systems like ChatGPT for a research project and what could and will go wrong.

1. ChatGPT is not a Search Engine

Part of the hype surrounding ChatGPT is that it is supposed to be a better search engine. Whether it is sEURch, Google, Bing, or DuckDuckGo, ChatGPT supposedly takes out that messy middle part where you have to actually find the links, read the article, and summarize the research for your assignment. In fact, you could just give it your research question and ask for a list of references, which it will happily produce in a couple of seconds, and the paper is already half done.

But here is the problem, ChatGPT is not a search engine, and it does not have a concrete databank of references to pull from, and, more importantly, it is also prone to what is called "hallucination." When ChatGPT "hallucinates," this is a nice way of saying that it fabricates an answer, writing something which sounds like it might be right, but which is often not correct or is completely fake. This can happen at any time, from when it answers questions to when you ask it to provide references.

To check this, let's give ChatGPT a simple prompt, "Provide a list of references including both books and articles on immigration to the Netherlands in English and Dutch." When I asked ChatGPT it gave me a list of four books and three articles in English and two books and two articles in Dutch. Seems like a great place to start for a research project! But wait, no its not. Let's focus on those Dutch references I asked for.

Books:

1. "Migratie in Nederland: De lange aanloop naar een multiculturele samenleving" by Han Entzinger - Covers the history of migration and multiculturalism in the Netherlands.
2. "Migratierecht en Beleid: Teksten en Commentaar" by T.P. Spijkerboer - A comprehensive text on Dutch migration law and policy.

Articles:

1. Entzinger, H., & Dourleijn, E. (2009). Terugblik op vier decennia integratiebeleid: Het ontstaan en de ontwikkeling van het integratiebeleid in Nederland sinds de jaren zestig. *Migrantenstudies*, 25(2), 108-126.
2. Crul, M., Schneider, J., & Lelie, F. (2012). The European second generation compared: Does the integration context matter? Amsterdam University Press.

 Regenerate

If you look up “Migratie in Nederland: De lange aanloop naar een multiculturele samenleving” by Han Entzinger and “Migratierecht en Beleid: Teksten en Commentaar” by T.P. Spijkerboer you’ll have a hard time finding anything about either book because neither book exists. The authors are very real scholars, with Prof. Dr. Entzinger being an Emeritus professor at the EUR, but neither of them ever wrote the book attributed to them by ChatGPT nor did anyone else as both are hallucinations. And for the articles, it’s not any better. While *Migrantenstudies* was a real Dutch journal, and Prof. Entzinger even published an article in the journal in 2009, the article provided by ChatGPT is another hallucination. The actual article he wrote was titled, “Integratie, maar uit de gratie. Multi-etnisch samenleven onder Rotterdamse jongeren.” It’s only on the last reference that ChatGPT kinda of got it right, though as you can see it’s not a Dutch reference and it’s also a book not an article, but it is at least an actual book. But even here, it’s not that helpful since the book doesn’t cover the research question about immigration to the Netherlands that I needed references on in the first place.

For some real world consequences of ChatGPT hallucinating, [two Manhattan lawyers](#) who used ChatGPT to write a court filing are open to sanctions or disbarment since the AI faked several past court cases which were referenced in the court filing.

2. ChatGPT can't quote right either

Maybe you have been reading the news and knew about the fact that ChatGPT can make up references and pull books and articles out of thin air. But perhaps you think that maybe because of all of that training data it was fed, it should at least be able to get a quote right, right? Well, no, unfortunately that's also often not the case. Let's take a look at another example and ask ChatGPT to help out with finishing up a research project on Erasmus. We can ask it to, "Write a closing five sentence paragraph summarizing the life of Erasmus with a quote from a famous scholar. Include the full citation with page number." And this is what ChatGPT answered.



Erasmus of Rotterdam, a towering figure of the Renaissance, embodied the essence of intellectual curiosity and humanism. His relentless pursuit of knowledge and his commitment to reforming the Church through reason and education left an indelible mark on history. As the renowned scholar Desiderius Erasmus aptly captured in his work "The Praise of Folly," Erasmus believed in the power of wisdom to illuminate the path of progress: "Nature, to be commanded, must be obeyed; and that which in contemplation is as the cause is in operation as the rule." (Erasmus, Desiderius. "The Praise of Folly." P. 10) Through his prolific writings and tireless advocacy for intellectual freedom, Erasmus's legacy continues to inspire generations to embrace the potential of knowledge for the betterment of society.

What it produced sounds well enough, but let's have a bit of a closer look at that quote by Erasmus. If you look it up, you will find that it is indeed a real quote, but it's not something that Erasmus ever uttered. Instead, it was written by 16th century English philosopher [Francis Bacon](#) (not to be confused with the 20th century painter of the same name nor the breakfast dish). This type of error is easy for an examiner to spot and will result in a less than favorable grade on your assignment.

3. ChatGPT might plagiarize a text

As I already mentioned above, the unapproved use of ChatGPT and other Generative AI is a form of academic fraud, and its use is considered plagiarism or ghostwriting. But, even taking that aside, ChatGPT is supposed to generate new texts based on its training data without reproducing it. So, theoretically, ChatGPT should not rewrite a copyrighted text. Well, let's ask ChatGPT, "Can ChatGPT generate texts which are similar enough to books or articles that it could be considered plagiarism," and here is its response.



No, ChatGPT is not designed to generate texts that could be considered plagiarism. It has been trained on a diverse dataset, which includes a wide range of text from the internet, but it does not have access to specific books, articles, or copyrighted materials. Additionally, OpenAI has implemented safeguards and guidelines to discourage the use of the technology for unethical purposes, including plagiarism.

That answer seems pretty clear cut and sounds like it was written by the legal team at OpenAI rather than by the chatbot itself. So, why don't we ask it one more time, "But is it possible that ChatGPT will do this unknowingly?" Now we get something a bit closer to the truth.



Yes, it's possible that ChatGPT might generate text that includes quotes or paraphrased materials without proper citation or reference. ChatGPT generates responses based on patterns and information it has learned from its training data, and it might inadvertently produce text that resembles existing content without being aware of the need for proper citation.

Here is the problem, despite supposedly generating "original" texts, there is no way to know if a research assignment written by ChatGPT is new and original, completely or partially plagiarized, or just a poorly paraphrased plagiarized paper.

4. ChatGPT doesn't "know" anything, and what it does "know" is biased

In the buzz around ChatGPT there is the sense that it knows what it is writing about, but the problem is that it doesn't "know" anything. All of its responses are certainly based on training data, but the answers it produces are the result of statistical techniques predicting the most likely word to follow one after another based on the prompt it was given. This is how we get fake citations and Erasmus being Francis Bacon. To help illustrate this a little bit more, let's go back to the first pitfall about the fake references ChatGPT produced. Even though it is the one who told me about the nonexistent book "Migratie in Nederland: De lange aanloop naar een multiculturele samenleving" by Han Entzinger, ChatGPT does not know that the book is fake. In fact, if we ask ChatGPT about the book, here is what it says.



ChatGPT doesn't know that it is a fake book that it created, and we need to do away with the image that the system "knows" what it is writing about.

But there is an even deeper problem here outside of ChatGPT not "knowing" what it is writing about and that is that we don't know what it was trained on and

how this effects the text it produces. We know the data came from the internet, which is always a great source of unbiased and accurate information, its dataset only includes material up to 2021, and the majority of what it was trained on were English language texts. These three factors mean that vast swaths of information have been left out of ChatGPT's dataset making it both incomplete and prone to be bias, a bias which has popped up both here in the [Netherlands](#) and [abroad](#). Another problem is in how the system was trained as it didn't learn on its own but had human moderators telling it if an answer it generated was good or not. Meaning, not only could the system be biased because of the materials it was given, but also because it had human bias fed into it by the moderators helping it to learn what was the most acceptable answer to a question but not necessarily the most accurate answer to the question.

5. You don't improve your own ability to research and write when using ChatGPT

For the last pitfall you will forgive me for trying to make a point about learning how to do proper research since, here at the University Library, we are in the business of teaching you how to [research](#). And much like any shortcut from ages past, be it hiring someone to write a paper for you, copy and pasting someone else's work into your assignment, or cheating on a test with the answers written on the bottom of your shoe, any shortcut neither helps you to learn, nor does it help you to succeed after you are done at the EUR. Using ChatGPT to try to get an easy way out of writing a research paper or coming up with a list of references won't give you the skills you need to actually learn how to research, and in the process, you will lose something valuable, the skill to navigate and research in our digital world. Besides, in five years from now when you own a washing machine, and it stops working and you don't know how to fix it, you will be happy to have picked up some research skills like Boolean search when you are trying to find the answer to the problem or who is the best plumber to call.

Above all else, if you don't believe me about this or any of the other pitfalls, then why don't we ask ChatGPT, "what could go wrong if I use ChatGPT for a research assignment?" Here is what it has to say,



Using ChatGPT for a research assignment can lead to potential issues such as inaccuracies, biased information, and a lack of peer-reviewed sources. It may also hinder critical thinking and research skills development, relying on AI rather than human expertise. Careful evaluation and human verification are essential when using AI-generated content for academic work.

At least there is one machine that agrees with this list.

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