

Uses and perceptions of Chat GPT by higher education students

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This study explores the varied uses and perceptions of ChatGPT among higher education students. Through a methodology combining interviews and workshop, the article analyzes how ChatGPT, as a conversational AI tool, is integrated into the academic journey of students. It examines the notions of trust and cheating, revealing diversified uses and a perception influenced by individual criteria. This research offers new insight into the integration of AI in education, enriching the academic debate and future educational practices.

CCS CONCEPTS • Applied computing → education and learning • Human-centered computing → empirical studies in HCI • Social → user characteristics.

Additional Keywords and Phrases: Artificial Intelligence (AI) in learning, chatbot in education, technology acceptance, digital education tools.

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1 INTRODUCTION

In the digital age, the constant evolution of technological tools is shaping the higher education landscape. Among these innovations, ChatGPT, a conversational artificial intelligence, is attracting growing interest. This article aims to examine the uses and perceptions of ChatGPT by higher education students. By combining state-of-the-art research with empirical methodology, this study aims to shed light on how ChatGPT is integrated into students' academic journeys and the impact of its use on their learning.

The article is structured around several main axes. Firstly, a detailed literature review situates our research in the broader context of digital technologies in education. Next, a methodology that combines individual interviews and group workshop is used to gather rich qualitative data. The carefully analyzed results reveal various trends and perceptions of ChatGPT, highlighting both its pedagogical advantages and the challenges it poses. Finally, a thorough discussion confronts these findings with our initial hypotheses, providing a nuanced perspective on the impact of ChatGPT in higher education.

This research contributes to the understanding of the integration of AIs like ChatGPT in education. It aspires not only to enrich the academic debate on the subject, but also to inform future educational practices, considering the evolving needs of contemporary education.

2 STATE OF THE ART

In our preceding state-of-the-art article, we discuss how artificial intelligence, particularly ChatGPT, is fundamentally altering the educational landscape.

Indeed, the evolution of educational objectives and pedagogical approaches requires a deep understanding of individual characteristics of students as learners motivated by specific goals [1]. Beyond these individual characteristics, the overall educational environment (and the learning patterns that emerge from interactions within it) [7] plays an important

role, especially at a time when education is increasingly focused on developing computational and critical thinking to shape informed citizens [5].

Teachers, as key facilitators of this educational process, are constantly faced with the need to analyze and adjust their pedagogical approach. They must incorporate digital technologies and artificial intelligence into their teaching practices, as their interactions with learners take place in an ever-evolving environment.

This challenge is exacerbated by the rapid pace of technological advancements, particularly in the field of AI, which are progressing faster than educational programs and policy decisions. Consequently, while we see proposals for improving skills assessment [3], teachers often find themselves independently experimenting with new teaching and assessment approaches, convinced that AI is fundamentally redefining the educational landscape [4].

While these debates are not new, the prominence of artificial intelligence, and more specifically, Chat GPT, in education sparks controversies regarding its opportunities and potential dangers. While Collin and Marceau [2] describe the ethical and critical issues of AI in higher education, the report from the Ministry of National Education and Youth [6] explores the pedagogical potentials of AI, and some passionately argue that AI, including Chat GPT, can contribute to the development of learners' critical and writing skills [5].

This zone of uncertainty underscores the need to examine the practical uses of Chat GPT in education, a field that remains relatively under-documented. It is crucial to understand how students perceive this tool in their higher education learning journey and how this perception influences their use of the tool.

These key references form the theoretical foundation of our study, enabling an understanding of the complex interactions between AI, teaching, and learning in the contemporary context.

In this perspective, the aim of this research is to comprehensively explore the actual uses of Chat GPT by students in higher education, as well as their perceptions of this tool. We pose the following question: how do students perceive Chat GPT in their learning journey in higher education, and how does this perception influence their use of the tool? The objective is to shed light on the debate surrounding the risks and opportunities associated with the integration of Chat GPT in the educational context. This research aspires to contribute to the establishment of an informed and thoughtful framework for the use of Chat GPT in higher education, addressing the evolving needs of contemporary education.

Methodology

We constructed this research question through a preliminary small-scale field survey: we interviewed a few students informally (not recorded), by asking them questions about their use of Chat GPT in their studies and any potential concerns regarding its use. Most of the answers indicated that Chat GPT has become a recurring tool in their academic journey, primarily used for writing tasks. These responses highlighted the increasing significance of Chat GPT as an assistance tool for higher education students, sparking our interest in further exploring this dynamic and its implications in the context of our research.

We initially hypothesized the following: students perceive Chat GPT as a valuable assistance tool in their academic journey, but this perception varies based on their profiles and specific needs.

To validate or invalidate this hypothesis, we also established the following sub-hypotheses:

1. Advanced-level students (e.g., master's, doctoral) are more likely to consider Chat GPT as an assistance tool compared to undergraduate students (e.g., bachelor's).
2. Students in humanities are more inclined to use Chat GPT for academic content writing than students with technical profiles.
3. The use of Chat GPT varies depending on the type of academic tasks (e.g., essay writing, bibliographic research, solving mathematical problems).

To conduct our research, we implemented the following protocol.

An empirical approach

We chose to adopt an empirical approach for our fieldwork. The methodology used to conduct this research involved individual interviews with 12 higher education students. These interviews, conducted in video conferences or in-person based on each participant's availability, ranged in duration from 20 minutes to 1 hour, depending on the interviewed students. All interviews were recorded, listened to multiple times, and partially transcribed for the purpose of comparing their arguments.

The interviews were structured around several overarching themes addressed one by one. Initially, participants were asked questions aimed at getting to know them better and understanding their profiles (age, educational background, level of study, career aspirations, etc.). Subsequently, more specific questions about their current studies were asked, such as the topics they cover in their courses, the type of assignments they have to complete, their study methods, and more. These questions aimed to gain insight into their approach to learning and evaluation within their academic journey.

In the second part of the interview, we explored the topic of artificial intelligence in general (how they define AI, whether they have used AI before and for what purposes, etc.), followed by a specific focus on Chat GPT. We were particularly interested in their actual use of this tool and how they perceive it (including concepts of trust and cheating, which we will see later).

The main objective of these interviews was to understand students' uses of Chat GPT. The interviews were semi-structured; we used a question guide prepared in advance to ensure that we covered the main themes, but the questions asked were not closed-ended, allowing students to express themselves freely and discuss topics that were not necessarily anticipated, thus bringing out new and original insights.

A discussion workshop

In addition to individual interviews, we also organized a discussion workshop to gain further insights into students' perceptions of Chat GPT. The goal of this workshop was to encourage students' critical reflection on how this technology is perceived and could be used in the context of their studies while identifying potential challenges. This recorded workshop lasted for 2 hours and brought together 7 voluntary students, including both technical profiles and those from social sciences backgrounds.

We began by introducing ourselves and presented the purpose of our research as an introduction. Speaking time was then given to each of the students so that they could freely share their potential experience (or non-experience) with Chat GPT.

We then got to the heart of the matter by moving on to a brainstorming time where students could share their ideas on how Chat GPT can be used in a learning context. In this case, the context was provided to them through the following instructions: *"You are taking a 'Marketing' course at the university. Your teacher has assigned you a project to create an online advertising campaign to promote a fictional product. For this assignment, you have several expectations from your teacher:*

- Analyze your target audience
- Analyze market trends
- Create persuasive content (poster, video, and message to convey)

Think about how Chat GPT could be used to assist you in completing your work".

The purpose of this context, which does not correspond to a typical assignment they would have to complete in their studies (as their profiles do not align with this type of exercise), was to encourage creativity and bold thinking without students being constrained by their usual knowledge and working methods. A discussion between them followed and they made their Chat GPT prompts all together to respond to the initial instructions.

Finally, the workshop concluded with a discussion of the risks and opportunities identified by the students in the context of this workshop, followed by our concluding remarks.

The target audience for conducting this research was only higher education students, of all levels and from all backgrounds, volunteering to participate. Finally, four types of profiles volunteered for this research: economics or social sciences (sociology, economics), design, communication (digital marketing), and technical (computer science, digital).

The data to be analyzed consists exclusively of qualitative data, either from the interviews or the workshop. These data were collected for the purpose of comparison to highlight prevailing trends among the testimonies of each participant.

After analyzing this data, here are the main findings that emerged from it.

3. RESULTS

3.1. The majority uses of Chat GPT

While the primary functionality of Chat GPT allows its users to interact with a chatbot that generates responses through AI, students quickly adapted to this phenomenon.

Indeed, among the 12 students interviewed, only 3 do not use this tool. As for the others, it's a different story altogether. Firstly, it should be noted that among those who use Chat GPT, it is not just occasional usage but rather frequent, even an integrated working method in their daily life as students for a little over a year now, regardless of their profile.

Moreover, where one might imagine different uses for profiles focused on economics and social sciences compared to technical or communication profiles, it is also a bit more complex.

First of all, we have various uses of Chat GPT, which remain the same regardless of the profile of the interviewee. These include tasks such as formulating and reformulating sentences, generating ideas or arguments, correcting spelling errors, translation, searching functionality, explaining concepts or course content, summarizing texts, and lastly, creating plans or structuring ideas.

Secondly, there are uses of Chat GPT that are only employed by technical profiles, in addition to the above-mentioned uses. These involve tasks related to coding and debugging code.

Finally, we have some more unique uses of Chat GPT that are not characterized by any specific profile. This includes personifying the tool, turning it into a personalized tutor, or even a psychologist.

We will delve into these three scenarios to better understand the dynamics of these uses.

3.1.1. Universal uses, linked to writing tasks

Formulation/reformulation: this is the most popular use of Chat GPT among the interviewed students (more than half!). This popularity can be explained by several factors. Firstly, whether it's composing complex reports or just sending a few emails, writing is a key skill common to all academic paths that all students have to deal with. Moreover, most students are assessed through portfolios in which they present their work, projects, and need to justify their accomplishments, often summarized in a few written pages. In other cases, students are evaluated directly in in-person exams, where again, they must write to demonstrate their skills. In other words, even a technical practical application is generally accompanied by a written report in most cases.

As a result, we see new practices among students since the introduction of Chat GPT: the formulation or reformulation of sentences. There are two scenarios: the first is formulation. In this case, students roughly explain what they want to express and ask Chat GPT to formulate this idea into a sentence, allowing them to have correct syntax and express their idea comprehensibly. This scenario is notably used by students for email writing: "For example, when I can't formulate a sentence in a cover letter, I tell it, 'Could you formulate this idea but in a proper way?' and it does it really well"; "I actually used Chat GPT today to respond to negative customer reviews politely, apologizing while maintaining professionalism."

In the second scenario, there is the reformulation: in this case, students translate their own ideas into sentences, choosing vocabulary, syntax, word order, and so on. Then, they simply perform a copy-paste action to ask Chat GPT to rephrase their text into language more suitable for academic evaluation or, when applicable, professional contexts (such as during internships). The transformation of sentences is not the only request made by students in the case of reformulation; they also use this tool to adjust texts by lengthening or shortening them according to the number of pages or characters required by their professors: "for example, to elaborate on a text, you can directly ask Chat GPT, and then you have more details, so you can draw inspiration from it". Others also mention "making it longer or shorter depending on what we want". This scenario is more frequently used by students when writing reports or papers to be submitted.

Similar to the reformulation of sentences and the students' desire to submit reports they consider "well-written," the correction of spelling mistakes by Chat GPT is also a very common practice among the interviewed students. For this, the usage is exactly the same as in the case of reformulation, using a copy-paste action, students ask Chat GPT to correct their spelling mistakes. For example, "for my thesis, it saves me from proofreading it 15,000 times; I give it my paragraph and ask it to correct my mistakes, then it tells me there's a missing 's,' etc". This is even done sometimes to replace previous practices they had, such as the use of "MerciApp, for example".

Translation is also one of the frequent uses performed by students on Chat GPT. Still related to content writing, we see students abandoning their previous use of DeepL or Google Translate for Chat GPT, which they consider having superior quality

and better adaptability to the context. "It's better in English, I think". This mainly concerns the translation of their writings from French to English. Again, the request is simple, a copy-paste followed by a request for translation into English.

Another noteworthy use is the generation of ideas or arguments. This usage is less common but mentioned by some interviewed students. This use case concerns students who come from economics or social sciences, design and communication. Whenever this usage was mentioned by a student, it was justified in the context of writing a reflective or critical report on a given topic. Here too, there are several scenarios: students lacking ideas look for some on the topic in Chat GPT to have a starting point and overcome writer's block. "For my thesis, for example, I ask it [...] what problem you can propose to me". Another scenario involves students lacking inspiration, turning to Chat GPT to find counterarguments to their reasoning and thus strengthen their argumentation further "then it gives really original ideas that help me stand out".

Lastly, another use related to content writing is worth noting : that of constructing a plan. Again, this mainly concerns reflective, analytical, or critical argumentative work, and two scenarios are notable. Like idea generation, some students don't hesitate to type their assignment topic into Chat GPT and ask it to create a plan, then they build their entire argument and ideas based on this plan. "It helps provide ideas, and then we're not obligated to use them, but it's like inspiration". Other students proceed in the opposite way, jotting down all their ideas in a draft in a scattered manner and then asking Chat GPT to structure their ideas to create a coherent plan based on these ideas before moving on to writing.

3.1.2. Additional uses for more technical tasks

In the absence of not having more varied profiles, technical profiles still stood out for an additional use of Chat GPT specific to their studies (and their future profession): programming.

All the technical profiles that were interviewed mentioned using Chat GPT for coding purposes. However, they point out that this usage can quickly find its limitations (see section 3.2.1) and is employed for very specific cases.

Firstly, there is the generation of a code skeleton. Computer science students have a clear idea in advance of what they want to code and have defined the objectives of what they wish to produce. Consequently, they present their project to Chat GPT to provide context, specify the desired outcome, and ask it to create the skeleton of their code. This skeleton, which serves as their foundation, allows them to simply add all the lines of code they want: "I provide it with context so that it has a certain approach to what I need, and to give it direction. Then, I'll give it arguments that I want it to integrate into the script because I don't expect it to generate the script for me; I really need to provide the necessary data... and it's just a first draft, I never keep it as is".

Then, there's the case of searching for commands. Students would simply ask Chat GPT in the form of a question what the command is for performing a specific action. This occurs especially when interacting with their terminal. Here, it would be similar to using Chat GPT as a search engine.

Lastly, there is the case of code debugging. In this scenario, students are increasingly inclined to use Chat GPT to debug their code when it has an error, rather than turning to forums like Stack Overflow to correct their mistakes. This new practice allows them to save time and understand their error by directly asking questions to Chat GPT without needing to wait for someone's response on the forum.

While one might expect Chat GPT to be used extensively to generate code that students may not be capable of writing in languages they may not necessarily know, we are actually witnessing a moderate usage where it serves as a basic foundation and support to progress more easily in their work. The entire process of code construction remains primarily in the hands of the students themselves.

However, this utilitarian practice of Chat GPT for programming is specific to computer science students. Indeed, when it comes to students without a technical background who need to perform some coding tasks, they tend to use Chat GPT to write these lines of code and focus more on analyzing the results they obtain. This is the case for economics students who need to create data visualizations. "When I have trouble with a technical detail like deleting a column from a database [...] it allows me to manipulate the database without making mistakes, and it can also help us learn, it provides assistance so that we can remember it next time."

3.1.3. More original uses of Chat GPT: opportunities to exploit ?

Although most of the interviewed students mentioned using Chat GPT only for their studies, some reported using it beyond their academic needs.

Indeed, we sometimes come across more unique use cases, which even go as far as personifying Chat GPT, aimed at addressing specific student needs.

First, we have the case of a student who mentions having a lot of difficulties in English and that his two hours of English class per month do not allow him to improve. In his case, he mentions following many online courses with various resources to improve, doing exercises, attending lessons, etc. However, he also uses Chat GPT as a "home tutor" to complement his efforts. After taking an online English course (mainly focused on grammar), he asks all his questions about the course to Chat GPT, much like a student would in a classroom.

Beyond just asking questions, he explains that GPT is "really like a home tutor, and that's great". Finally, he specifies that he also asks Chat GPT to generate exercises for him, with their corrections, and that he gets to choose the level of difficulty for the exercises: "I will tell him, well, you are my English teacher, I am your student. You must give me an exercise on the past perfect in English, you will give me 10 fill-in-the-blank sentences with verbs that I have to complete in the past perfect. It doesn't matter if I have the right or wrong answer, you still provide me with a correction, explaining as much as possible why I should do that, etc. [...] and if I see that I haven't understood yet, I will ask him again to give me a lesson, exercises, etc." "I can also ask him for exercises of different difficulty levels; it's a good way to learn".

Again, this allows him to practice and ask questions to Chat GPT if needed. Furthermore, he specifies that this practice allows him to ask "silly questions" without fearing judgment, as he would in a classroom since he is alone in front of his computer, which is not a human with thoughts (see part 3.2.3).

Another scenario reported by another student, who mentions using Chat GPT outside of his studies as well: as a psychologist. After giving it a context and assigning it the role of a mental health professional, he asked Chat GPT to ask him questions for self-reflection. He explains that although he is aware that Chat GPT is not a professional and that this kind of practice is not suitable for someone who genuinely needs guidance, the act of expressing all his thoughts and questions to an AI rather than a human allowed him to express himself without feeling judged.

Although these two uses of Chat GPT go beyond the educational context, the common thread to highlight in these interactions is the "human" dimension offered by a non-human entity. This dimension raises questions about the opportunities and risks that Chat GPT can offer beyond the academic context.

3.2. Perceptions of Chat GPT

3.2.1. The concept of trust

The question of trust was addressed to all the students, and contrary to what one might think, the distinction between pro-GPT and anti-GPT is not actually so pronounced.

Indeed, trust, as defined by the students, represents the degree of necessity to verify the answers provided by Chat GPT. This degree of necessity does not seem to vary so much based on student profiles but rather on the type of task being performed with Chat GPT.

If the task is related to writing work (spell-checking, formulation, or reformulation), students do the verification work without too much apprehension by simply reviewing the text and making very few changes if necessary.

If the task is translation, students also verify the work by reviewing the text, sometimes accompanied by a more thorough check of certain words they have doubts about. However, here too, students seem satisfied with Chat GPT's output, as they find this tool more proficient than their own skills. "I know that grammar in English is really not my thing, that it is clearly better than me at it [...] and it would be foolish to refrain from using it".

The verification process becomes more challenging when asking Chat GPT to explain course concepts or generate argument ideas on more specialized topics. Indeed, when it comes to addressing very specific subjects, in which only experts in their field can provide explanations based on the literature and courses followed by the students, it appears that students have more reservations regarding Chat GPT's output on the subject: "For example, I know that for my recipes, precise quantities are needed to meet specific criteria, and I know I can't trust Chat GPT on that".

Others also express reservations about Chat GPT's ability to generate new insights and thus produce relevant analysis. This is attributed to the functioning of Chat GPT: "From there to say that it will replace the analytical work that will be done, I have my doubts [...] because in an ideal world, it would do everything for us, and we would have nothing to do, we would just do fieldwork, and it would be the AI that does the analysis. Given the principle of machine learning, the trap I see is going in circles, not having anything new and nothing surprising, and when there's a new element from the field, it keeps looping on it, saying, 'No, it's this, it's this, it's this'. Already in the world of human research, it takes time for new insights to emerge because we're stuck on the knowledge we have, and we see new things as exceptions."

So, where does the degree of necessity to verify Chat GPT's output lie among those who use it? Students mainly refer to the notion of "common sense": "It's more about if it's coherent, based on my prerequisites, I think it seems logical, even if we can't be 100% confident", "For me, it's about common sense [...] if it seems plausible, coherent, or if I feel it's just bullshit".

When it comes to knowledge they believe they are capable of recognizing the accuracy of and correcting accordingly, the degree of necessity is low, as it requires minimal external resources (this includes tasks like translation, spelling, and sentence reformulation). When dealing with knowledge they are not experts in (such as course concepts they have just learned in class), this is when they become more skeptical about the accuracy of what Chat GPT produces and turn more to the resources provided by their teachers: "For more complex matters, I'm a bit more skeptical. I noticed it when, for example, I asked it to explain certain articles that I already knew, and it gave me all sorts of wrong information".

Thus, these reservations manifest in two approaches to Chat GPT: those who do not use it and those who use it while adopting an adaptive behavior. "I've learned to not ask it certain things, and I also tell myself that if the result isn't good, it's because of the prompt and not the AI, because it's so powerful that it comes from my prompts."

It is important to note, however, that regardless of the task performed and the degree of verification needed, students always exercise control over Chat GPT's output. In other words, among the interviewed students, there is no acceptance of Chat GPT's output without reviewing and evaluating it by the students themselves.

We also see some extreme practices of information verification. For example, one pro-GPT student has chosen to opt for the Chat GPT Plus subscription. He mentions that, in addition to his usual verifications when he doubts the information, he also uses a "Fact Check" plugin. "Basically, you can copy and paste the content from Chat GPT, and it will fact-check it for you [...] by searching on the internet, it provides links and sources. So, either I use common sense, or I verify on the internet, or I check what Chat GPT told me with Chat GPT."

Finally, the task of code generation is distinct. The verification process for students is easier because they only need to test the code to see if it works and meets their expectations. In this way of working, there are only two possible outcomes: the code either doesn't work or it works. The code itself determines its degree of accuracy. In cases where it doesn't work, students adapt by either modifying their prompt or changing the code themselves to achieve a more satisfactory result: "Anything that doesn't suit me, I'll tell it, well, no, you should modify it like this [...] because I know exactly what I want". Students who generate code with Chat GPT determine their degree of verification based on the visible and verifiable result they obtain. However, it's important to note that students themselves specify to Chat GPT what it should modify concretely after reviewing the code (this implies an understanding of the proposed code).

On the other hand, some students believe that generating code with Chat GPT can have limitations, especially in professional contexts where concerns about data confidentiality arise. That's why most students only generate code bases (skeletons) with Chat GPT and use it as a utility when it comes to programming something.

Furthermore, beyond trust in the result produced by Chat GPT, an anti-GPT profile stood out by mentioning a notion of trust in the tool itself. Some express concerns about the emergence of AI tools without explicit moderation in the context of education and the potential long-term consequences. "It scares me; I think we didn't have that in middle/high school, you know? I think we're just creating a generation even dumber than ours, and we weren't too bright with social media and all that; the slightest problem they have, they go to Chat GPT, they don't even realize it, and they send the thing... I find it scary". Others, on the contrary, see it as an opportunity to seize and potentially beneficial. "We've been using AI for quite some time without even realizing it... it's just that now it has another dimension, and we're starting to humanize it by talking to it a bit more. So, for me, it's still progress, a good thing, but it should be used intelligently".

3.2.2. The concept of cheating

The question of cheating was also addressed with the interviewed students. Most of them perceive cheating in two possible ways:

- Cheating would be the act of going beyond a clearly defined framework and rules (such as during exams where it is explicitly stated that using course materials is not allowed).
- Cheating would be the act of not thinking critically (either by borrowing ideas that are not one's own or by failing to try to understand and internalize these ideas).

The first definition of cheating as described by the students is clear and based on concrete cases, such as an exam or an in-person test. Taking place in a specific space and time, it involves adhering to a shared agreement and a set of rules that are clearly defined and established prior to an evaluation, to which all students must adhere, under the risk of facing penalties. In this case, everyone knows explicitly what is expected of them and the consequences of exceeding this agreement; the boundary is very clear and transparent.

In the second case, there is a much blurrier line between what is prohibited and what is allowed. Firstly, it should be noted that while traditional in-person exams are still a part of higher education, there seems to be a growing trend towards emphasizing the practical application of concepts covered in class and, consequently, continuous assessment through submitted assignments (whether it be practical exercises, reflective essays, etc.). This disrupts the basic rules where students would be evaluated in a specific time and place, with strict and defined regulations. Indeed, it involves extending the boundaries of the school to the student's home. It involves evaluating over a longer period and not just within a few hours. It involves collaborating with increasingly powerful digital tools: initially Wikipedia, then discussion forums, and gradually leading to Chat GPT and all these AI tools which have multiplied by thousands in recent years.

From this point onwards, it becomes difficult to clearly define a field of what is forbidden and what is allowed. The concept of plagiarism is also often associated with cheating. Originally, according to the Minister of Higher Education and Research plagiarism constitutes "the immoral appropriation of a text without attributing it to its author. The plagiarist steals a text, copies it literally, or makes modifications and usurps the status of the author." In the academic context, plagiarism is often reduced to the act of incorporating or reproducing content from a source into one's own work without proper citation or attribution to the original author.

The question of plagiarism arises for generative text tools such as Chat GPT: can a text generated by an AI truly be considered plagiarism? It is in this kind of legal gray area that some students operate: "We were not forbidden and at the same time we didn't ask", "We don't talk about it, and we act as if it doesn't exist, and no one will say anything, great". An interesting metaphor was provided by one student to describe this phenomenon: that of a poker game. According to him, the use of Chat GPT, which is not regulated or even discussed between teachers and students, would constitute a giant poker game, in which the student plays their cards by using Chat GPT in the least visible manner possible in their submissions, so that the teacher cannot distinguish their bluff. And "if you get caught, it means you played badly".

Cheating would not be defined as a fixed and distinct concept. It would, in fact, form a kind of continuum with plagiarism at one end and pure and hard thinking contributions, only produced by the student, at the other (see figure below).



Figure 1: Schematic representation of the cheating continuum

The space between these two ends would represent this legal gray area, which is the students' playground. The closer the student gets to the plagiarism end, the more their bluffing game becomes dangerous and is perceived as cheating. To move away from this red zone, most students talk about contributing effort and "thinking".

This contribution of work would represent any contribution from the student to the production of Chat GPT.

Indeed, some believe that using text produced by Chat GPT could be considered as plagiarism unless if :

- This text is reworked by a reformulation specific to the student. In this case, this would be similar to the reappropriation of the ideas generated by Chat GPT, involving effort on the student's part, which no longer qualifies as cheating.
- This text serves as a reflective foundation, to which the student subsequently adds their own reasoning. In this case, an element of critical thinking has been incorporated, which no longer constitutes cheating.
- The ideas derived from it were initiated by the student in the prompt. In this case, the thought process was generated by the student beforehand, and the tool simply transcribed those ideas to provide syntactic coherence.

Therefore, according to the interviewed students, if they contribute to the final submission, they don't cross the red line. However, this remains more or less a bluff to the extent that "perhaps the teachers consider it cheating".

Finally, some students also add that one must "adapt to the tools that exist and move with the times", and "believe that if they are there, it's to simplify our lives, so we might as well use them".

3.2.3. Pros and cons of Chat GPT

An advantage mentioned by all students who use Chat GPT is the time saved. Indeed, many describe a considerable time savings from using Chat GPT in their studies, to the extent that it has become a work habit for them.

This time-saving is most commonly described when students mention writing tasks such as paraphrasing or spelling correction. It allows them to spend more time on the reflective aspect and the substantive content of their argument, rather than on its form. "It's more efficient if I delegate certain things to it [...] and it's a time saver because sometimes I've already spent a lot of time figuring out what I want to say, but I'm going around in circles without knowing how to phrase it, and this saves me from searching for the perfect sentence for half an hour".

Another advantage was described by one student. He doesn't believe that one can achieve excellence with tools like Chat GPT; however, he points out that it is a significant time-saver for quickly achieving the minimum. He says, "I find it hard to imagine a project where you can get an A with Chat GPT, but you can easily get a B [...] it's a bit like a cheat code". He illustrates his point by giving an example that happened to him. During a project where he had to produce a critical argument on a given topic, he says he spent many hours reading different articles, books, and searching for various sources to support his points and have a very comprehensive argument. He ended up getting the highest grade of A. However, he quickly realized that some of his classmates had used Chat GPT to construct their arguments, allowing them to spend much less working hours than him to finally get a grade of B. He believes that the difference between the grade one can achieve with Chat GPT and the one obtained by finding their own resources and working on their text themselves is not worth the extra effort.

Finally, the last advantage highlighted by students regarding the use of Chat GPT is related to its functioning. The "chat" aspect, which allows for a question-answer dynamic, gives students the impression of talking to a human. We even see ways of asking questions that are friendly, using familiar language (such as when students asked their questions to Chat GPT during the discussion workshop), but also using polite phrases, such as "thank you", "great", or "super", to express their satisfaction with the responses they receive.

The feeling of talking to a human while being aware that it is not a human creates a sense of trust and provides a non-judgmental space for students that doesn't exist at school when they are surrounded by other students. Chat GPT appears to some as a confident person devoid of judgment to whom one is not afraid to ask questions and seek advices (in fact, this atmosphere of trust gives rise to certain practices such as using Chat GPT as a home tutor or as a psychologist).

However, students have also expressed reservations that appear as disadvantages to the use of Chat GPT and often translate into fears.

Indeed, some express "fear of becoming alienated" and dependent on the tool. Either by not being able to do without Chat GPT when it comes to completing work, or by the fear of no longer being able to think for oneself. Some students admit that using Chat GPT has drastically changed their way of working. During the discussion workshop, students even mentioned a before/after Chat GPT. However, some fear becoming dependent on this tool out of "laziness" and "convenience."

Additionally, some have also noticed the negative effects of text generation based on a probability model. Indeed, some students have encountered hallucinations from Chat GPT, "I asked it to summarize an article I was familiar with to see what it would say, and I realized that it was actually saying anything"; "I asked it for sources and articles for my thesis topic, and it gave me stuff that doesn't exist". These hallucinations are indeed because Chat GPT operates on a probabilistic model that generates the most likely word based on the context.

This operation also raises questions about the notion of "common sense" mentioned earlier: the very essence of Chat GPT is to produce coherent content, so when students talk about "common sense through coherence" to verify if an information is true, this reasoning reaches its limits.

4. DISCUSSION

Now let's return to our initial hypotheses to compare them with our research results.

1. Advanced-level students (e.g., master's and doctoral students) are more likely to consider Chat GPT as an assistance tool compared to undergraduate students (e.g., bachelor's degree).

Unfortunately, it is not possible to validate this hypothesis within the scope of our research, which contains biases. This is primarily due to the voluntary recruitment of students to participate in our study. Finding participants proved to be particularly challenging, especially for the workshop. Imposing a specific location and date depends on varying schedule availabilities among students. To recruit participants, we used various methods : calls for volunteers on the networks, direct contact with students, posting in student catering places, calls for sharing on various campuses, etc.

Beyond scheduling constraints, recruiting willing students for research is a complex task. It involves convincing individuals that their voices and experiences matter and are valuable for the research. Moreover, motivation for participating in the study often depends on the presented topic, in our case, primarily focusing on Chat GPT. Consequently, only students who were already aware of Chat GPT or had used it showed interest in the subject.

Ultimately, most of the volunteers were students from our immediate circle. It is noteworthy that only three distinct profiles emerged among these participants. The investigation would have been much richer if we had access to even more varied profiles. Despite the similarity of their profiles, it is essential to emphasize that only master's students responded to the call, making it impossible to compare perceptions of Chat GPT between students at different levels (e.g., bachelor's versus master's). Nevertheless, this limitation highlights a reality: only students already familiar with digital tools were able to participate in this survey. This suggests that even though Chat GPT has created a significant impact and accelerated the development of AI, it may not necessarily provide more universal access to digital tools for those who are not already users.

2. Students in economics and humanities are more inclined to use Chat GPT for academic content writing than students with technical profiles.

We can state that this hypothesis is invalidated. Contrary to our expectations of a significant difference in practices between students majoring in computer science and those in sociology, for example, it turns out that this difference is not so pronounced.

All students, regardless of their profiles, are confronted with written assignments that require reflection and good writing skills. As a result, very similar practices emerge among these students, including spelling correction, sentence restructuring, idea formulation, and more. These practices are applied to their written work to save time and focus more on content than form.

The only practice that distinguishes students with technical profiles from others is code generation: they use Chat GPT to generate the skeleton of their code or find a specific command. In contrast, some non-technical students who encounter code in their studies take a more passive approach to code generation, to concentrate more on analyzing its results. However, this difference in practice is not necessarily related to their profiles but rather to the type of tasks they need to perform in their studies. While computer science students are evaluated on the code itself and the logic used to achieve it, economics students who need to create data visualizations are not evaluated on the visualizations themselves but rather on their ability to analyze them. Programming is, therefore, merely a means to an end, and they concentrate their efforts more on what they are genuinely assessed on.

3. Therefore, we can say that our last hypothesis, which suggests that the use of Chat GPT varies depending on the type of academic tasks (e.g., essay writing, bibliographic research, solving mathematical problems), is validated. Indeed, depending on the type of task required, students will use Chat GPT as an assistant in every possible and necessary way to produce work that will meet the standards of evaluation. It is also important to note that students make it a point of honor that their efforts are not erased by potential use of Chat GPT and therefore use it as a means to achieve their ends, and not as an end in itself.

As a result, the main hypothesis of our research, which states that "students perceive Chat GPT as a valuable assistance tool in their academic journey, but this perception varies depending on their profile and specific needs," should be nuanced.

Students do, indeed, perceive Chat GPT as an assistance tool in the sense that they use it as support to build foundations or find inspiration. More importantly, they view it as a significant time-saver, allowing them to capitalize on the time saved, which they can then use as needed depending on the type of task they must perform.

However, their use of Chat GPT does not necessarily vary according to their profile but rather based on their perception of it. This perception translates into two different approaches: either non-usage or adapted usage of Chat GPT. In both cases, their perception is unique to each individual and is shaped not only by their representations of technological tools in general but also by their own experience with Chat GPT (for those who use it).

In a presentation by Clément Fantoli [9] on the integration of AI in education, he makes a distinction between teaching and educating about AI. He emphasizes the importance of not only teaching how AI works and can be used (teaching) but also raising students' awareness of the ethical, social, and cultural implications of AI (education). This involves developing a comprehensive understanding of the impact of AI on society and educating individuals to think critically about these technologies.

This observation has also been made by Heiser and Romero [8], who emphasize the importance of AI education to overcome individual perceptions. They highlight the need to understand the limitations of AI, stemming from data and algorithmic processing. This understanding is crucial for students and teachers because it helps recognize that computer programs are created by humans and have limitations. According to them, AI education should be integrated into digital training to develop adequate skills and influence the content of school programs. This view is also shared by several students who have adopted an adaptive use of Chat GPT, recognizing its limitations through their interactions with the tool.

Lastly, one final bias to note in the context of this research is our own perception of Chat GPT. As a student in higher education with a profile spanning social sciences and digital fields and being a user of Chat GPT in my studies, despite my efforts to remain as neutral as possible and base my analysis only on the collected data, it is likely that my analysis has been influenced by some of my own representations and understanding of the subject. Therefore, these results should be regarded as indicative and subject to verification on a larger scale.

5. CONCLUSION

In conclusion of this study on the uses and perceptions of ChatGPT by higher education students, several key points emerge.

Firstly, it is evident that ChatGPT, as a conversational AI tool, has a significant impact on the educational landscape. Students use it as an assistance tool for various academic tasks, particularly focused on writing, ranging from paraphrasing to generating outlines. These versatile uses highlight a shift in learning methods and the need for educators to adapt to these new dynamics.

However, our study reveals that the perception of ChatGPT does not simply vary based on students' profiles. On the contrary, it depends on their individual perception of the tool, directly influencing how they use it. Some choose not to use it, while others adopt it in a targeted and tailored manner to their specific needs. This finding underscores the crucial role of individual perception in the adoption of digital technologies in education.

A crucial aspect of our research pertains to the concept of trust in ChatGPT and concerns related to cheating. Their perception of the tool, combining notions of trust and cheating, manifests as a continuum on which each individual positions themselves differently based on their definition and understanding of the boundaries not to be crossed. This tension between trust and cheating raises important questions about digital ethics education and the necessity of training students to use these tools responsibly and critically.

Furthermore, our research sheds light on significant points such as the need for a critical approach to AI in education. It is imperative that students' perceptions are informed by a deep understanding of the workings, risks, and limitations of AI. This entails not only technical training but also education on the ethical and social implications of AI, so that students can navigate their learning environment in an informed and critical manner.

The findings of our study can contribute to a reevaluation of teaching methods, considering the evolving needs of contemporary education. This research contributes to the academic discourse on the integration of digital technologies in education and underscores the need to continue research in this dynamic field. It is essential to continue exploring the uses and perceptions of AI to adapt and enhance pedagogical practices to meet the demands of an increasingly digitized era.

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