

Artificial intelligence as a support tool for research by Master 2 students: the case of the French department at the University of Biskra

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Abstract:

This study explores the integration of artificial intelligence (AI) in academic research conducted by Master 2 students in the French department at the University of Biskra. It investigates how AI tools such as natural language processing and automated data analysis are used in the research process, particularly in the preparation of Master's theses. A mixed-methods approach was adopted through a structured questionnaire completed by 15 students across three specializations. Results reveal a limited but growing awareness of AI technologies, with ChatGPT being the most cited tool. Despite the lack of formal training, students generally express positive attitudes, acknowledging AI's potential to simplify research tasks and improve quality. However, concerns remain about over-reliance and reduced critical thinking. The study concludes with a call to integrate AI-related training into university programs to better equip students for a digitally driven academic environment

Keywords: Artificial intelligence; master's thesis; academic research; digital tools.

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1. INTRODUCTION

The rapid development of artificial intelligence (AI) is profoundly transforming many sectors of society, including higher education. Universities around the world are witnessing the emergence of new research practices driven by AI-based tools such as natural language processing, automated data analysis, and intelligent information retrieval. These tools are beginning to reshape traditional academic methodologies, offering both opportunities and challenges to students and researchers alike.

At the University of Biskra, Master 2 students in the French department are increasingly exposed to this technological shift. Their academic journey, particularly the writing of their Master's theses, reflects the growing influence of AI in research contexts. In this evolving landscape, several key questions arise: What role does artificial intelligence play in the research process? How do students integrate these tools into their academic work? What impact does AI have on the quality and methodology of their dissertations?

This study aims to investigate these questions by analyzing how Master 2 students perceive and use AI in their academic research. It seeks to identify the most commonly used tools, evaluate how research methods are changing, and assess the perceived benefits and limitations of AI integration. The analysis is based on both quantitative and qualitative data collected through a structured questionnaire designed for students in the French department.



2. Literature review on artificial intelligence (AI)

2.1 What is artificial intelligence?

According Artificial intelligence (AI) is commonly defined as a set of techniques that enable machines to reproduce human cognitive abilities, such as learning, prediction, decision-making, and perception of the environment. These capabilities allow computer systems to perform tasks traditionally reserved for human intelligence.

According to the Montreal Declaration for the Responsible Development of Artificial Intelligence (2018), AI is a field aimed at simulating human cognition through technological systems (Collin, 2023). Similarly, Yann Le Cun describes AI as a set of methods that allow machines to perform tasks and solve problems usually associated with human reasoning (Le Cun, 2023). These include learning, problem-solving, speech recognition, natural language understanding, and computer vision. He also emphasizes that AI systems are mainly composed of sophisticated electronic circuits and software (Le Cun, 2019).

This technical foundation is supported by other perspectives that define AI as a subfield of computer science dedicated to the automation of intelligent behavior. In this view, AI aims to simulate human reasoning to solve complex problems (Luger & Stubblefield, 1993). This highlights the dual nature of AI systems: combining hardware components such as processors and circuits with advanced algorithmic logic.

The Ministère de l'Éducation du Québec (MEQ) further defines artificial intelligence as a scientific field that seeks to replicate human cognition through the development of software or machines capable of performing tasks usually attributed to human intelligence. Its applications are diverse, ranging from automatic speech and image recognition to robotic medical assistance and intelligent problem-solving tools (Bédard, 2024).

2.2 Historical overview of artificial intelligence (AI)

The story The history of artificial intelligence (AI) is a fascinating development that dates back to antiquity, but really took off in the 20th century. During the Second World War, the first computers were designed for military use, paving the way for the possibility of creating machines with intelligence. 1956 marked a major turning point with the conference organised at Dartmouth College, where the term "artificial intelligence" was officially introduced. John McCarthy laid the foundations for a technology which, although not yet fully developed, is now ubiquitous in our daily lives (Nilsson, 1982), giving rise to a discipline destined to transform the technological landscape.

However, despite a promising start, advances in the field of artificial intelligence were disappointing, leading to a period of stagnation frequently referred to as the AI winter of the 1970s. However, the discipline experienced a revival in the 1980s and 1990s, thanks to theoretical and technological breakthroughs. Significant progress was made in key areas such as computer vision and natural language processing. The 2000s saw the emergence of machine

learning, particularly deep learning, paving the way for considerable advances. The extensive use of data has also played a crucial role in this revolution, allowing AI to spread into many aspects of everyday life, from image recognition to machine translation. However, this expansion of AI raises ethical issues. Questions about the protection of privacy, automated decisions and the impact on employment have emerged, prompting researchers and decision-makers to mobilise for the responsible development of AI. The history of AI is thus a succession of enthusiasms, disappointments and, above all, constant progress, making this discipline a pillar of modern technology. Today, artificial intelligence algorithms can be found in a multitude of fields such as image processing, natural language processing, speech recognition, machine translation and time trend forecasting (De Matteis, 2024).

3. Artificial intelligence tools and techniques:

Artificial intelligence (AI) tools and methods are computer systems designed to process complex problems or perform advanced tasks. They constitute a specific algorithmic infrastructure made available to digital devices with the aim of simplifying the acquisition of knowledge, assimilation and execution of intelligent actions. For example, natural language processing enables computer systems to understand human language, while recommendation algorithms work like advisors by suggesting options based on user preferences. Machine learning enables computers to analyse data in a similar way to a learning

process, allowing them to simulate contexts to make decisions or predict future outcomes. Image and video processing tools give computers the ability to visually perceive and recognise objects. Self-service AI platforms allow users to explore AI tools without having to develop the entire system from scratch. Automatic text generation is a process similar to that of a virtual author capable of producing content. In essence, these tools help to enrich the artificial intelligence of computers, broadening their skills to perform a variety of tasks that were once reserved for human intelligence.

3.1 University students in the age of artificial intelligence

Young academics in the digitised age face an ever-changing educational environment, where AI-based technologies are exerting a growing and transformative influence. We now refer to these young people as "digital citizens", recognising that they need to acquire new skills to thrive in a digitised world of rapid change and complex societal challenges (Jean-François C., Laurent H., Margarida R.). As digital citizens, these students are evolving in an environment where access to information is instantaneous and where skills such as online communication, virtual collaboration and mastery of digital tools are becoming essential, not only in their studies, but also in their future professional lives. These technological advances are not just tools, but are also seen as catalysts for improving and even simplifying their daily lives in areas ranging from time management to tailored learning. The way in which these students adapt to these developments will directly influence their ability to navigate an increasingly interconnected world.

It is undeniable that these young people are the first to be affected by these technological transformations, as they are not only the current users of these innovations, but also the players of tomorrow, called upon to evolve in a world where AI and digitisation will play an even greater role.

4. Methodological framework and study corpus.

This study adopts a descriptive, exploratory approach aimed at analyzing the perceptions, practices, and level of awareness regarding artificial intelligence (AI) among Master 2 students in the French department. Given the limited availability of prior data in this specific academic context, a mixed-methods design was selected, combining both quantitative and qualitative dimensions to provide a more nuanced understanding of the phenomenon.

4.1 Study Population

The target population consists of Master 2 students currently writing their dissertations in the French department at the University of Biskra. This group was selected due to the relevance of the dissertation stage in academic research and the increasing potential role of AI tools in that process. The choice is also strategic, as these students are expected to engage in advanced research activities where AI may offer both support and innovation.

The sampling strategy used is purposive sampling, complemented

by voluntary participation. Students from three specializations—language sciences, didactics, and French literature—were invited to participate. In total, 15 students formed the sample, with an equal distribution among the three areas to ensure representativeness and reduce potential disciplinary bias.

Although the sample size is relatively small, it is appropriate for an exploratory study aiming to identify emerging trends and preliminary insights rather than to produce generalizable statistical results. Moreover, the limited number of Master 2 students actively engaged in dissertation writing during the study period, combined with their availability and willingness to participate, constituted a practical constraint. This limitation was anticipated and accepted, as the focus was placed on obtaining detailed, context-rich responses rather than on reaching a large-scale sample. The qualitative component of the research further supports this approach by emphasizing depth over breadth.

Participation was entirely voluntary and anonymous. Informed consent was obtained from all respondents, ensuring ethical compliance with respect to confidentiality, autonomy, and data use.

4.2 Data Collection Tool: The Questionnaire

To collect data, a structured questionnaire was designed and administered to the selected students. The questionnaire comprises nine open-ended and close-ended questions, allowing for the combination of quantitative analysis (e.g., frequency counts, percentages) and



qualitative insights (e.g., opinions, perceptions, and experiences). The design of the instrument was guided by the main objectives of the study: to identify students' familiarity with AI, determine the extent of its use in dissertation work, and gather students' perceptions of its benefits and drawbacks.

The questionnaire was reviewed for clarity, relevance, and validity before its administration. It was also pre-tested with two students not included in the final sample to ensure that the questions were understood as intended.

4.3 Presentation and analysis of results

a- How would you define artificial intelligence (AI) in your own terms?

Here is a representative sample of the responses:

- Artificial intelligence is a field of computer science that aims to create systems capable of performing tasks that reproduce human intelligence.

- This is the discipline that enables machines to be endowed with intelligence, as one of the most renowned experts in the field has pointed out.

- The aim is to reproduce human intelligence in machines, enabling computers to think and act like humans.

- Innovative technology for individuals.

The respondents' answers offer a basic understanding of artificial intelligence, converging on the fundamental idea that AI

seeks to reproduce or imitate human cognitive abilities through technology. But they remain relatively generic.

How will you assess your level of basic knowledge of artificial intelligence?

Table 1: Rate of basic IA level among students

Very limited	Limited	Moderate	Advanced
1	14	0	0

Source: Preparation and analysis by the researcher

Observation A general examination of this table reveals that the majority of respondents consider their level of knowledge of artificial intelligence (AI) to be 'Limited'. Of the 15 participants, 14 placed themselves at this level, while only one declared himself to have a "Very limited" level. It is notable that no responses were recorded in the 'Moderate' and 'Advanced' categories, illustrating the generally low familiarity of students with AI concepts and technologies. This reflects a consensus among participants that their knowledge in this area is modest, indicating a possible need for training and support to develop AI skills. It could also indicate a lack of integration of AI into their academic careers or insufficient exposure to these technologies as part of their current studies. Given this reality, it seems essential to think about initiatives to strengthen AI education, especially as it is becoming essential in many professional sectors. Adapting educational programmes to include specific AI modules would not only raise the level of knowledge among students, but also better prepare them for the growing demands of the labour market in terms of AI skills.

Can you give a concrete example of an application of artificial intelligence that you know of?

Of the majority of examples given by students, over 70% cited the ChatGPT application as a concrete example of artificial intelligence. This unanimous response testifies to the growing popularity of this technology in the daily lives of students. ChatGPT, a conversational AI developed by OpenAI, allows users to generate text, answer questions, and perform various tasks based on natural language processing. This frequent use of ChatGPT shows that students are not only aware of its existence, but are actively using it, whether for academic purposes, to generate ideas, or to improve their writing skills.

How important do you think knowledge of artificial intelligence is in your field of study?

Table 2: The importance of AI in the field of study

Not at all important	Not important	Moderately important	Very important
0	14	0	1

Source: Preparation and analysis by the researcher

In Table 2, we see that the majority of students (14) consider knowledge of artificial intelligence to be "not very important" for their field of study, while only one person considers it to be "very important". No student indicated that this knowledge was 'not at all important' or 'moderately important'.

This majority perception can be attributed to several factors. Some students might perceive artificial intelligence as a complex and abstract technology, relatively remote from the immediate needs of their field of study. For others, the perceived difficulty of mastering AI could diminish their interest or motivation to explore the subject in greater depth. What's more, in some academic disciplines, the integration of AI technologies is still at an emerging stage, which may lead students to underestimate its future importance.

The lack of familiarity with the concrete applications of AI in their studies also reinforces the idea that this technology is still far removed from their immediate professional concerns. Although AI has made significant advances in various sectors, some students do not seem to directly perceive its impact or usefulness in their field of expertise.

This perhaps highlights a need for greater awareness of the growing importance of AI, particularly by highlighting its practical applications and the opportunities it can offer, even in areas where it is still underused.

Did you use technologies based on artificial intelligence when writing your Master's thesis?

Table 3: Technological exploration

Yes	No
3	12

Source:Preparation and analysis by the researcher



Table 3 clearly shows that only 3 out of 15 students integrated AI-based technologies in the preparation of their Master's thesis, while 12 chose not to use them. This observation highlights a notable trend in the use of AI in an academic context. The reasons why the majority of students did not use AI in their work may be various. On the one hand, a lack of familiarity with the specific applications of artificial intelligence seems to be an important factor. Many students may not be fully aware of the tools available or their potential to enrich their research. This lack of knowledge may limit their vision of AI as an asset in their academic approach. Limited access to these technologies is also an obstacle. Some students may not have the necessary resources or software, or lack the training to use them effectively. This highlights the potential need for educational initiatives to introduce and train students in AI technologies early in their academic careers. In addition, some students may prefer more traditional research methods, feeling more confident with tried and tested approaches and less inclined to embrace new technologies. Conversely, the minority who have used AI appear to be motivated by an understanding of the usefulness of these tools in specific areas of their research. This shows that there is a certain openness and curiosity among students to explore technologies that can enhance their effectiveness and the quality of their work. This dynamic underlines the importance of promoting a culture of innovation and experimentation in academic programmes, in order to maximise the benefits of artificial intelligence in higher education.

b- **If yes, to what extent do you feel that the use of AI has influenced the quality and originality of your Master's thesis?**
(Scale from 1 to 5, where 1 is "not at all" and 5 is "very much")

For those who answered yes, they felt that the use of AI had a positive influence on the quality and originality of the content of their master's thesis.

c- **What are your perceptions of the integration of AI into the master's thesis process?** Please indicate what you consider to be positive and negative about this approach. "

Table 4: Issues and perceptions in the preparation of Master's theses

Positive	Negative
-Simplify complex tasks for students. -Improve process efficiency -Machines think faster than humans. -Artificial intelligence can increase our processing and memory capacities, enabling us to analyse large quantities of data and generate relevant information.	- Reducing student activity and keeping them away from reading. -The human being becomes dependent. -Machines do not have emotions or moral values. -Machines execute what is programmed and cannot judge what is right or wrong. -Artificial intelligence cannot be improved with experience.

Source: Preparation and analysis by the researcher

Students highlight the benefits of artificial intelligence (AI) by emphasising its ability to simplify complex tasks, improve process efficiency, offer superior processing speed compared to humans, and increase processing and memory capacities. These points highlight the potential positive impact of AI on the academic research process and other areas by facilitating learning, automating processes and processing large amounts of data quickly.

Negative points raised about the use of artificial intelligence (AI) highlight concerns such as students becoming less active and more distracted from reading, increased human dependence on machines, the absence of emotions and moral values in machines, the limitation of machines' capacity for moral judgement, and the inability of AI to improve through experience. These concerns highlight the potential risks associated with excessive use of AI, underlining the need for ethical reflection and careful management of this technology to avoid undesirable consequences.

d- **Have you taken any specific courses or training in artificial intelligence?**

Table 5: Artificial Intelligence training courses

No	Yes
15	0

Source:Preparation and analysis by the researcher

It appears that the majority of respondents (15 out of 15) have not taken any specific courses or training on artificial intelligence, as

indicated by the response "no 15". An initial observation might be that this perhaps highlights a lack of opportunity or awareness of training in artificial intelligence. It could also indicate that AI is not yet significantly integrated into the curriculum or training activities that respondents have had access to.

e- **Are you in favour of further integrating artificial intelligence into academic research processes? Why or why not?**

Table 6: Perspectives on the Greater Integration of Artificial Intelligence into Research Processes

No	Yes
1	14

Source:Preparation and analysis by the researcher

This table illustrates a clear trend in favour of the further integration of artificial intelligence (AI) into academic research processes, with 14 out of 15 respondents expressing support for this development. This broad consensus in favour of AI in research reflects a growing interest in technologies capable of transforming and optimising traditional academic methods.Student enthusiasm for greater use of AI can be attributed to several factors. Firstly, AI offers the possibility of automating certain repetitive tasks in research, such as data collection, analysis and report generation, allowing researchers to concentrate on more complex and creative aspects of their work. Secondly, AI can facilitate access to an unprecedented wealth of information, by enabling large amounts of data to be processed quickly and efficiently, which can contribute to faster advances and more

accurate results. Furthermore, this increased integration of AI can also be seen as a response to the new demands of the academic world, where the ability to process large datasets and draw relevant conclusions quickly is becoming a major asset. Students are likely to see AI as an indispensable tool for navigating a rapidly changing academic landscape, where traditional research methods must evolve to remain relevant in the face of technological advances. However, despite this widespread positive reception, it is important to note that AI also poses challenges. The single student who opposed the idea may reflect concerns such as the risk of over-reliance on technology, fears that AI will replace some essential human skills, or ethical concerns around the use of algorithms and data mining. This suggests that, although AI is widely accepted, its integration into research must be approached with care and responsibility.

Here are some of the reasons and motivations put forward by students:

- AI can analyse large datasets and identify patterns, and researchers are also using artificial intelligence to analyse large volumes of textual data and summarise documents.
- We are in the midst of the Renaissance and evolution.
- It's a fast way to search.
- I'm not in favour because it limits creativity and originality.

With the acceptance of a single answer all the reasons given by students highlight an understanding of the benefits of artificial

intelligence (AI) in the field of data analysis and research. They recognise the ability of AI to process large datasets, identify patterns, and provide summaries of textual documents. This indicates an awareness of the practical applications of AI in the context of research and analysis of complex information.

4.4 Discussion

The findings of this study provide valuable insights into the perceptions and practices of Master 2 students regarding the use of artificial intelligence (AI) in academic research. While most participants demonstrated only a basic level of knowledge about AI, their awareness appears to be evolving. The predominance of ChatGPT as the most cited example suggests that students are primarily exposed to conversational AI rather than a broader range of tools such as machine learning platforms, data analysis systems, or academic recommendation engines.

This narrow familiarity indicates a limited integration of AI into the academic culture of the department. The fact that only a small number of students reported using AI tools in their dissertation process may reflect both a lack of institutional support and insufficient training. Furthermore, the complete absence of prior AI-related coursework among respondents confirms a structural gap in the curriculum. This raises the question of whether the academic system is adequately preparing students for research in the digital age.

Despite these limitations, those who did use AI tools reported positive outcomes in terms of efficiency, data processing, and content



originality. These benefits are aligned with findings from international studies, such as those conducted in Canada and South Korea, where AI is increasingly used in higher education to support critical thinking, literature review, and plagiarism detection (e.g., Kim & Park, 2022; Roy & Leclerc, 2023).

However, students in our context also voiced important concerns: reduced student engagement, overreliance on automated tools, and loss of creativity. These concerns echo international warnings that while AI offers promising innovations for academic writing and performance enhancement, its careless or excessive use may negatively affect students' development and academic trajectories (Sijing & Lan, 2018).

This ambivalence mirrors broader ethical debates in academia. While AI can accelerate tasks and enhance performance, it also risks undermining essential academic values such as critical reasoning, originality, and ethical responsibility. Therefore, the discussion should not only focus on promoting AI use but also on equipping students with digital literacy and ethical awareness.

5. CONCLUSION

This study examined the perceptions, knowledge and use of artificial intelligence (AI) among a sample of university students. The results reveal that, although most students recognise the growing importance of AI, their familiarity with the technology remains fairly limited. The tendency to mainly cite ChatGPT as an example of an AI application highlights a lack of diversity in understanding the many

aspects of AI and highlights the popularity of this particular tool in today's academic environment.

Another notable point is that few students integrated AI into their master's thesis work, although those who did saw a significant improvement in their results. However, the concerns expressed about technological dependence and reduced cognitive effort show an ambivalent perception of AI. On the one hand, it is seen as a powerful tool for simplifying and speeding up certain tasks; on the other, it raises questions about the quality of intellectual processes and the potential effects on human creativity.

Future prospects:

In response to the challenges identified in this study, it would be appropriate to strengthen the integration of AI into academic programmes, by offering specialised courses and practical workshops that would enable students to develop a better command of the various AI tools, beyond ChatGPT. These initiatives would contribute to a wider and more effective use of AI technologies in research dissertations, by providing students with the necessary skills to take full advantage of the analysis and data processing capabilities that these tools offer. In addition, introducing ethical thinking around the use of AI could be an interesting way of raising students' awareness of the implications of automation in academic research, particularly with regard to creativity, intellectual responsibility, and dependence on machines. It would also be relevant to explore how collaborations between academic institutions and companies specialising in AI could

offer students direct access to cutting-edge technologies and applied learning environments. In sum, the future of AI integration in academia will depend on a balance between enriching students' technical skills and preserving fundamental human qualities such as creativity and critical thinking. A well thought-out pedagogical approach and adapted resources could open up new perspectives for students, enabling them to fully explore the opportunities that AI offers while navigating the challenges it poses.

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