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The Integration of Artificial Intelligence Tools in Doctoral Research in the Humanities and Social Sciences: Perspectives, Benefits, and Challenges for Doctoral Students

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Abstract

This study examines the use and impact of artificial intelligence (AI) tools, such as GPT, on doctoral students' research practices in the Humanities and Social Sciences (HSS), with a focus on Algeria. The research investigates how AI is adopted by students, its influence on research activities, and the ethical concerns that arise. The primary objectives include understanding the extent of AI tool usage, exploring its benefits, and identifying the challenges.

The study involved a survey of 234 doctoral students across various HSS disciplines, including Literature, Foreign Languages, Psychology, Sociology, and Education. The results show that while AI tools are used occasionally, disciplines such as Literature and Psychology adopt them more frequently, particularly for writing and data analysis tasks. On the other hand, fields like History and Philosophy are more cautious about AI integration. Despite the positive view of AI as a means to enhance productivity and improve scientific outcomes, ethical concerns about transparency, bias, and over-reliance on AI are prominent.

The research also suggests an openness to collaboration on AI tool development, although some researchers are wary of losing critical analytical depth or compromising their academic integrity. Overall, while AI adoption in HSS research in Algeria is still in its early stages, the findings indicate a significant potential to improve research practices, provided that ethical and practical challenges are addressed.

Key words: AI tools, doctoral students, Humanities and Social Sciences, Research practices, Algeria, GPT, Ethical concerns.

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Introduction

Artificial intelligence (AI) and machine learning technologies play an increasingly significant role in the academic and research spheres, as well as across numerous fields of study (Nguyen,2023; O'Connor,2023). These technologies encompass systems and techniques enabling machines to perform tasks that traditionally require human intelligence, such as learning, reasoning, problem-solving, natural language understanding, and even image and sound recognition (Miailhe,2017). AI is fundamentally the simulation of human intelligence in machines that are programmed to think and behave like humans (Nguyen,2023). It relies on advanced technologies, including machine learning, deep learning, natural language processing (NLP), and computer vision (Novocain-Sánchez, 2022).

Among the AI-powered tools, ChatGPT is one of the most recognized and widely used. Developed by OpenAI, ChatGPT is a chatbot powered by advanced natural language processing, designed to perform tasks such as generating text, translating languages, summarizing documents, answering complex questions, assisting with content creation, and simulating interactive conversations (Roumeliotis, 2023; Sharma, 2024; Bourke, 2024; Decrypt, 2023; Dev.to, 2023).

This tool proves especially useful in academic contexts. Its role in education and access to knowledge has been the subject of studies, with applications spanning various academic purposes, including facilitating the synthesis of information, supporting educational activities, and improving efficiency in writing and editing tasks (Mai, D. T. T, 2024). ChatGPT is also increasingly viewed as an educational aid for teachers, researchers, and students. Its usefulness extends to providing precise, systematic, and informative responses, enabling users to engage in dynamic discussions or rapidly access information on a wide range of topics (Baidoo-Anu, D, 2023); Akbari, 2023; Livberber, T,2023).

However, research on the impact of these tools, particularly in emerging countries, remains limited. This study focuses on examining the role and impact of AI tools, specifically ChatGPT, in the practices of doctoral students in the Humanities and Social Sciences (HSS), with Algeria as a case study. It aims to explore how these tools are integrated into information retrieval and academic writing practices within this demographic. Furthermore, it investigates how doctoral students perceive and engage with AI tools and examines their attitudes toward these technologies.

Research objectives

The primary goal of this research is to thoroughly examine the influence of artificial intelligence (AI) technologies, with a particular focus on tools like ChatGPT, within the academic context. This investigation centers on the lived experiences and perceptions of doctoral candidates in the humanities and social sciences (HSS), aiming to shed light on how AI affects their scientific research activities and educational journeys.

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Specifically, the study pursues the following detailed objectives:

Assessment of AI Tool Usage in Research: To systematically evaluate the extent to which doctoral students incorporate AI tools such as GPT in their research workflows, identifying the practical benefits and efficiencies these technologies provide in facilitating their scholarly work.

Analysis of AI's Impact on Research Practices: To explore how the integration of AI tools alters research methodologies and processes among doctoral candidates, taking into account both the perceived advantages—such as increased productivity or enhanced analytical capabilities—and the ethical concerns that may arise from relying on such technologies.

Exploration of Future Prospects for AI in Research: To investigate anticipated developments and future opportunities for AI integration in academic research, including potential collaborations and innovations that could further support doctoral research in the HSS disciplines.

This comprehensive approach aims to capture a nuanced understanding of AI's current role and potential trajectory in shaping doctoral research practices, with an emphasis on authenticity and depth derived from empirical insights.

Research-questions

This study is guided by the following key research questions:

- How frequently do doctoral students in the Humanities and Social Sciences (HSS) incorporate AI tools, such as GPT, into their research processes?

- Which features or functionalities of AI tools like GPT are considered most valuable by HSS doctoral students for enhancing their research?

- In what ways does the use of AI tools influence the research methodologies and practices of HSS doctoral candidates, and what ethical considerations emerge from their adoption?

- To what degree are HSS doctoral students receptive to participating in the development or customization of AI applications specifically tailored to support their academic research?

Method

Research Design

This study employed a quantitative research design based on an online survey administered between August and October 2025. The research primarily aimed to examine patterns of adoption and perceptions of artificial intelligence (AI) tools in academic research. Although

the study is quantitative in nature, qualitative interpretation was also applied to open-ended responses in order to gain deeper insight into doctoral students' representations and experiences. This design was chosen to allow both measurable trends and contextual understanding of AI integration among doctoral students in the Humanities and Social Sciences (HSS).

Participants

The participants consisted of doctoral students enrolled in various Humanities and Social Sciences disciplines, including literature, languages, philosophy, sociology, psychology, and applied social sciences. Participation was voluntary, and respondents were recruited through institutional channels, including doctoral schools and partner universities. A non-probabilistic sampling method was adopted in order to obtain a diverse range of academic profiles representing the main research fields within HSS. This approach allowed for a broad overview of AI-related practices across disciplines.

Data Collection Tools

Online questionnaire. Data were collected using a structured questionnaire designed through the Google Forms platform. The questionnaire was selected for its accessibility, ease of distribution, and suitability for reaching a geographically diverse population of doctoral students. It consisted of several sections addressing demographic characteristics, research practices, and the use of digital tools.

A specific section focused on artificial intelligence tools, including their frequency of use, perceived usefulness, ethical concerns, and training needs. Commonly used AI tools such as ChatGPT, Grammarly, Scite, and Elicit were included. The instrument ensured content validity through alignment with the research objectives, and internal consistency was supported by the structured and standardized format of the items.

Data Collection

Data collection was conducted over a four-week period between August and October 2025. The survey link was distributed via email through doctoral schools and institutional networks of participating universities. Participation was anonymous and voluntary, and respondents were informed of the purpose of the study prior to completing the questionnaire. All procedures complied with ethical standards applicable to research in the Humanities and Social Sciences.

Data Analysis

Quantitative data collected through Google Forms were exported to Microsoft Excel for processing and analysis. Closed-ended items were analyzed using descriptive statistical techniques, including frequencies, percentages, and mean values. Open-ended responses were subjected to qualitative thematic coding in order to identify recurring perceptions,

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expectations, and concerns related to the use of AI in doctoral research. Comparative analyses across academic disciplines were also conducted to explore potential variations in AI use and perception.

Findings

Participants' disciplinary distribution

A total of 234 doctoral students participated in this study, representing a wide spectrum of Humanities and Social Sciences disciplines. Foreign Languages and Literature accounted for the largest proportion of respondents (39.7%), followed by Psychology (16.7%) and Sociology (11.5%). Political Science and Information and Communication Sciences showed moderate representation, while fields such as History, Philosophy, Linguistics, Translation, and Amazigh Literature had fewer participants.
This distribution highlights the diversity of research areas covered in the study and provides a representative overview of doctoral engagement across HSS disciplines. (See Table 1)

Frequency of AI tool use in academic practices

Respondents reported varying frequencies of AI tool usage. The majority indicated occasional use "Sometimes", while fewer participants reported frequent use "Often", and very few claimed to use AI tools consistently "Always".
Disciplinary differences were evident: Psychology displayed a higher proportion of rare or non-use responses, whereas Literature and Foreign Languages showed broader variation, with some participants using AI tools more regularly. Overall, AI adoption appears selective and dependent on disciplinary practices, rather than widespread and systematic.

Applications of AI tools

AI tools were employed across disciplines for a variety of tasks. Writing assistance was the most common application, particularly in Literature, Foreign Languages, and Psychology, where students used AI for drafting and revising texts.
In some cases, especially in Literature and Foreign Languages, respondents combined multiple tools for tasks such as text comprehension, writing, and data analysis, indicating a more integrated but still limited adoption.
Fields like Education Sciences and Linguistics used AI more selectively, often for one or two functions. Minimal adoption was observed in History, Philosophy, and Amazigh Literature.
A notable proportion of all participants reported no use of AI tools, pointing to substantial untapped potential.

Perceived benefits of AI tools

Doctoral students identified several advantages of AI in research. The most frequently reported benefits included improved productivity, time efficiency, and enhanced quality of

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academic writing. AI was also valued for managing large datasets and supporting analytical tasks.
Perceptions varied by discipline: Literature, Foreign Languages, and Sociology reported higher benefits, whereas History showed less engagement. Overall, AI tools are seen as **supportive resources** rather than transformative agents.

Concerns regarding AI usage

Participants highlighted ethical and practical concerns. The lack of transparency in AI systems was most commonly reported (38.6%), followed by potential bias (26.1%), over-reliance (13.6%), and cost or data security issues (9.1%). These concerns underline a cautious approach to integrating AI into research practices.

Attitudes toward collaboration on GPT-specific tools

Regarding collaboration on GPT-based applications, 31.8% of participants expressed strong support, while 22.7% indicated conditional support, often tied to transparency and data protection. Another 31.8% remained neutral, and smaller groups opposed or strongly opposed collaboration. Support was most pronounced in Literature, Foreign Languages, and Psychology, whereas opposition was more common in Philosophy and some social sciences.

Discussion

The results indicate that AI tools are beginning to permeate doctoral research practices in the HSS, yet integration remains uneven and limited. Use is primarily occasional, task-specific, and varies significantly across disciplines.

The prominence of writing assistance tools suggests that students primarily perceive AI as a practical aid for drafting and organizing academic texts, particularly in disciplines centered on textual production. In contrast, fields such as History and Philosophy demonstrate slower adoption, reflecting disciplinary traditions that emphasize critical interpretation and human judgment.

Les avantages perçus, tels que l'augmentation de la productivité, le gain de temps et l'amélioration de la qualité de la rédaction, reflètent ce rôle fonctionnel. Les outils numériques sont principalement utilisés pour des tâches répétitives, routinières ou impliquant un traitement important de données, sans toutefois transformer de manière significative les méthodes de recherche. Cette adoption ciblée correspond aux différences observées entre disciplines : une utilisation plus marquée dans les domaines centrés sur le texte et une intégration plus limitée dans les champs à approche interprétative.

Ethical concerns regarding transparency, bias, and over-reliance reveal an underlying caution among doctoral students. These apprehensions suggest a need for guidelines, training, and transparent tools to foster responsible AI adoption.

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Attitudes toward collaboration on GPT-based research applications further illustrate mixed perspectives. While many students are open to contributing to AI tool development, this willingness is often conditional on ethical safeguards and clear understanding of the technologies. Neutral or opposing positions may stem from limited familiarity or perceived risks to academic integrity.

In conclusion, AI tools are recognized as useful but contested instruments in HSS doctoral research. Their future integration depends not only on technological developments but also on discipline-sensitive applications, ethical frameworks, and targeted training, enabling doctoral students to use AI critically, responsibly, and effectively.

Conclusion

The study conducted among 234 doctoral students in the humanities and social sciences (HSS) highlights significant diversity in the use of artificial intelligence (AI) tools in their academic practices. The most represented disciplines among respondents are *Literature and Foreign Languages* (39.7%) and *Psychology* (16.7%), with lower participation rates from fields such as *Sociology* (11.5%) and *Educational Sciences* (1.3%). This distribution underscores the prominence of certain disciplines in adopting AI tools while reflecting the varied practices within the HSS domain.

AI tool usage remains relatively occasional overall, though notable differences exist between disciplines. For instance, doctoral students in *Literature and Foreign Languages* and *Psychology* more frequently employ these tools for tasks such as writing or data analysis, whereas fields like *History* and *Philosophy* exhibit greater hesitation toward integrating such technologies. AI is primarily perceived as a means to enhance productivity, save time, and improve the quality of scientific outputs.

However, ethical concerns have emerged, particularly regarding the transparency of AI tools, the risk of biased outcomes, and excessive reliance on AI. These issues underscore the need for regulation and thoughtful deliberation about the responsible integration of these technologies in research. Collaboration on the development of discipline-specific AI applications, such as GPT, is generally well-received, though some researchers express caution, citing fears of losing analytical nuance and concerns about preserving disciplinary integrity.

In summary, while the adoption of AI tools in HSS is still in its early stages, the findings point to significant potential for enhancing academic research efficiency. At the same time, they highlight the importance of addressing ethical and practical challenges to ensure the responsible use of these technologies.

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Tables and Figures

Table 1.

Discipline	Number of PhD students	Percentage (%)
History	9	3.8
Arabic Language and Literature	6	2.6
Foreign Languages and Literature	93	39.7
Linguistics	8	3.4
Amazigh Literature	4	1.7
Philosophy	6	2.6
Psychology	39	16.7
Education Sciences	3	1.3
Information and Communication Sciences	14	6.0
Islamic Sciences	2	0.9
Political Science	15	6.4
Sociology	27	11.5
Translation	8	3.4
Total	**234**	**100**

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