

The Role of Artificial Intelligence Applications in Enhancing the Quality of Scientific Research: Students of the National Higher School of Political Science (Algeria) case study

Le rôle des applications de l'intelligence artificielle dans l'amélioration de la qualité de la recherche scientifique: étude de cas des étudiants de l'École Nationale Supérieure des Sciences Politiques en Algérie

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Abstract:

The rapid advancement of artificial intelligence (AI) is bringing significant changes to a wide range of sectors, particularly higher education and scientific research. In this context, the present study investigates the role of AI applications in enhancing the quality of scientific research among students at the National Higher School of Political Science in Algeria. It seeks to examine the extent to which students rely on AI applications in conducting their research, identify the applications they use most frequently, and assess their contribution to improving research quality.

The study was conducted among a sample of 200 students representing different academic levels. The findings indicate that students use AI applications to varying degrees, with ChatGPT emerging as the most widely used application. The results also show that students consider AI applications valuable in improving the quality of scientific research, particularly by facilitating access to information, translation, research organization, and the preparation of academic work, while also reducing the time and effort required. Moreover, the findings demonstrate a statistically significant positive effect of AI application use on the quality of scientific research.

Keyword: Artificial Intelligence, Artificial Intelligence Applications, Scientific research quality, National Higher School of Political Science, Algeria...

Résumé:

L'évolution rapide de l'intelligence artificielle (IA) entraîne des transformations importantes dans de nombreux secteurs, notamment dans l'enseignement supérieur et la recherche scientifique. Dans ce contexte, la présente étude examine le rôle des applications de l'IA dans l'amélioration de la qualité de la recherche scientifique auprès des étudiants de l'École Nationale Supérieure des Sciences Politiques en Algérie. Elle vise à déterminer dans quelle mesure les étudiants recourent aux applications de l'IA dans la réalisation de leurs recherches,

à identifier les applications qu'ils utilisent le plus fréquemment et à évaluer leur contribution à l'amélioration de la qualité de la recherche.

L'étude a été menée auprès d'un échantillon de 200 étudiants représentant différents niveaux universitaires. Les résultats indiquent que les étudiants utilisent les applications de l'IA à des degrés variables, ChatGPT étant l'application la plus utilisée. Les résultats montrent également que les étudiants considèrent les applications de l'IA comme des outils utiles pour améliorer la qualité de la recherche scientifique, notamment en facilitant l'accès à l'information, la traduction, l'organisation de la recherche et la préparation des travaux académiques, tout en réduisant le temps et les efforts nécessaires. En outre, les résultats mettent en évidence un effet positif statistiquement significatif de l'utilisation des applications de l'IA sur la qualité de la recherche scientifique.

Mots-clés : Intelligence artificielle ; applications de l'intelligence artificielle ; qualité de la recherche scientifique ; École Nationale Supérieure des Sciences Politiques ; Algérie.

Introduction:

The world is currently living through an era of accelerated technological advancement and innovation, characterized by the emergence of diverse applications and techniques that have ushered humanity into a new epoch. This digital revolution has effectively redefined the boundaries of human development. In the midst of these rapid shifts, human life is transitioning toward digital paradigms governed by Artificial Intelligence (AI). Consequently, AI has catalyzed fundamental transformations across various economic, social, educational, and security domains.

Within this framework, a multitude of AI applications has emerged, evolving at a pace that poses significant governance challenges. This trajectory has prompted most nations to prioritize the adoption of national AI strategies to secure their position in the global order. Algeria, aligned with these global trends, has sought to implement strategies that facilitate integration into this vast technological evolution, which has permeated critical sectors, most notably higher education and scientific research.

Accordingly, this study focuses on students at the National Higher School of Political Science in Algeria as a primary case study. It aims to elucidate the role of Artificial Intelligence applications and their impacts on the quality of scientific research within this specialized academic environment.

The widespread use of artificial intelligence (AI) applications among university students for academic purposes highlights the need to empirically examine their perceived contribution to the quality of scientific research within Algerian higher education institutions. This observation is supported by the study of Ahmed Bailey (Ahmed Bailey, 2024, pp. 423–469), which found that the vast majority of students preferred using AI tools for academic purposes.

Further evidence of this growing adoption can be found in the distribution of AI use across academic disciplines. data indicates that students in the Humanities and Social Sciences are the most frequent users of these technologies. This finding is consistent with Abdelkader Badene (Sidi Ahmed & Dendenne, , 2021, pp. 153–176), where the usage rate reached 74.34% among humanities students, compared to 22.01% in scientific disciplines. This preference is attributed to the role of AI in streamlining the research process and facilitating access to diverse

databases, which aids students in preparing and presenting their coursework using advanced techniques.

Beyond facilitating access to information and research databases, AI tools provide instantaneous translation for critical specialized references, becoming indispensable for researchers and graduating students alike. Moreover, the integration of these applications fosters academic persistence and helps students identify their research strengths and weaknesses. Consequently, this allows for personalized guidance tailored to each student's capabilities to enhance their skill sets, a result that resonates with the findings of (Al-Maliki Wafaa, 2023, pp. 93–107).

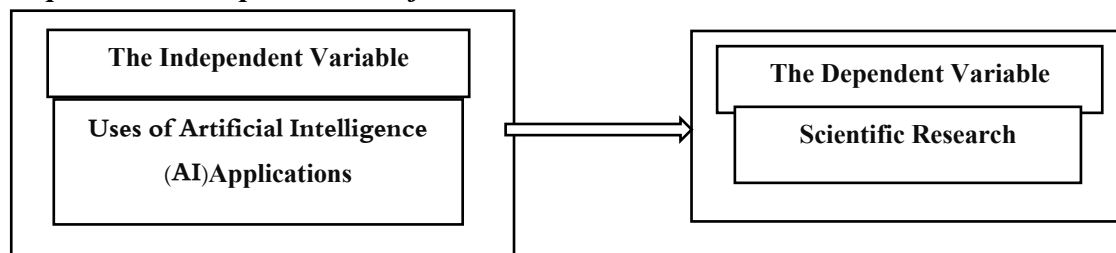
Taken together, these developments highlight the need for a systematic empirical investigation. Accordingly, the central research problem can be articulated through the following primary question:

To what extent do the applications of Artificial Intelligence contribute to enhancing the quality of scientific research among students at the National Higher School of Political Science in Algeria ?

To address this overarching question, the study seeks to answer the following subsidiary questions:

1. What are the most prominent Artificial Intelligence applications utilized in scientific research by students at the National Higher School of Political Science?
2. What is the role of Artificial Intelligence applications in enhancing the quality of scientific research among students at the National Higher School of Political Science in Algeria?
3. Is there a statistically significant effect of AI application usage on scientific research quality among students at ENSPS

To provide a clear analytical representation of the relationship between the study variables, the conceptual model is presented as follows:



Building on the proposed conceptual model and the assumed relationship between the study variables, the following hypothesis is formulated:

H1: There is a statistically significant positive effect of Artificial Intelligence application usage on scientific research quality among students at the National Higher School of Political Science in Algeria at the significance level ($\alpha \leq 0.01$).

In line with the research question and the proposed hypothesis, the study seeks to achieve the following objectives:

- The study aims to achieve the following objectives:
- Identifying the specific Artificial Intelligence applications utilized within the framework of scientific research.
- Investigating the utilization patterns of AI applications and their contributions to enhancing the quality of scientific research among students at the National Higher School of Political Science in Algeria.

- Providing scholarly insights into the significance of AI applications in advancing the standards of scientific research quality for university students.

In addition to its research objectives, the study derives its significance from both theoretical and practical considerations, as follows:

1. Theoretical Significance

- **Importance of the Target Population:** The study derives its value from focusing on students at the National Higher School of Political Science (ENSPS), who represent a critical academic elite across all degree levels.
- **Knowledge Contribution:** It provides researchers and stakeholders with valuable insights and empirical data regarding AI integration, serving as a foundational reference for future scholarly inquiries in this burgeoning field.

2. Practical (Applied) Significance

- **Institutional Development:** The findings offer a roadmap for ENSSP and Algerian universities to leverage AI applications in elevating the standards of scientific research.
- **Evidence-Based Policy:** It enables academic administrations to adopt informed measures that support the ethical and effective use of AI tools in scholarly work.
- **Capacity Building:** The study raises awareness among administrative bodies regarding the necessity of organizing training and developmental workshops to enhance students' research competencies and academic attainment.
- **Academic Enrichment:** This research is expected to be a qualitative addition to Arab and Algerian academic libraries, stimulating further investigation into AI's role in modernizing higher education.

To ensure a clear definition of the research context and boundaries, the scope and delimitations of the study are defined as follows:

- **Human Scope (Population):** The study was conducted on a representative sample of students at the National Higher School of Political Science, encompassing all academic levels (Preparatory, Master's, and Doctoral cycles).
- **Spatial Scope (Setting):** The geographical focus was limited to the National Higher School of Political Science (ENSPS) in Algiers, Algeria.
- **Temporal Scope (Timeframe):** The empirical phase of the study was carried out during the second semester of the academic year 2024–2025.
- **Thematic Scope (Subject Matter):** The research was confined to investigating the role of Artificial Intelligence (AI) application usage and its impact on the quality of scientific research among university students at the National Higher School of Political Science.

To ensure conceptual clarity and consistency in the application of the study variables, the key concepts are operationally defined as follows:

1. Artificial Intelligence (AI)

- Advanced and sophisticated technologies characterized by an immense capacity for evolution and goal attainment. They facilitate universal access to education and provide high-quality information and knowledge with minimal financial costs and physical effort (El-Tantawy, 2025, pp. 319–357).

- **Procedural Definition:** The researchers define AI as an umbrella term encompassing various technologies and applications that enable intelligent machines to simulate human intelligence.

2. Artificial Intelligence (AI) Applications

Programs that utilize machine-learning algorithms to mimic human cognitive abilities, such as reasoning and linguistic interaction. These AI-powered tools interact sophisticatedly with the content they generate and are widely integrated into the educational sector for assessment, instruction, and self-directed learning, providing vast amounts of information in a concise timeframe (Rizqi, 2025, p. p 30).

Procedural Definition: The researchers define AI applications as a suite of tools and software built on AI techniques, employed by researchers and students at the National Higher School of Political Science to enhance and develop their scientific research skills and quality.

Building on the foregoing conceptualization and drawing on the theoretical framework and previous studies, the quality of scientific research is defined in this study as follows:

Scientific Research Quality refers to the extent to which scholarly work adheres to the standards of originality, innovation, and the rigorous application of sound scientific methodology. It also encompasses the applied value of academic output and its contribution to the global ranking of universities, thereby enhancing their international competitiveness (Manea, 2025, pp. 1-150).

Operational Definition: The researchers define the quality of scientific research as the ability of students at the National Higher School of Political Science to effectively utilize Artificial Intelligence (AI) applications to enhance their academic output while remaining committed to the standards of originality, innovation, quality, and transparency.

Having established the conceptual and operational foundations of the study, this section reviews the relevant literature on the integration of Artificial Intelligence (AI) into scientific research and higher education. Recent scholarly research has examined this phenomenon from various perspectives, including academic efficiency, students' perceptions, patterns of use, and institutional challenges.

In particular, the growing adoption of AI tools in academic settings has generated increasing scholarly interest in their potential to support research processes while also raising questions concerning academic integrity, methodological rigor, and research quality.

Study (Benfafa & Meriah , 2024): explored the role of AI in enhancing the academic competence and Scientific Research Quality of social science students. Their descriptive study (n=100) concluded that students equipped with formal academic training in AI applications possess the necessary skills to effectively integrate these tools into their scholarly work, thereby improving overall educational efficiency. Similarly, Nasrullah (2024) highlighted the potential of AI in personalizing the learning process and improving qualitative assessment, noting its capacity to enhance academic performance and prepare students for future labor market challenges.

Study (Al-Karbaj, 2025): The study aimed to examine students' use of artificial intelligence applications in enhancing the quality of scientific research. The researchers adopted a descriptive survey approach and administered an electronic questionnaire to students from the Faculty of Science at Kufra University, obtaining 56 valid responses. The findings indicated that 67.9% of the students frequently used AI applications in scientific research, while 17.8%

reported using them regularly, and 14.3% stated that they used them only rarely. The study recommended that academic supervisors and thesis examiners closely scrutinize students' work, as many research outputs have become readily generated and may not reflect the researcher's personal contribution, emphasizing the need to ensure the quality and originality of academic research.

1. Institutional Barriers and Infrastructural Challenges

Study (Al-Banyan, 2025): The study aimed to explore postgraduate students' perceptions of the use of artificial intelligence applications in developing scientific research skills within the Department of Social Studies at King Saud University. The study adopted a descriptive survey approach using an electronic questionnaire and collected responses from 114 postgraduate students. The findings revealed that 75% of the participants used AI applications to complete academic requirements, reduce research burdens, enhance data analysis skills, and obtain instant translations of research materials, thereby helping them save both time and effort.

study(Bayeli,2024): it sought to identify the extent to which students and faculty members benefit from artificial intelligence technologies, whether in obtaining information or facilitating research procedures through databases. The researcher employed an electronic questionnaire administered to a sample of 400 participants (350 students and 50 faculty members). The study found that 58% of the sample preferred self-directed learning approaches, which enhances their critical thinking skills and problem-solving abilities, as well as enables them to access research ideas through various databases.

Study(Al-Houshi & Al-Houshi, 2024): The study aimed to examine the role of artificial intelligence and its applications in improving the quality of higher education. The study adopted a descriptive approach and found that AI tools—such as intelligent tutoring systems and interactive learning technologies—have contributed to creating interactive learning environments that foster collaboration and constructive critical thinking among students while providing innovative solutions to address challenges facing the higher education sector.

Study (Nasrullah, 2024): The study aimed to examine the role of artificial intelligence in improving the quality of student learning, with particular emphasis on personalized learning and qualitative assessment. The study adopted a qualitative research approach and was conducted with a sample of 55 students at Technocrat University, Indonesia. The findings indicated that the application of artificial intelligence technologies in education has significant potential to enhance the effectiveness and inclusiveness of learning, thereby improving students' academic performance and preparing them to meet future challenges.

Study(Balogh, 2024): The study explored the potential for integrating artificial intelligence into higher education and its impact on both faculty members and students. The study employed a questionnaire administered to students to evaluate their experiences, perceived benefits, and concerns regarding the use of AI tools. The findings revealed a generally positive attitude toward the use of artificial intelligence in enhancing educational experiences and providing academic support. The study further emphasized the importance of adhering to ethical principles and ensuring the responsible use of AI technologies.

Study (Manea, 2025): The study aimed to examine students' habits and patterns of using artificial intelligence in scientific research, as well as the motivations underlying its use. The study was conducted on a sample of 100 students from the Department of Information and Communication

Sciences at Ziane Achour University of Djelfa using a questionnaire. The findings revealed that most students used artificial intelligence for both psychological and academic motivations, while some expressed concerns regarding data privacy and the protection of their personal information when using AI applications.

Study (Eid Ahmed Shehatah & Eid Ahmed Sheh, 2024): The study aimed to examine the role of artificial intelligence in developing the educational process and scientific research. The study adopted a descriptive approach using the social survey method and was conducted on a sample of 398 students and 12 faculty members from the Faculty of Computers at Mansoura University. The findings highlighted several challenges hindering the implementation of artificial intelligence, including weak data governance, limited technical expertise, high implementation costs, inadequate infrastructure, and insufficient qualification of human resources.

Study (Taha Mahmoud Ibrahim, 2024): The study examined the relationship between the use of artificial intelligence applications and the quality of scientific research as a requirement for achieving Egypt's Vision 2030. The study concluded that artificial intelligence has the potential to revolutionize scientific research and recommended the effective training of students and academics in the use of AI applications to support the digital transformation of educational and research processes.

Study (Al-Atoum, 2023): The study aimed to identify the requirements and challenges associated with the implementation of artificial intelligence applications in higher education using a content analysis approach. The findings revealed that the primary requirements include promoting a culture that supports artificial intelligence and developing the necessary technological infrastructure, while the main challenges involve a shortage of qualified specialists and the high costs of implementation.

Study (Kanyemba et al, 2023): The study aimed to explore the use of artificial intelligence by faculty members and students at David Livingstone College of Education. The study involved 141 participants and found that 93.8% of faculty members and 84.2% of students were familiar with AI tools. Among faculty members, the most frequently used tools were Turnitin and ChatGPT, whereas ChatGPT was the most widely used tool among students, with a usage rate of 45.5%. The study concluded that the lack of regulatory policies and inadequate infrastructure were among the most significant barriers to the effective adoption of these technologies.

The following section presents a synthesis and commentary on previous studies related to the research topic:

1. Points of Convergence (Consistency)

The current study aligns with previous literature regarding its primary objective: exploring the impact of Artificial Intelligence (AI) applications on enhancing the quality of scientific research. This is consistent with the works of Ben Fafa and Meriah (2025), Qurbaj et al. (2025), Bailey (2024), Balogh (2024), Al-Atoum (2023), and Kanyemba et al. (2023). Furthermore, this study shares a common demographic focus with Al-Bunyan (2025), Manea (2024), and Nasrullah (2024), as it primarily targets the student population.

In terms of methodological framework, the current study adopts a descriptive approach, consistent with the majority of prior scholarship, as it is the most suitable method for analyzing the relationship between AI utilization and research quality. Regarding instrumentation, the study employs a questionnaire as the primary data collection tool, mirroring the methodology

utilized by Ben Fafa and Meriah (2025), Qurbaj et al. (2025), Balogh (2024), Manea (2024), and Kanyemba et al.(2023) .

2. Contributions of Previous Literature

The reviewed literature has significantly enriched the theoretical framework of this study, providing profound philosophical and technical insights into AI integration. Moreover, these studies facilitated the identification of methodological procedures, the construction of the research instrument, and provided a robust basis for the support and interpretation of the empirical findings.

3. Originality and Research Gap (Distinctiveness)

In contrast to previous research, the current study is distinguished by its specific spatial and temporal boundaries. It uniquely addresses the role of AI applications in developing research quality among students at the National Higher School of Political Science in Algeria. This specific research community possesses unique academic and methodological characteristics that diverge from the populations examined in previous studies, thereby addressing a localized gap in the political science scholarly landscape.

The following section presents the methodology and procedures adopted in this study:

1. Research Design (Methodology)

This study employs a descriptive-analytical approach, as it is the most suitable framework for achieving the research objectives and addressing the core problem. This methodology facilitates the systematic collection of qualitative data regarding the research phenomena, which is subsequently converted into quantitative data for statistical analysis and interpretation.

2. Study Population

The target population consists of undergraduate and postgraduate students at the National Higher School of Political Science (ENSSP) in Algeria. The population encompasses all academic levels, including Preparatory, Master's, and Doctoral programs, with a total student body exceeding 500 individuals.

3. Sampling Technique and Size

A sample of 200 students was selected from the total population of students enrolled at the National Higher School of Political Science. The sample included students from different academic levels (Preparatory, Master's, and Doctoral programs). This proportion ensures that the sample is statistically representative and enhances the generalizability of the findings to the broader research community.

The sampling process followed a two-stage technique:

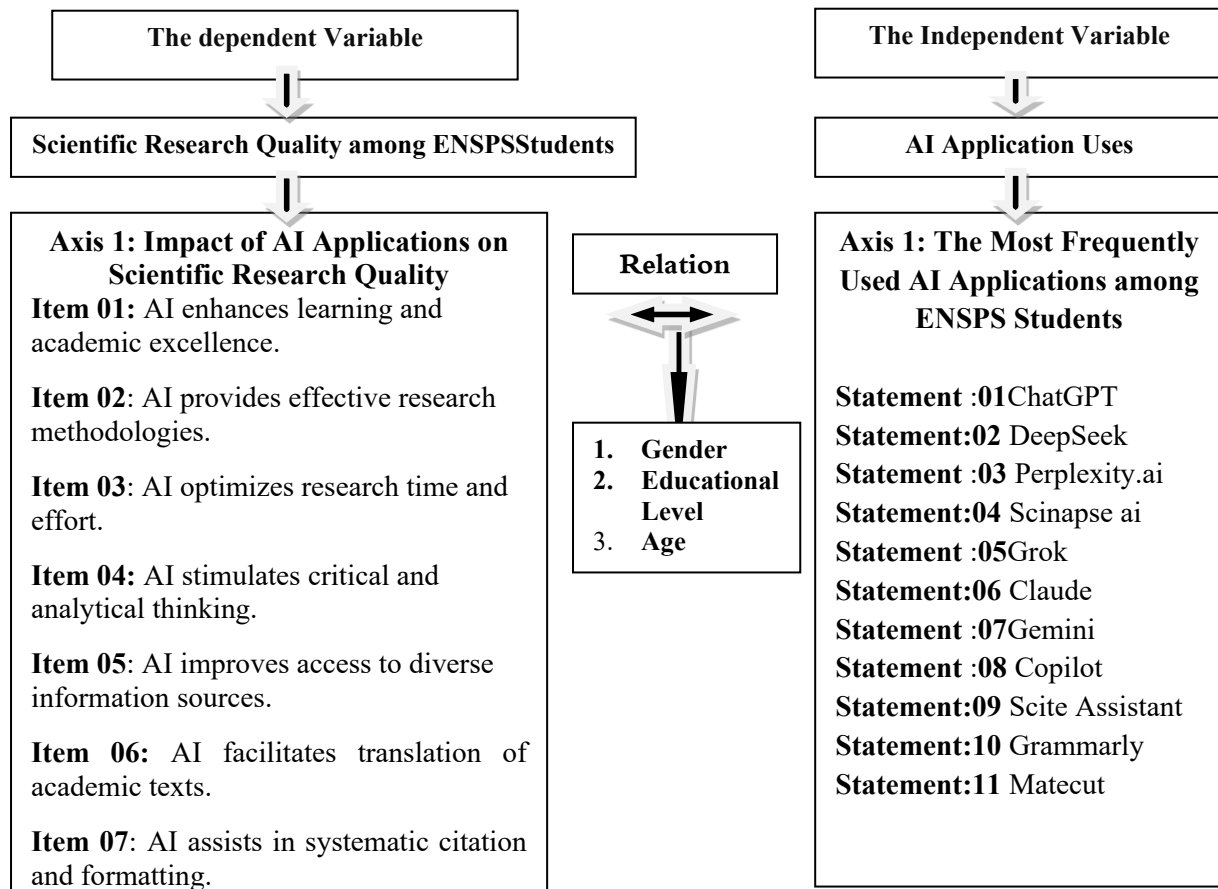
Purposive Selection: The study was specifically delimited to students of the National Higher School of Political Science to ensure specialized insights into this academic environment.

Random Selection: Within this specific institutional framework, individual respondents were chosen randomly to minimize bias and ensure an objective distribution of the research instrument (the questionnaire).

Section I: Descriptive Statistics and Variables Framework

1- Research Model Design (Conceptual Framework): At this stage, the researchers define the structural framework of the study by identifying the relationship between the Independent Variable (IV) and the Dependent Variable (DV). The conceptual model is typically structured as follows:

Figure (01): The Conceptual Framework of the Study



3. Research Hypotheses Main Hypothesis (SH_1\$):

There are statistically significant differences at the significance level ($\alpha = 0.01$) in the respondents' scores regarding the use of AI applications to enhance scientific research quality among students at the National Higher School of Political Science (ENSPS) in Algeria.

Sample Demographic Characteristics

Table (02): Total Sample Size and Distribution

Number	Statistics
200	Valid Cases
0	Missing Values

The table indicates that the study sample consists of 200 students from the National Higher School of Political Science (ENSPS) in Algeria.

Table (03): Distribution of the Sample by Gender

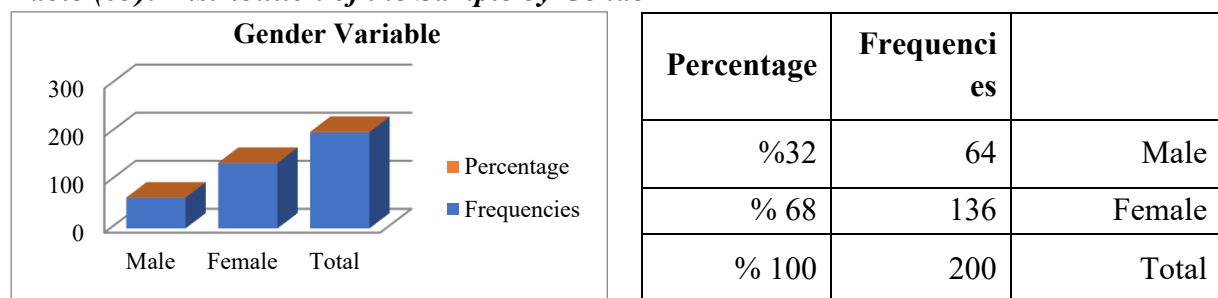


Table (03) and the charts indicate that 54.5% of the sample are Master's students, 37% are in the Preparatory cycle, and 8.5% are PhD researchers. The Master's students constitute over half of the sample, primarily due to the competitive selection process (Concours) which attracts candidates from across Algeria. Conversely, the smaller proportion of PhD students reflects the limited and elite nature of doctoral positions. In short, Master's students due to the school's competitive admission policies dominate the samp

Table (04): Distribution of the Study Sample by Age Variable

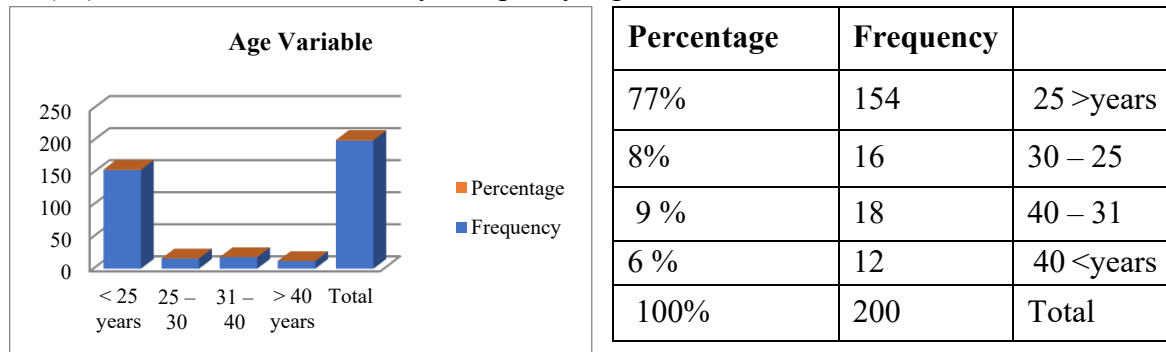


Table (04) and the corresponding charts indicate that 77% of the study sample are under 25 years of age. This is primarily attributed to the fact that the school mainly recruits baccalaureate holders, who are typically between 17 and 18 years old. Conversely, 09% of the sample fall within the (31–40) age group, while 08% are aged between (25–30). Finally, only 06% of the participants are over 40 years old, representing a marginal proportion compared to other categories. These convergent percentages are because these age groups joined the school through various competitive examinations (Concours), such as Master's or Doctoral programs.

Section II: Analyzing the Correlation Between Study Variables Using SPSS Measurement Tools

1) Calculating Cronbach's Alpha Coefficient: This test is employed to assess the reliability and stability of the measurement instrument by examining the correlation coefficient to ensure the internal consistency of the questionnaire's dimensions. The value of Cronbach's Alpha ranges from (0) to (1). A value below (0.60) indicates poor reliability, whereas as the value approaches (1.00), the degree of the questionnaire's reliability and stability increases.

Table (05): Cronbach's Alpha Reliability Coefficients for All Questionnaire Items (Student Survey)

ReliabilityStatistics	
Cronbach's Alpha	Number of Items
0,962	200

The results yielded a Cronbach's Alpha coefficient of 0.962, indicating an exceptionally high level of reliability. This score implies that if the instrument were readministered to the same sample under similar conditions, it would produce consistent results with a 96% reliability rate. Such a high value confirms the internal consistency of the questionnaire items and validates the stability of the research instrument for further analysis.

1. Validity: It is further divided into Internal Consistency Validity and Construct Validity

1. Internal Consistency Validity: This is determined by calculating the correlation between individual items and their respective dimensions, utilizing the Pearson Correlation Coefficient.

After adjusting the table, we obtain the following three cases

- One Asterisk (*): Indicates the item is significantly consistent with its dimension at the 0.05 level.
- Two Asterisks (**): ** indicates the item is highly consistent with its dimension at the 0.01 level.
- No Asterisks: Indicates a lack of statistical consistency. In this case, the researcher must either exclude or modify these items.

Internal Consistency Validity of the Independent Variable: Uses of Artificial Intelligence (AI) Applications"

"In this section, the internal consistency of the independent variable (Uses of AI Applications) will be examined. Subsequently, the findings will be discussed in light of previous studies, as illustrated in the following two tables.

Table (06): Pearson Correlation Coefficients Between Individual Items of Axis 1 (Most Frequently Used AI Applications Among Students at the National Higher School of Political Science) and the Total Score of Axis 1

Axis 1: Student Usage of AI Applications at the NHSSPS		Pearson Correlation (Sr\$)
Probability Value	Correlation Coefficient	Axis 1 Statements: Prevailing AI Applications among NHSSPS Students
0,000	0,351**	Statement :01 ChatGpt
0,000	0,530**	Statement:02 DeepSeek
0,000	0,563**	Statement :03 Perplexity.ai
0,000	0,776**	Statement:04 Scinapse ai
0,000	0,669**	Statement :05 Grok
0,000	0,710**	Statement:06 Claude
0,000	0,632**	Statement :07 Gemini
0,000	0,721**	Statement :08 Copilot
0,000	0,693**	Statement:09 Scite Assistant
0,000	0,753**	Statement:10 Grammarly
0,000	0,726**	Statement:11 Matecut
** The correlation is significant at the 0.01 level (two-tailed)		

This table illustrates the correlation coefficients between each item of the independent variable axis (AI Applications Most Frequently Used by Students at the NHSSPS) and the total score of the dimension. The results indicate that the correlation coefficients are statistically significant at the 0.01 level, demonstrating a high degree of internal consistency between each item and its respective dimension. Consequently, based on the findings presented in Table (06), the results

for the independent variable will be discussed in light of previous literature, as detailed in the following table.

Table (07): Results of the Independent Variable (AI Applications Most Frequently Used by Students at the National Higher School of Political Science)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Statements
%36,5	%48,5	%5	%3,5	%6,5	Statement: 01 ChatGPT
%14,5	%32	%37,5	%7	%9	Statement:02 DeepSeek
%10	%26	%43	%13,5	%7,5	Statement :03 Perplexity.ai
%4	%11,5	%57,5	%14,5	%12,5	Statement:04 Scinapse ai
%1,5	%10	%62	%12	%14	Statement :05Grok
%5	%14	%59	%10,5	%11,5	Statement:06 Claude
%16	%38,5	%29	%5,5	%11	Statement :07 Gemini
%9,5	%17,5	%50,5	%11,5	%11	Statement :08 Copilot
%3,5	%11,5	%63,5	%9,5	%12	Statement:09 Scite Assistant
%4	%23	%54	%7	%12	Statement:10 Grammarly
%2,5	%10,5	%60,5	%11,5	%15	Statement:11 Matecut

Analysis of the Independent Variable: AI Application Usage Among NHSSPS Students

1. Prevalence and Usage Patterns

The analysis of the independent variable (AI Application Usage) reveals that the majority of the sample confirmed using AI tools to varying degrees. ChatGPT emerged as the most dominant application, with a combined agreement rate of 85% (48.5% "Agree" and 36.5% "Strongly Agree"). This was followed by Gemini (38.5%), DeepSeek (32%), Perplexity.ai (26%), and Grammarly.(%23)

2. Discussion and Theoretical Context

The high adoption rate of these specific tools is attributed to their pivotal role in streamlining academic research and thesis preparation. This trend is particularly evident among English-language cohorts and PhD candidates at the National Higher School of Political Science (NHSSPS), who utilize these applications as linguistic development tools and research assistants. These findings align with Bailey (2024) and are further supported by Nasrullah (2024) and Albanyan (2025), whose studies demonstrated a significant positive correlation between AI integration and the enhancement of academic performance and research skills.

3. Comparative Analysis with Previous Literature

While there is a global consensus on the utility of AI, the specific preferences of the NHSSPS sample differ from other contexts. For instance, whereas Kanyemba (2023) found that students in Zambia frequently utilized Turnitin (3.6%) and Matlab (1.8%), the current study shows a distinct preference for generative and search-based AI. However, both studies converge on the widespread dominance of ChatGPT, highlighting its global effectiveness in providing specialized academic services.

4. Barriers to Adoption and Neutral Responses

Conversely, a significant portion of the sample expressed "Neutral" attitudes toward several other applications, such as Scite Assistant (63%), Grok (62%), and Claude (59%). This indicates limited usage caused by several critical barriers:

Cognitive Barriers: Lack of awareness or technical familiarity with these tools.

Financial Constraints: High subscription fees that exceed students' financial capacities.

Infrastructure Issues: Limited access to high-end smart devices and stable internet connectivity.

These results corroborate the findings of Al-Atoum (2023), which emphasized the urgent need for fostering an AI-supportive culture and investing in digital infrastructure within higher education. Similarly, they echo Kanyemba (2023) regarding the challenges of high costs and the lack of specialized training.

Internal Consistency Validity of the Dependent Variable: Scientific Research Quality Among NHSSPS Students.

In this section, the internal consistency of the dependent variable (Scientific Research Quality among Students at the National Higher School of Political Science) will be examined. Subsequently, the findings will be discussed in light of previous studies, as illustrated in the following two tables.

Table (08): Pearson Correlation Coefficients Between Individual Items of Axis 2 (The Role of AI Applications in Scientific Research Quality Among Students at the NHSSPS) and the Total Score of Axis 2

Axis 2: The Role of AI Applications in Scientific Research Quality Among Students at the NHSSPS)		Correlation
Probability Value	Corrélation Coefficient	Axis 02: The Role of AI Applications in Scientific Research Quality Among Students at the NHSSPS
0,000	0,669**	Item 01 AI applications enhance students' learning and drive their efforts toward academic excellence
0,000	0,687**	Item 02 AI applications provide students with effective methods and smart methodologies for problem-solving and scientific research preparation.
0,000	0,573**	Item 03 AI helps students save time and effort in completing their research projects.
0,000	0,619**	Item 04 AI applications stimulate students' critical thinking and intelligent data analysis skills
0,000	0,596**	Item 05 AI increases students' ability to access a vast amount of information from diverse references.
0,000	0,485**	Item 06 AI applications are utilized for translating texts and various research materials.

0,000	0,604**	Item 07 AI applications assist in organizing citations and referencing according to proper methodological standards.
**. Note: ** Correlation is significant at the 0.01 level (2-tailed).		

This table illustrates the correlation coefficients between each item of the dependent variable axis (The Role of AI Applications in Scientific Research Quality Among Students at the NHSSPS) and the total score of the axis. The results indicate that the correlation coefficients are statistically significant at the 0.01 level, demonstrating a high degree of internal consistency between each item and its respective dimension. Consequently, based on the findings presented in Table (08), the results for the dependent variable will be discussed in light of previous literature.

Table (09): Results of the Dependent Variable (The Role of AI Applications in Scientific Research Quality Among Students at the National Higher School of Political Science in Algeria)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Statements
%15,5	%44,5	%16	%16	%8	Item 01 AI applications enhance student learning and boost their efforts toward academic excellence
%16,5	%45,5	%17,5	%14	%6,5	Item 02 AI applications provide students with effective methods and smart methodologies for problem-solving and research preparation
%33	%46	%11	%7	%3	Item 03 Artificial Intelligence assists students in saving time and effort during the research process
%7	%20,5	%22,5	%33	%17	Item 04 AI applications stimulate students' critical thinking and intelligent analytical skill
%29	%43,5	%13,5	%11	%3	Item 05 AI increases students' capacity to retrieve extensive information from diverse academic references
%30	%51	%11,5	%5,5	%2	Item 06 AI applications are utilized for translating texts and various types of research material
%14,5	%30	%25	%17,5	%13	Item 07 AI applications assist in organizing citations and referencing according to proper methodological standards.

Analysis of the Dependent Variable: The Role of AI in Scientific Research Quality:

1. Dominant Uses: Translation and Efficiency

The analysis of Table (09) reveals that over half of the respondents (51%) utilize AI applications for translating texts and research materials. This high percentage is attributed to the English-language curriculum at the NHSSPS, where students rely on these tools to overcome linguistic barriers in their research. These findings align with BenFafa&Merbah (2024), who argue that AI is a pivotal tool for student translations, provided it is used responsibly to maintain research integrity.

Furthermore, a significant proportion of students 46% "Agree" and 33% "Strongly Agree" confirmed that AI minimizes time and effort. This shift reflects a transition from traditional library-based research to digital and smart environments. This result corroborates the study of Guerbah et al. (2025), which concluded that AI's effectiveness in scientific research stems from its ability to optimize time and accuracy, particularly in translation and paraphrasing.

2. Academic Performance and Methodology

Consistent results (45.5%, 44.5%, and 43.5% respectively) indicate that students believe AI provides smart methodologies for problem-solving and academic excellence. These tools facilitate access to vast reference databases, supporting the findings of Nasrullah (2024) and Abdel Aziz Taha (2024) regarding the role of AI in creating specialized research environments. Similarly, Balogh (2024) and Shehata Eid (2024) emphasized that AI enhances personalized academic support and guides researchers toward focused research paths and improved data retrieval.

3. Methodological and Cognitive Limitations

Conversely, the lowest agreement rate (30%) was observed regarding AI's role in organizing citations and referencing. This suggests that students still rely heavily on traditional methodological manuals for documentation.

More significantly, only 20% of respondents believe that AI stimulates critical and analytical thinking, while 33% expressed disagreement. This indicates that students primarily view AI as a functional tool for task completion and translation rather than a cognitive stimulant. This finding supports Bailey (2024), who maintains that self-directed learning rather than AI is the primary driver of critical thinking. However, this result diverges from Al-Houshi& Al-Houshi (2024), who argue that AI is capable of fostering interactive environments that encourage constructive critical thinking

2. Construct Validity

This refers to calculating the correlation coefficients between the individual axes (dimensions) and the total score of the questionnaire as a whole. Here, we analyze the following:

Table (10): Correlation Coefficients Between the Axes (Independent and Dependent) and the Overall Questionnaire Score

Over all Questionnaire Dimension / Scale		Correlation
Probability Value	Correlation Coefficient (r)	

0,000	0,896**	Axis 01: The Most Frequently Used AI Applications Among NHSSPS Students
0,000	0,743**	Axis 02: The Role of AI Applications in Scientific Research Quality Among Students at the National Higher School of Political Science in Algeria.
**. The correlation is significant at the 0.01 level (two-tailed).		

The table indicates that both axes exhibit a strong, positive, and statistically significant correlation with the overall questionnaire scale. The significance levels (p -values) are not only below the 0.05 threshold but are also lower than the 0.01 level ($\alpha < 0.01$). These results confirm the existence of robust construct validity between the individual axes and the questionnaire as a whole.

Model Estimation: It refers to determining the general functional form of the relationship that links the dependent variable to the independent variable.

Table (11) : Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std.Error of the Estimate
1	0,370 ^a	0,137	0,132	4,35
b. Predictors: (Constant), Independent Variable: AI Application Usage				

The table shows that the coefficient of determination (R^2) is 0.13, indicating that the use of AI applications explains approximately 13.7% of the variance in scientific research quality among NHSSPS students. This relatively low percentage suggests that the reliance on these applications to enhance research quality is still in its early stages at the school.

Table (12): ANOVA Test for the Main Hypothesis

ANOVA ^a					
Model	Sum of Squares	Degrees of Freedom (df)	Mean Square (MS)	F	Sig.
Regression	594,390	1	594,390	31,348	0,000 b
Residual	3754,230	198	18,961		
Total	4348,620	199			
a. Dependent Variable: Scientific Research Quality among students at the National Higher School of Political Science in Algeria.					
b. Predictors: (Constant), Uses of Artificial Intelligence Applications.					

Based on the ANOVA test results in the table above, it is evident that there is a statistically significant effect ($p < 0.05$). Consequently, we accept the alternative hypothesis (H_1) and reject the null hypothesis (H_0). This confirms the validity of the main research hypothesis

. Table (13): Model Estimation Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta (β)		
1	(Constant)	16,280	1,523		10,690	0,003
	The Independent Variable: Uses of Artificial Intelligence Applications	0,245	0,044	0,370	5,599	0,000
a. Dependent Variable: Scientific Research Quality among students of the National Higher School of Political Science in Algeria.						

The model is expressed in the following form:

The model estimation results reveal that the constant value is (16.28), representing the baseline level of research quality in the absence of AI application usage. The regression coefficient (β) is (0.245), indicating that for every one-unit increase in the use of AI applications, the quality of scientific research among students improves by 0.245 units. The positive sign of the coefficient confirms a direct and statistically significant relationship between the two variables.

Regarding AI and the quality of scientific research among students of the National Higher School of Political Science (NHSSPS), the results showed that while the independent variable's statistical significance was very high, its quantitative impact remained weak. This can likely be attributed to the fact that the use of AI applications for scientific research purposes among these students is still in its early stages.

Statistical Interpretation of Model Fit ($R^2 = 0.137$): The empirical findings reveal that the coefficient of determination ($R^2 = 0.137$) is statistically significant ($p < 0.01$), confirming that AI application usage directly accounts for approximately 13.7% of the variance in perceived scientific research quality among ENSPS students. Although this quantitative impact appears modest, it highlights two critical academic realities: First, AI integration within Algerian political science scholarship is still in its early adoptive phase, primarily serving functional auxiliary tasks such as text translation and basic literature querying. Second, the remaining variance (86.3%) confirms that fundamental research quality remains overwhelmingly driven by traditional academic competencies—namely, critical thinking, analytical rigor, methodological guidance from faculty advisors, and direct engagement with core theoretical frameworks.

Conclusion:

In conclusion, this study demonstrates that Artificial Intelligence (AI) applications have sparked a global revolution across various sectors. Within the framework of academic research, this study aimed to shed light on the role of AI applications in enhancing the quality of scientific research in Algeria, focusing on students at the National Higher School of Political Science (NHSSPS). The study reached several key findings, notably:

- **Demographic Profile:** Female students represent a larger proportion of the sample at the school compared to males.
- **Age Distribution:** The majority of the study sample consists of individuals under the age of 25.
- **Educational Attainment:** The highest percentage of respondents hold a Master's degree level.
- **AI Usage Patterns:** The use of AI applications among the sample is limited to specific tools rather than the entire technological spectrum, with ChatGPT emerging as the most widely used application by far.
- **Impact on Research Quality:** The role of AI application usage accounts for approximately 13.7% of the variance in students' perceived scientific research quality, indicating that AI represents one contributing factor among several factors affecting research quality. This indicates that research quality is influenced by a multitude of other variables beyond AI integration.

Recommendations :Based on the aforementioned results, the study proposes the following recommendations:

- **Promoting AI Integration:** Actively encourage the use of AI applications among university students to enhance their research skills and expand their cognitive capabilities.
- **Specialized Training Workshops:** Organize targeted training sessions for students on the ethical and technical use of AI applications, ensuring they remain updated with rapid technological advancements.
- **Future Research Directions:** Conduct further extensive studies on students' usage patterns to gain deeper insights into their digital culture and inclinations toward AI tools, as well as their long-term effectiveness in improving the caliber of scientific output.

Disclosure Statement:

- **Ethical approval and consent to participate:** The study involved human participants through an electronic questionnaire. Participation was voluntary, and respondents' confidentiality and anonymity were maintained.
- **Availability of data and materials:** The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.
- **Author contributions:**
- All authors contributed to the work and approved the final version for publication. The authors worked collaboratively and in an organized manner. Researcher 1 prepared the research plan and conducted the analysis and discussion of the study results. Researcher 2 reviewed the previous studies and theoretical concepts related to the research topic. Researcher 3 verified the study results and conducted a comprehensive review of the manuscript.
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