

## The Role of Chat GPT Application in Digitizing Education and Improving the Cognitive Image of the University Research

Radja HASNAOUI<sup>1</sup> 

<sup>1</sup>Tebessa University, Algeria

Received: 25 / 07 / 2024

Accepted: 15 / 09 / 2024

Published: 30 / 09 / 2024

### Abstract

Artificial Intelligence is the new digital boom that seeks to integrate machines and applications within the perspective of simulating human mental capabilities and their modes of work. Therefore, Artificial Intelligence has developed several applications that seek to impose its scientific entity within the field of scientific and university research and the quality of the ideas it formulates. Chat GPT is considered One of those intelligent applications. This research aims to identify its role and contributions to the digitization of education and improve the quality of the cognitive image of university research, which reflects a positive image of the capabilities of the academic researcher. The researcher relied on a questionnaire as the main tool to collect data. Data were collected from 60 researchers from different Algerian Universities following a purposive sampling. The findings revealed that Chat applications are among the most important applications used to improve the cognitive, and mental image of university research and the skills of the university researcher in several specializations and different levels.

**Keywords:** Artificial Intelligence, Chat GPT, cognitive image, education digitization, university research

### ملخص

يعد الذكاء الاصطناعي هو الطفرة الرقمية الجديدة التي تسعى إلى دمج الآلات والتطبيقات ضمن منظور محاكاة القدرات الذهنية البشرية وأساليب عملها، لذلك طور هذا الذكاء الاصطناعي عدة تطبيقات تسعى إلى فرض كيانها العلمي ضمن مجال الأبحاث العلمية والجامعية وجودة الأفكار التي يصوغها، ويعد Chat Gpt أحد تلك التطبيقات الذكائية، ويهدف هذا البحث إلى التعرف على دوره ومساهماته في رقمنة التعليم وتحسين جودة الصورة المعرفية للبحث الجامعي والتي تعكس صورة إيجابية لقدرات الباحث الأكاديمي، وقد تم الاعتماد على الاستبانة كأداة رئيسة في جمع البيانات من 60 باحث من مختلف الجامعات الجزائرية بعد أخذ عينة قصدية، وقد كشفت النتائج أن تطبيق " Chat GPT " من أهم التطبيقات المستخدمة في تحسين الصورة المعرفية والعقلية للبحث الجامعية ومهارات الباحث الجامعي في عدة تخصصات ومستويات مختلفة.

**الكلمات المفتاحية:** الذكاء الاصطناعي، شات جي بي تي، البحوث الجامعية، رقمنة التعليم، الباحث الجامعي.

Email: [radja.hasnaoui@univ-tebessa.dz](mailto:radja.hasnaoui@univ-tebessa.dz)

## Introduction

Artificial Intelligence (AI) is the modern approach widely adopted in many countries around the world due to its various fields that mimic human cognitive abilities, this has made it a digital breakthrough in the world of technology, culture and knowledge.

It has also contributed to presenting its applications as creative methods and techniques that increase the quality of several fields including the field of artificial intelligence and University scientific research field and academic research as it encourages self-learning beyond traditional classroom settings by offering interactive features that foster the generation of ideas and providing relevant sources.

In addition to their diverse applications, artificial intelligence tools like Chat GPT offer interactive idea generation and core source identification. These tools are crucial in education, enhancing the creative and cognitive abilities of university researchers and positively impacting their approach to scientific research and intellectual development. Notable improvements in areas such as language proficiency and academic thinking are evident, supported by the data and expertise provided by modern technology.

The importance of this study lies in exploring how artificial intelligence is transforming higher education, particularly with the growing shift towards digitalization. Digitalization plays a fundamental role in improving the learning process, facilitating digital knowledge acquisition among students, and enhancing university infrastructure by expediting the accurate and efficient exchange of information. Additionally, these transformations are vital for advancing the quality of academic research across various disciplines.

This study aims to uncover the extent to which Chat GPT applications contribute to enhancing the quality of university research and improving researchers' cognitive abilities. It also seeks to understand the impact of these applications on the cognitive and linguistic aspects of university research. Consequently, the research problem focuses on:

- What role does Chat GPT play in improving the cognitive aspects of university research?

To answer this research problem, the following research questions arise:

- How does Chat GPT contribute to the development of the cognitive aspects of university research?
- What impact does Chat GPT have on the linguistic learning of researchers and university research?"

## Literature Review

The study by Barakah (2024) focused on exploring the potential of artificial intelligence in enhancing e-learning in higher education. It emphasized AI's role in education, its key algorithms, and application areas to improve e-learning, as well as the challenges of implementing AI in higher education. The study concluded that AI contributes to supporting and improving e-learning in higher education by analyzing student data and predicting performance, intervening in real-time to assist students at risk of failure, providing automatic evaluation of large datasets with accuracy and reliability, and offering immediate feedback. Additionally, AI creates an intelligent learning environment that facilitates teaching in higher

education. However, the adoption of AI presents several challenges that need to be addressed for its effective implementation.

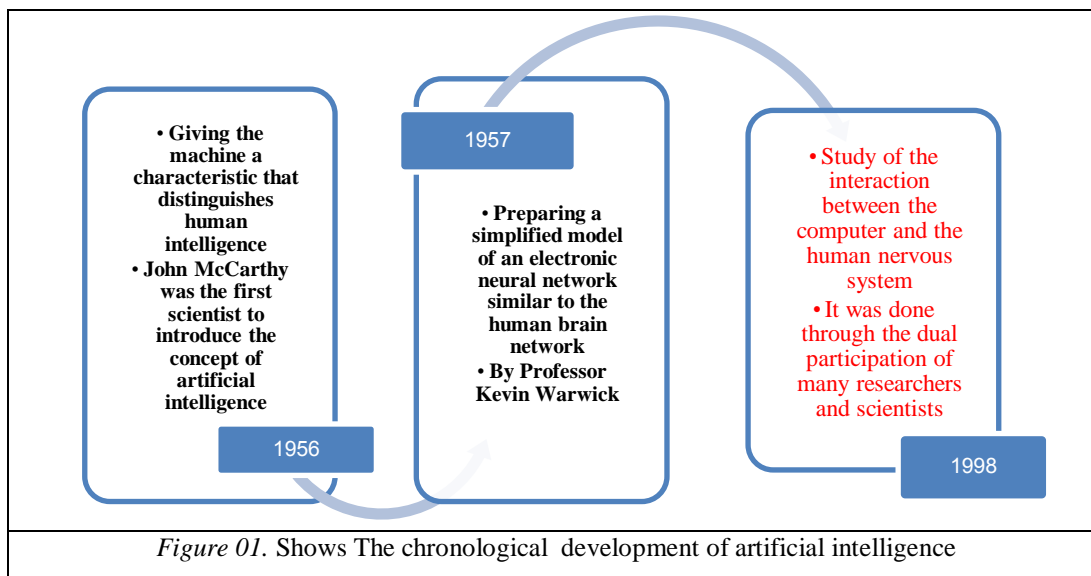
The study by Sefra and Lalaoui (2024) investigated the role of artificial intelligence in improving startups in Algeria. It examines the various models and areas of AI applications within these startups, along with the anticipated impacts and future prospects of such use. The findings reveal that many new economic entities are turning to these new AI technologies to find practical solutions to their managerial challenges and to open up to the national market through the production and presentation of innovative solutions. Key applications of AI include the education sector, through the development of unique technological learning techniques; the healthcare sector, with advancements in health technologies; the environmental sector, including forest fire prevention; agriculture; and financial and electronic payment sectors. This trend reflects a global shift towards using AI to address various problems faced by individuals and societies, particularly in economic domains.

The study by Waled Said and Medouri (2024) aimed to understand the role of potential artificial intelligence applications in enhancing mental knowledge management processes, and its impact on improving productivity and efficiency, as well as exploring associated challenges and risks. The research highlights various strategies for applying AI and its effects on developing knowledge management processes, including knowledge creation, storage and retrieval, sharing, and application. It discusses the ethics related to these potential applications and their economic and social impacts. The study illustrates how AI applications can improve managerial decisions by enhancing knowledge management processes. The findings emphasize the effective role of AI applications in building a partnership between human elements and artificial intelligence to support knowledge management activities in organizations, suggesting future prospects for the effective practice of AI.

### ***The Emergence of Artificial Intelligence***

AI is the product of 2,000 years of traditions of philosophy, theories of perception and learning, and 400 years of mathematics that led to the possession of theories in logic, probability, and computation. It is a deep history in the development of psychology and what was revealed about the capabilities and workings of the human brain. In addition, artificial intelligence is the result of efforts The painstaking work in linguistics revealed the structure and meanings of language and the development of computer science and its applications, which made artificial intelligence a real reality(Othmaniya, 2019, p. 22).

The term AI dates back to the researcher John McCarthy in 1956 when his works and the work of scientists focused on how to give machines the characteristics of human intelligence. The first attempt to build an intelligent machine that can imitate and simulate the human mind was by the scientist Frank Rosenblatt in 1957, while Professor Kevin Warwick, a professor of... Automated control at the British University of Reading in 1998 studied the extent to which the computer and the human nervous system interacted by implanting an electronic chip in his arm and connecting it wirelessly to the computer. In the middle of the 20th century, artificial intelligence research witnessed progress at the level of digital computers(Magdy, 2020, pp. 5-6).



## ***Fields of Artificial Intelligence***

### ***Expert Systems***

Incorporating human experience acquired in a specific field into computer programs is one of the most important areas of artificial intelligence, to arrive at a program that can give advice in a specific field, analyze data, consult, or diagnose.

### ***Natural Language Processing***

It seeks to understand natural languages to teach the computer commands directly in this language thus enabling the computer to converse with people by answering specific questions (Blaidi, 2015, p. 14).

### ***Robot***

It is an electrical and mechanical machine that receives commands from its computer and performs certain actions.

### ***Education***

An attempt to benefit from computer capabilities in the field of education. Education and training can be defined by using artificial intelligence from assumptions and axioms to produce educational and training programs capable of interacting and dialogue with the student and his environment.

### ***Games***

Programs have been developed that are capable of competing in chess and magic squares games, and use technical methods to search for the best move from among a variety of possible moves according to research and deduction algorithms that make the computer a match that mimics the human mentality and is also difficult to overcome (Blaidi, 2015, p. 14).

## ***Characteristics of Artificial Intelligence***

The latter is characterized by many characteristics, the most important of which are: The ability to think and perceive, and the ability to acquire and apply knowledge, in addition to the ability to learn and understand from previous experiences and experiences, and to respond quickly to new situations and circumstances, ending with determining the ability to distinguish the relative importance of the elements of the presented cases in addition to providing information and assigning it to administrative decisions (Al-Najjar, 2010).

## ***Fields of Artificial Intelligence***

The fields of artificial intelligence focus their attention on solving real-world problems

in which we live, which include:

- Intelligent computer-assisted education: The topic of computer-assisted education is considered one of the early topics in which computers were used more than 25 years ago. Education topics covered different horizons, including subjects (Al-Husseini & Sunnah, 2010, p. 151).

Traditional academic studies such as arithmetic, sports, and languages, including computer science topics: its equipment and use, including game programs that aim to develop mental skills and abilities in general.

Making decisions with the help of a computer: Artificial intelligence gives the computer the ability to develop a plan to solve a problem by programming the computer itself. There is no doubt that it is also possible to develop plans to solve life's problems, or at least to help people solve problems (Al-Husseini & Sunnah, 2010, p. 151).

### ***The Digitization of Education and its Traditional of Artificial Intelligence in Educational and University Institutions***

#### ***Digital Transformation of Education and the Role of AI in Academic Institutions***

AI in education refers to the use of modern technologies and digital means to improve the learning process and provide a sophisticated and innovative educational environment. This transformation includes the use of smart devices, educational applications, interactive digital content, distance education and augmented reality technologies. Major global events, especially conflict and crisis events, confirm that The debate taking place today about the call to change, improve, or develop curricula in Islamic societies does not deviate from this objective truth, the actual results of which we have seen glaring in the behavior of the West, which affected ideology and education (Al-Daghashi, 2017, pp. 16- 20). The issue of legitimate educational curricula and the extent of their contribution to creating several concepts, including internal and external violence and extremism, was addressed. Given what has been done according to different periods, changing the curriculum is a change for the better, as well as a change for the worse, and it may sometimes happen by human will. Based on objective requirements, and because of the size of the media aura and the focus of the various means of communication and their continuous and successive methods on the string of Sharia decisions and calling for their improvement, change, development, or similar reforms, which focus on the fact that improving the curriculum is a change in certain aspects of it, not a necessity to change the concepts. The basic aspects of it or its system (Al-Daghashi, 2017, pp. 16- 20).

#### ***Chat Gpt's Impact on Scientific Research, Digitization, and Education***

Scientific research is one of the organized intellectual processes carried out by a person called a researcher, to investigate facts related to a specific issue or problem called the subject of the research, by following an organized scientific method called the research method, to arrive at appropriate solutions to the problem or results suitable for generalization to similar problems, called research results (Sadiq, 2014, p. 33).

Therefore, given the progress and development that the world has become, which has dominated all areas and fields of learning and daily life, developing science using technological applications has become among the most important reasons that allow the flow of information and facilitate its access, as the chat GPT application is among the most important applications approved in the field of university scientific research, where Incorporating this technique corrects the linguistic errors facing the researcher from a literary standpoint, in addition to searching for the information and its source simply and skillfully (Shamsi, 2024).

### ***Digitization and Education***

Education is defined as It is the science that seeks to discover the laws that govern the phenomenon of change in the behavior of individuals. Teaching and learning are an intended and unintended process. Education is a technology, meaning it is the application and employment of what science has revealed in life situations (Al-Ghoubqi, 2019, p. 02), and digitalization contributes to Searching for highly efficient methods based on enhancing the teaching process on the one hand and educational administration on the other hand, to achieve its pedagogical and educational goals, and enable the student to be more active within the educational classroom. It is among the issues most discussed by those involved in educational research, because of the method of the ability and competence to direct the individual's behavior towards the goal. It also represents a significant figure in the equation of transferring information on the one hand and in making the person in charge of the pedagogical educational process control its progress in a planned manner. The use of digitization as a support for the educational process is considered one of the recommended practices in the school environment by the pedagogical body, as studies have revealed that the use of Digitization within the educational classroom has a positive impact on education and the learning process alike, and therefore its use has become necessary in the field of the educational process (Abu Hamida, 2017).

### ***Condition for Using Artificial Intelligence Techniques in University Educational Administration***

To implement digital management, many and varied requirements must be met, the most important of which are the following:

- Conviction and support of the facility's senior management: The facility's officials must have complete conviction and a clear vision to convert all paper transactions to electronic to provide full support and capabilities necessary for the transition to electronic management.
- Training and qualifying employees: The employee is the essential element for the transition to digital management, so employees must be trained and qualified to complete work through the available electronic means. This requires holding training courses for employees or qualifying them on the job (Alian, 2012).

Documenting and developing work procedures: It is necessary to document all procedures and develop old ones to be compatible with the intensity of work and provide the infrastructure for digital management: Infrastructure means the tangible aspect of electronic management, such as securing computers, connecting fast computer networks and the devices attached to them, and providing means of Modern communication and providing technical requirements: which includes forming periodic committees to maintain devices and overcome difficulties in technological applications and programs. Providing security applications to protect information, data, and the privacy of each school, ending with human requirements: through qualifying and training digital administration users in school institutions, so that there is no cultural alienation among school principals from their digital school administrative reality (Alian, 2012).

### ***Goals of University Education through the Integration of AI Applications***

- Planning or trying to control the future and direct it towards the desired goals by making decisions based on accurate estimates of the potential results of carrying out

certain actions, as well as providing material and human resources and distributing them to various parties and determining the responsible authorities according to the drawn up and specific plan. In addition, coordination or compatibility between various elements, groups and processes so that they all form an integrated unit of work or purposeful activity (Al-Sayed, 2008).

- Understand human language, and it is considered a virtual assistant used by artificial intelligence in education in various ways, as it contributes to providing feedback, identifying patterns, analyzing data, and translating documents (Jorge, 2023).

## **Methods and Materials**

This study seeks to identify the role played by artificial intelligence applications in digitizing education and improving the quality of the cognitive image of university research, especially the application of "Chat GPT as a popular model in recent years, and its adoption as a tool has become one of the most important facilitators that give scientific research and university education digital quality. Therefore, the descriptive analytical approach was relied upon in this study as it is considered the most appropriate for studying the subject.

### ***Participants***

Like any qualitative and quantitative social topic at the same time, purposive sampling was relied upon as a method of collecting data, which numbered (60) university researchers from the University of Tebessi, the University of Annaba, and the University of Oum El Bouaghi during the academic year 2023/2024. Researchers were selected based on their expertise in fields relevant to the study's topic, ensuring a diversity of academic specializations. The selection process involved identifying key researchers at each university who had experience or interest in the subject being studied.

### ***Research Instruments***

The researcher used a questionnaire to collect data. The aim was to determine the importance and role of Chat GPT in digitizing education and improving university research from the perspective of university students. The structured digital questionnaire was employed as the main tool for data collection. It was distributed in an exploratory digital manner through various digital sources to gather comprehensive information and achieve a broad data set. The questionnaire is divided into three sections:

The first section identifies preliminary data that clarifies the specialization, gender, and level of the sample members and gives an overview of the subject studied. The second section includes the contribution of the Chat Gpt application to improving the cognitive image of university research. The third section sheds light on how to reveal the role of the chat GPT application in improving the linguistic learning image of the researcher and university research.

### ***Research Procedures***

The focus was on the electronic digital distribution of the tool in a short period of time, not exceeding two days, considering that the GPT chat application is one of the applications that is widely used in university circles and that it was recognized through social networking sites. In addition to university students going on academic vacation, the tool was distributed. Through different university groups to generalize our study sample in several specializations and different levels, and this is known from the reasons for the trend to implement actual GBT chat by university researchers.

## Result

### Primary Data

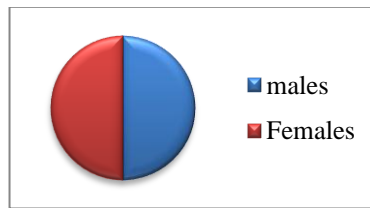


Figure 2. Represents the gender

The figure above shows the researcher relying on a sample of equal sexes, to identify the feature of the Chat GPT application and its role in digitizing education and improving university research from the equal point of view of females and males alike.

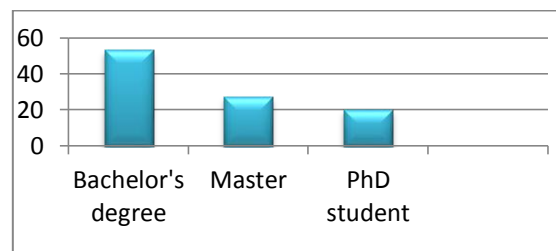


Figure 3. Participants' level

The data in the figure above indicates that the highest percentage, 53%, was represented by bachelor's students, while the corresponding percentage was 27%, which represented master's students, and 20% represented doctoral students. Their low percentage is due to the limited pedagogical seats when enrolling in doctoral seats.

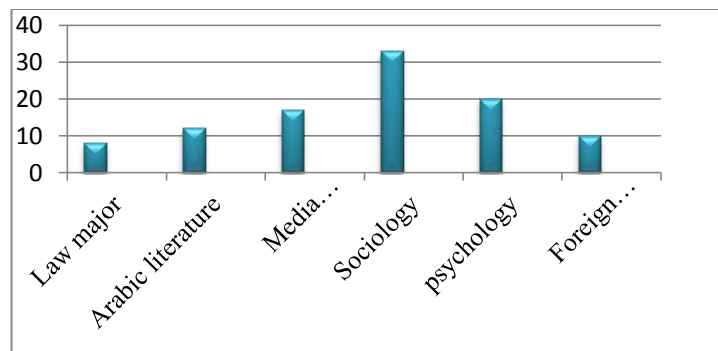


Figure 4. Specialization

The data in the figure above indicates the multiplicity of university specializations, which confirms the advantages of using Chat GPT from various university branches. Despite this, a large percentage, ranging from 33%, represented the percentage of the sociology branch, as it is one of the sciences that includes non-absolute, relative analyses, and is considered a mixture of science, philosophy, and economics.

- How did you know about the chat GPT application?



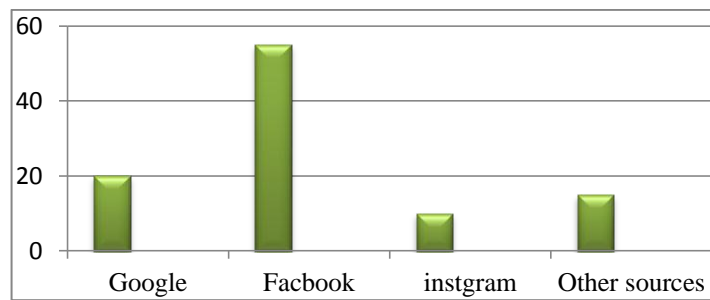


Figure 5. Participants' knowledge about chatGPT

In the table above, 55% indicated that Facebook was one of the primary sources that led to learning about the Chat GBT application, as it is one of the social networking sites that increases the network of both social and intellectual relationships, while the corresponding percentage of 15% obtained Information about the application comes from other sources. Due to its adoption by students, its features are circulated directly, for example in academic and classroom gatherings.

- When did you learn about the chat GPT application?

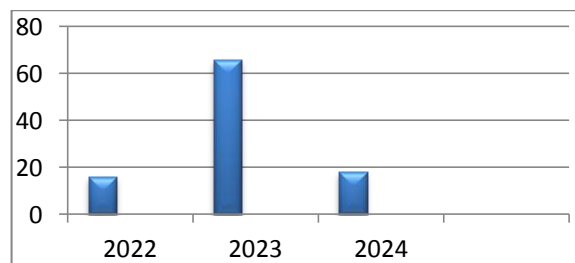


Figure 6. Detection time of the Chat GBT application

The data in the figure above indicate that 66% have discovered the actual use of the GPT Chat application in 2023 as a paid application that is valid for use without fees, while a corresponding percentage of 16% have confirmed their use of the Chat GPT website as a site that has fees that must be paid to use it. Not as a paid app.

- Did you give up using other search engines when learning about the chat GPT application?  
 All members of the selected sample confirmed that they did not dispense with other applications, but many of them were dispensed with and relied on the Chat GPT application as the final application in their university academic work.

***The second Section: Chat GPT's Contribution to Improving the Cognitive Image of the University Research***

This is illustrated through the tables below provision of several notable contributions and clear explanations that help generate relevant content for a deeper understanding of academic work, Additionally, its support in organizing and summarizing data makes it a valuable tool in enhancing the clarity and visibility of university research outputs.

Table 1. *Chat GPT application facilitating the process of obtaining Arabic and foreign references*

the scale	Repetition	%
Yes	34	56,6
No	00	00
Sometimes	26	23,4
The total	60	100

The data in the table above shows that 56.6% confirmed that they obtained foreign and Arab references in the process of preparing university research through the GPT chat application quickly and effectively, which speeds up the process of understanding and soundly preparing the research, while this is matched by 23.4%. She confirmed that she had reached some references through the Chat GPT application, due to the unavailability of the reference itself, which confirms the effectiveness of the application even though it did not provide all the references.

Table 2. *Chat GPT generating ideas in an organized and effective scientific manner*

the scale	Repetition	%
Yes	44	73,33
No	00	00
Sometimes	16	26,66
The total	60	100

The data from the table above indicated that 73% relied on the Chat GPT application to generate ideas in an organized and effective scientific manner, which led to scientifically organizing the idea without the need for other references, while a corresponding percentage of 27% believed that the Chat GPT application was important. Sometimes in organizing some ideas, this may be due to the privatization of the specialization and the inability of the application to analyze or generate many ideas in different university research fields.

Table 3. *Chat GPT and its role in clarifying complex concepts in the field of university research knowledge*

The scale	Repetition	%
Yes	28	46.66
No	08	13,33
Sometimes	24	40
The total	60	100

The data in the table above shows that a percentage of 46.66% confirmed the contribution of the Chat GPT application in clarifying complex concepts in the field of university research knowledge, by creating the term and asking audio or visual questions on the application and asking it to clarify them and explain their source, while the corresponding percentage was 13%. Contrary to the idea of explaining complex concepts from the application itself, it is possible that this category relies on sources other than GPT chat.

Table 4. *Benefits of the Chat GPT application in organizing and managing your ideas and time when preparing your scientific research*

The scale	Repetition	%
Yes	32	53,33
No	08	13,33
Sometimes	20	33,33
The total	60	100

The results of the table above indicate that 53% repeatedly rely on the chat GPT application in organizing and managing ideas and organizing time when preparing university scientific research, which increases the quality of research and increases its quality, while the corresponding percentage of 33% believes that this application has been relied upon in Sometimes as a contributing tool to improving the quality of research, while 13% deny using the application to organize time due to their reliance on a different pace of work with a direction related to the university major or the student himself.

Has the Chat GPT application improved the quality of your critical thinking in your analysis of your scientific research questions?

Table 5. *The contribution of the Chat GPT application to improving the quality of critical thinking in analyzing questions related to scientific research*

The scale	Repetition	%
Yes	33	55
No	12	20
Sometimes	15	25
The total	60	100

The data in the table above indicated that 55% confirm the effective role played by the Chat GPT application in improving the quality of critical thinking and its analysis of questions related to scientific research. This is because the application itself plays a major role in opening a field for intellectual communication, which allows the researcher to criticize and correct his ideas. It increases the eloquence of his knowledge and culture, which allows him to improve the quality of his ideas critically and scientifically, while a corresponding percentage of 20% believes that the application allows for analysis and criticism, but this is not a factor in developing the researcher's critical thought accurately, and this is because the application is distinguished in terms of its centered nature. About artificial intelligence artificially. For the researcher to reach critical thought, he must pass through many intellectual and cognitive stations to fundamentally ensure the integrity and maturity of his critical thought.

***Third Section: The contribution of chat GPT to improving the Linguistic and Learning Image of the Researcher and University Research***

Table Six provides detailed results from this section and highlights the specific ways in which Chat GPT impacts language learning and research outcomes.

Table 6. *The contribution of the Chat GPT application in improving the researcher's pronunciation and academic writing skills*

The scale	Repetition	%
Yes	50	83
No	00	00
Sometimes	10	17
The total	60	100

The results of the table above show that 83% confirmed the contribution of the Chat GPT application in improving the pronunciation and academic writing skills of the university researcher, as the application has the feature of correcting errors facing university research when it is prepared in foreign or Arabic languages, which allows the spelling review process to be facilitated without taking any action. The researcher made an effort, and it was matched by a percentage of 17%. This does not negate the feature of the GPT Chat application in correcting and improving the researcher's writing, but sometimes and in some topics that require correction from him, and this confirms the effectiveness of the application in ensuring the researcher's research quality in the aspect of pronunciation and writing.

Table 7. *The contribution of the Chat GPT application in editing and correcting the linguistic errors that you encounter*

The scale	Repetition	%
Yes	55	92
No	00	00
Sometimes	05	08
The total	60	100

The results of the table above indicate that a percentage of 92% shows the contribution of the chat GPT application in editing and correcting the linguistic errors that the researcher makes when presenting his research, as this application enables the researcher to present his information and correct it linguistically, which increases the researcher's confidence in himself and in his linguistic fluency in presenting his research. Meanwhile, a corresponding percentage of 08% believe that this application is rarely relied upon in formulating the correct language for the university researcher when presenting his research.

Table 8. *The application of Chat GPT and its contribution to enhancing linguistic understanding of complex texts and their scientific and academic terminology*

The scale	Repetition	%
Yes	40	66.66
No	10	16.66
Sometimes	10	16.66
The total	60	100

The results of the table above indicate that a percentage of 66.66% emphasized the effectiveness of the Chat GPT application and its contribution to enhancing linguistic understanding of complex texts and their scientific and academic terminology, as the university researcher believes that complex scientific terms are presented through the Chat GPT application, interpreted, and presented their source and how. Employing it, especially if it is in a foreign language other than the spoken language, while a corresponding percentage of

16.66% leans in an opposing and neutral direction at the same time as a result of their reliance on paper or electronic books to understand these terms.

Table 9. *The Chat GPT application and its contributions in providing tools that confirm the integrity of academic research formulation for the university researcher*

The scale	Repetition	%
Yes	28	46.66
No	12	20
Sometimes	20	33,33
The total	60	100

The results of the table above indicate that 46% focused on the academic, digital and learning advantages that the Chat GPT application provides and achieves and its contributions in providing tools that confirm the integrity of the academic research formulation for the university researcher, while the corresponding percentage of 20% confirmed that the Chat GPT application is part of the learning process, but it denied that it provides specific tools that contribute to the complete integrity of the research formulation.

Table 10. *The extent to which the Chat GPT application can be used in publishing and reviewing scientific research*

The scale	Repetition	%
Yes	28	46,66
No	32	53,33
Sometimes	00	00
The total	60	100

The results of the table above indicate that 53% benefited from the application represented by GPT chat, but did not publish their research formulated through it. This is due to the lack of awareness of the existence of platforms for students in which they can register and publish university research, in addition to the lack of interest in the subject of publishing because researchers are either At the master’s or bachelor’s level, while 46% confirm the extent of benefit from the Chat GPT application in publishing scientific research and reviewing it in an organized manner, as they are among the categories that complete the path to postgraduate studies such as PhD Students.

## Discussion

Chat GPT contributes to the development of cognitive aspects in university research in several ways: Enhanced Information Retrieval and helps researchers quickly locate relevant information and synthesize large volumes of data, facilitating more efficient literature reviews and data gathering. It also provides instant feedback on research drafts, aiding in the refinement of ideas and arguments. This may answer the question “How does Chat GPT contribute to the development of the cognitive aspects of university research?”

The findings of this study align with Barakah’s (2024) research, which highlighted AI’s role in enhancing academic processes by improving data analysis and providing timely feedback. Nasira’s study emphasized AI’s contribution to creating an intelligent learning environment, which complements Chat GPT’s role in supporting cognitive development in research. Similarly, Sefra and Lalaoui (2024) discussed AI’s impact on various sectors, including education, indicating that the integration of AI tools like Chat GPT can enhance

cognitive functions in research by fostering innovative solutions and facilitating complex problem-solving.

Chat GPT impacts the linguistic learning of researchers and university research as follows: Improvement of Academic Writing and its assistance of researchers in refining their academic writing by offering suggestions for improving clarity, grammar, and style, and enhanced language skills. It also provides language support for researchers working in multilingual contexts, aiding in the translation and understanding of diverse research materials. This may answer the second research question “What impact does Chat GPT have on the linguistic learning of researchers and university research?”

The impact of Chat GPT on linguistic learning resonates with the findings of Waled Said Mohamed and Medouri Nour Eddine (2024), which explored AI's role in enhancing knowledge management, including knowledge creation and sharing. This study highlighted how AI applications improve decision-making and productivity, similar to how Chat GPT enhances linguistic aspects of research. The use of AI in knowledge management and communication reflects broader trends observed by Sefra Ilham and Lalaoui Ahmed (2024), who noted the advancement of AI technologies in various sectors, including education, thus reinforcing the value of AI tools like Chat GPT in improving language and communication skills.

By addressing these research questions and relating the findings to existing studies, it is clear how Chat GPT aligns with and extends current understanding in the fields of cognitive development and linguistic learning in university research.

Through what was previously discussed qualitatively, it was concluded that the digitization of education in higher education institutions is a process of integrating artificial intelligence applications into the field of higher education in all its fields, starting from the administrative structure and ending with the knowledge structure, to achieve its pedagogical and educational goals and enable the student to become more Vitality.

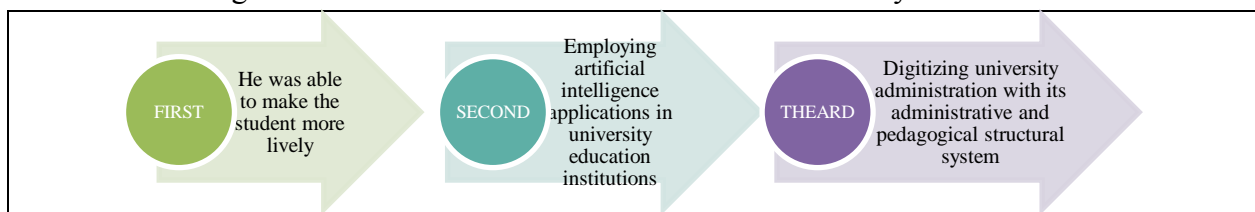


Figure 7. The digitization of education and the integration of artificial intelligence applications

While it has been found that there are many benefits of the GPT Chat application, which improve and increase the intellectual and cognitive skills of the university researcher on the one hand and for university research on the other hand, the following chart shows the most important benefits of the GPT Chat application:

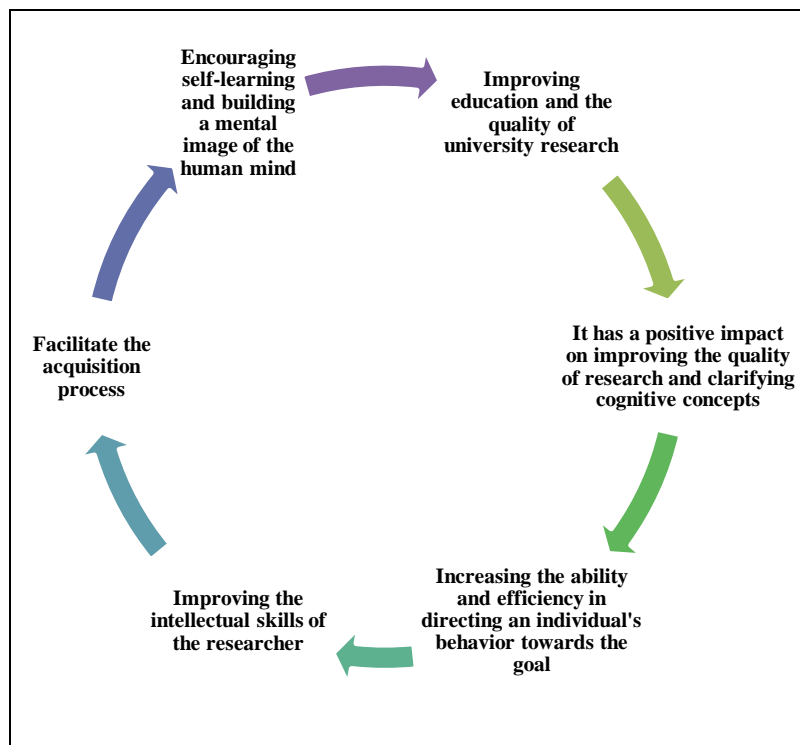


Figure 8. The Benefits of using the Chat GPT application

Through the data obtained through the study tool, it was concluded that a large percentage of the sample members confirmed the effectiveness of the Chat GPT application in activating the researcher's personality from several creative and skillful aspects.

The researcher reached the following:

- The Chat GPT application works to improve the cognitive image of university research.
- Highlighting the role of the chat GPT application in improving the linguistic learning image of the researcher and university research.

## Conclusion

Artificial intelligence applications can contribute to enhancing the quality of university research and improving researchers' cognitive abilities. It also seeks to understand the impact of these applications on the cognitive and linguistic aspects of university research and digitize university education through the digital platforms they provide that are exploited in the administrative and pre-cognitive fields. Although it is an integrated process, it requires a set of basic requirements that facilitate university service and work to develop it. Its human resources are for the better. Artificial intelligence applications also contribute to the development of human cognitive and linguistic thought with ease and provide an accurate form of data and its references, which contributes to the development of scientific research in human research, social research, and other sciences.

## About the Author

**Raja HASNAOUI**, a fourth-year doctoral student at the University of Martyr Sheikh Larbi Tebessi - Tebessa - about to graduate. I have been teaching at the same university to which I belong for two years. I also work as a specialist in the psychological field outside the university framework for 6 years. I have several contributions to the field of artificial intelligence. ORCID ID N: 0009-2195-7612.

## Declaration of AI Refined

This research paper has undergone language correction using the AI-powered tools Grammarly and Scholar AI Chat to address grammatical, spelling, and stylistic errors. It is acknowledged that the use of such tools may introduce standardised patterns typical of AI-generated content. Consequently, a certain percentage of content may reflect AI-generated language structures. Yet, the intellectual content and the analysis remain entirely the work of the authors.

## Statement of Absence of Conflict of Interest

The authors mentioned above hereby solemnly declare that they are not and shall not be in any situation that could give rise to a conflict of interest in what concerns the findings and recommendations contained in this academic article.

## References

- Al-Daghashi, A. M. (2017). *Education and its role in building, unity, and civilization*. Academic Book Fair .
- Al-Ghoubqi, M. Y. (2019). Learning and Teaching. *Arab Magazines*, 12(3), 45-67
- Al-Husseini, O. (2010). *Artificial Intelligence and the introduction to the Lib language*. Dar Al-Rateb University.
- Al-Najjar, F. J. (2010). Management Information Systems\_An Administrative Perspective\_ Dar Hamed for Publishing and Distribution. *Management Information Journal*, 169\_170.
- Al-Sayed, M. S. (2008). *School administration jobs at the high school level*. Cairo, Egypt: World of Books.
- Balidi, M. H. (2015). Report of a research seminar (or project) entitled: *Artificial Intelligence, National Center for Excellence*.
- Bouhamida, N. (2017). The effect of using digitization in raising students' academic achievement. *Al-Hikma Journal for Educational and Psychological Studies*, 79-91.
- George, B. (2023). *Artificial Intelligence in Education Impact and Examples, Expertise Magazine*. <https://www.questionpro.com>
- Lalaoui, A., & Sefra, I. (2024). Artificial intelligence and startups in Algeria: An overview of usage, employment, and expected impacts. *Forum Journal of Economic Studies and Research*, 9(2), 403-426. <https://doi.org/10.1234/example doi>.
- Magdy, N. (2020). *Artificial Intelligence and Machine Learning*. Arab Monetary Fund, Abu Dhabi, UAE
- Medouri, N., & Waled Said, M. (2024). The role of artificial intelligence applications in enhancing and supporting knowledge management processes. *Journal of Strategy and Development*, 14(2), 113-131. <https://doi.org/10.1234/example doi>
- Nasira, B. (2024). Artificial intelligence as a mechanism for improving e-learning: Applications and challenges in higher education. *Forum Journal of Economic Studies and Research*, 8(1), 79-92. <https://doi.org/10.1234/example doi>
- Othmania, A. (2019). Basic concepts of artificial intelligence as a modern trend to enhance the competitiveness of business organizations. *Business Organizations Journal*, Arab Democratic Center for Strategic, Political and Economic Studies, Berlin, Germany, pp. 09\_22.
- Rabhi M. A. (2012). *Electronic environment*. 36. Amman, Jordan: Safaa Publishing and Distribution.



Sadiq, M. (2014). *Scientific research between the Arab East and the Western world, how they rose and why we retreated*. Egyptian House of Books, Cairo.

Shamsi, W. (May 31, 2024). *Uses of GPT chat to make the most of artificial intelligence*. [blog]. Available at: <https://alnakib.com>

**Appendices**  
**Appendix A**  
**Students Questionnaire**

**Dear student,**  
 This questionnaire is intended to collect data on "The role of artificial intelligence technologies in digitizing education and improving the quality of the cognitive image of university research" Chat GPT as a model. The purpose of the present study is to identify the contribution of the chat GPT application in improving university research in its cognitive and intellectual image for the university researcher, which contributes to encouraging the idea of digitizing education at different levels.

**The first axis: primary data**

- Gender:
- The level: Bachelor's degree/ Master/ PhD student
- Specialization:
- How did you know about the chat GPT application?  
 .....
- When did you learn about the chat GPT application?  
 .....
- Did you give up using other search engines when learning about the chat GPT application?  
 .....

➤ **The second axis: Chat GPT’s contribution to improving the cognitive image of university research**

- Does the chat GPT application facilitate the process of obtaining Arabic and foreign references?  
 Yes  No  Sometimes
- Did Chat GPT help you generate ideas in an organized and effective scientific manner?  
 Yes No Sometimes
- Did the GPT chat application contribute to clarifying complex concepts in the field of university research knowledge?  
 Yes No Sometimes
- Have you benefited from the GPT chat application in organizing and managing your ideas and time when preparing your scientific research?  
 Yes No Sometimes
- Has the Chat GPT application improved the quality of your critical thinking in your analysis of your scientific research questions?

Yes No Sometimes

➤ **The third axis: The contribution of chat GPT to improving the linguistic learning image of the researcher and university research**

• \_ Has the Chat GPT application contributed to improving your pronunciation and academic writing skills?

Yes No Sometimes

• Did the Chat GPT application contribute to editing and correcting the linguistic errors that you encountered?

Yes No Sometimes

• Has the Chat GPT application enhanced your linguistic understanding of complex texts and their scientific and academic terminology?

Yes No Sometimes

• Does the Chat GPT application provide tools that confirm the integrity of your academic research formulations?

Yes No Sometimes

• \_Did you benefit from the chat GPT application in publishing and reviewing your scientific research?

Yes No Sometimes

**Cite as**

Hasnaoui, R. (2024). The Role of Chat GPT Application in Digitizing Education and Improving the Cognitive Image of the University Research. *Atras Journal*, 5 (Special Issue), 396-413.