Faculty of Letters, Languages and Social Sciences

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Incorporating Artificial Intelligence in Academic

Research: The Case of Doctorate Students at

The University of Tlemcen.

An Extended Essay Submitted as Partial Fulfillment for the Requirement of
Master's Degree in Didactics and Applied Languages

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Dedications

I dedicate this work to my beloved parents who had dreamed about this day more than I did, you are the blessing of my life, and may Allah grant you a long life. Thank you so much for your love, sacrifices, and encouragement. Thank you! Seems small for all what you have done for me

To my husband, thank you for always supporting me and believing in me. Thank you for always being by my side through thick and thin. Thanks to my young son, Adam, who gave me positive vibes to continue my studies

All members of my family, all my relatives and friends for their help and encouragement

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Abstract

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think and learn like humans, this involves the development of algorithms and computer systems that can perform tasks typically requiring human intelligence, such as visual perception, speech recognition, decision-making, and language translation. The present research work focuses on Incorporating (AI) Artificial Intelligence In Academic Research; to enhance Researchers writing skills on their Academic Research at University of Tlemcen in Algeria; This study aims to give an idea about using Artificial Intelligence Tools for improving human writing capabilities in Academia and to investigate the impact of Artificial Intelligence on Academia, Researchers and future PHD student's. In this research work, a Qualitative method was employed in order to validate the research hypothesis which claimed that if (AI) Tools are used in their Research and whether it's useful or had encountered challenges for PHD student's, also which applications or Techniques used in their Academic Research, For Data collection, two Questionnaire were distributed: the first questionnaire were distributed to twenty four (24) participants from the whole populations of PHD student's; and the second one was distributed to three (03) Teachers of English at Tlemcen University. The results of this study will contribute to the understanding of Artificial Intelligence and its inclusion in Academic Research and provide practical recommendations to researchers and students who seek to promote the mastery of their written methods and Academic Research. The main findings have revealed the importance of using Artificial Intelligence Applications and their positive impact on students ' writing and research skills; But there are some obstacles that must be taken into consideration, such as the lack of Internet access, because these applications need Internet speed for the researcher to use them comfortably.

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List of Abbreviations and Acronyms

AI: Artificial Intelligence

IT: Implication of AI Technologies

NLP: Natural Language Processing

AIEP: Artificial Intelligence Ethics and Policy

AIED: Artificial Intelligence in Education

GPT: Generative Pre-trained Transformer

HE: Higher Education

MMR: Mixed-Method Research

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Chapter One: Introductory Chapter

General Introduction

In recent years, The use of artificial intelligence (AI) in higher education (HE) has risen quickly with a concomitant proliferation of new AI tools available, this rapidly evolving technology is transforming many aspects of daily life, including how we teach and learn. Artificial intelligence allows machines to execute tasks that have traditionally required human cognition, AI-powered programs and devices can make decisions, solve problems, understand and mimic natural language and learn from unstructured data. Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, rapid technological developments inevitably bring multiple risks and challenges, which have so far outpaced policy debates and regulatory frameworks, The first chapter is an Introductory Chapter. First, it introduces the study's context and discusses the Aim of the study and why the study has been made for, as it tackles the main issues that the researcher noticed. In Addition, it generates the research questions and predicts hypotheses. Furthermore, it deals with the definition to the concepts used and the Structure of the whole Work.

1.1. The Aim of the Study.

1.2. The statement of the Study.

1.3. Research Questions and Hypothesis.

1.4. The Objectives of the Study.

1.5. Previous Studies.

1.6. Structure of the Work.

1.1. The Aim of the Study

This Study aims to identify the Importance of Artificial Intelligence in education and shed light on the use of AI in Research Academic; and also gather more information's that can help educators and researchers; also improving the educational system and the use of AI for educators and Academia.

1.2. The Statement of the Study

Students used to hear about artificial intelligence in films and television, as well as in the field of medicine and science, but today it exists even in education, specifically in higher education, and it brings with it applications that help students and researchers in their academic research. However, the student has a fear of these applications because he has no concepts or information about artificial intelligence and its applications. Therefore, this study focuses on students who suffer from difficulties in their academic research and are afraid of these applications and do not even know how to overcome this problem. As a result, we are looking for the most efficient approach to enhance the level of English language students' research by providing them with background and insights into the meaning of artificial intelligence and its role in academic research. The better the understanding of artificial intelligence, the better the outcome of their research; It may also inspire education experts and students interested in conducting research.

1.3. Research Questions and Hypotheses

Researchers frequently start the research process by developing questions and hypotheses. Questions and hypotheses are important components of any study because they guide the research process and make sure that the research is focused, relevant, and meaningful. In research, questions can help direct the development of a research design and guarantee that the data gathered is pertinent and significant;

Taking into account the Objectives of this investigation, the following Research Questions are raised:

1- In what ways does artificial intelligence enhance academic research?

2- What is the effect of AI on students' Academic Research?

Based on the main Research Questions:

1- Artificial Intelligence may enable educators to create and update content more efficiently, ensuring that the learning materials are always up-to-date and relevant. This helps students stay informed about the latest developments in their field of study and prepares them for future challenges. Also it frees up valuable time for educators to focus on interactive and creative aspects of teaching. This can improve student experience and motivation, and ultimately lead to better Academic outcomes.

2- The effect of AI on students in Academic Research may leads to the increasing reliance on AI in their research that can lead to technology overdependence, which may have several unintended consequences. For instance, educators may become overly reliant on AI tutoring systems to solve problems complete tasks, reducing their ability or motivation to think critically and independently and Reduced Human Interaction.

1.5. The Objectives of the Study

The current Investigation highlights the incorporate of Artificial Intelligence in Academic Research. This idea is directed to Doctoral students and researchers at Algerian universities to gain an overview of this artificial intelligence and its role in Academic Research. The main objective of this research is to find out whether artificial intelligence applications are useful to researchers and whether they affect the student's clerical abilities.

1.6. Previous Studies

On the Subject of this Research, there weren't a lot of previous studies with the same content as this Research, which is explore embracing Artificial Intelligence in Academic Research, but there are some previous studies with multiple subjects, but

they all talk about Artificial Intelligence and its role in higher education and Academic Research as:

"Artificial Intelligence Tools and Their Utilization in Academic Research Writing" , *Dr.Jolin Adeeb Qutub Assistant professor,2023, (Educational Technology, Faculty of Education, King Abdulaziz University,KSA*); The study presents a detailed classification of AI's uses that can be effectively applied to different stages of the scientific writing process. From its findings, the study highlights existing gaps and future research directions, offering knowledge expected to be highly beneficial for the scholarly and professional sectors.

Researcher Halima Abdullah Said, 2023, aims to find out "the level of applied artificial intelligence at the University of Ta'izz" and to know its level of application in academic affairs and postgraduate studies. From this research, the Researcher Halima concludes that in our modern era, Artificial Intelligence has become an integral part of our public life.The European countries are competing for the best achievement of artificial intelligence by spending millions of dollars. Therefore, Artificial Intelligence is very important in public educational institutions and Universities, especially at a university that needs to promote Artificial Intelligence applications.

1.7. Structure of the Work

Concerning the study's structure and organization, the current research study is divided into four major chapters, the first chapter is "Introductorychapter" which focuses on the statement of the problem, Aim of the study and the previous studies; the second chapter concerns the theoretical part of the research work.

It is devoted to the literature review related to "Incorporating Artificial Intelligence In Academic Research" the case study "doctorate students at University of Tlemcen" discusses the meaning of artificial iéntelligence in academia by giving an overview about Artificial Intelligence to give the reader a general overview Of the research topic, the third chapter concerns the practical side of the research work. First, it presents the current study's methodology and research design. Next, it describes the target population and data collection and data analysis. and the last chapter is

considered as "the Concluding Chapter" of this study as it discuss about the pedagogical implications, study's limitation and provides some suggestions and recommendations also new research perspectives.

Chapter Two: An Overview of Artificial Intelligence in Academic Research.

2.1. Introduction.

2.2. Definition of the Artificial Intelligence.

2.3. An Overview of Artificial Intelligence in Academic Research.

2.4. The Meaning of Artificial Intelligence in Academia.

2.5. The Impact of Artificial Intelligence on Academia.

2.6. The Use of Artificial Intelligence for Academic Writing.

2.8. Artificial Intelligence Tools for Research and Academic Writing.

2.9. Conclusion.

2.1. Introduction

Chapter Two focus on the literature review, As the definitions of different concepts related to the topic of this research, Also introduce the meaning of Artificial Intelligence in Academia and the impact of Artificial Intelligence on Academia, for more the use of Artificial Intelligence in Academic writing, to know more; this chapter also will focus on the future of Artificial Intelligence in Academic Research and the best Artificial Intelligence Tools for research and Academic writing.

2.2. Definition of Artificial Intelligence

"computing systems that are able to engage in human-like processes such as learning, adapting, synthesizing, self-correction and the use of data for complex processing tasks" (Popenici et al., 2017, p. 2).

"Artificial intelligence would be the ultimate version of Google. The ultimate search engine that would understand everything on the web. It would understand exactly what you wanted, and it would give you the right thing. We're nowhere near doing that now. However, we can get incrementally closer to that, and that is basically what we work on.(BERNARD MARR et Matt Ward,2019,)

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, reason, learn, and problem-solve like a human. It encompasses various technologies and approaches, including machine learning, deep learning, Natural language processing (NLP), and computer vision, to enable machines to perform tasks that typically require human intelligence, such as understanding Natural language, recognizing patterns, and making decisions; Artificial Intelligence (AI) is the field of computer science and engineering that focuses on creating systems and machines capable of performing tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, solving problems, and making decisions. AI aims to simulate human-like cognitive functions and adapt to new information and tasks through learning and experience.

AI's rapid evolution has the potential to bring about transformative changes across various domains, offering new solutions to complex problems while prompting careful consideration of ethical implications and the responsible deployment of these technologies.

In summary, Artificial Intelligence in education holds tremendous promise for enhancing the learning experience, providing personalized, efficient, and engaging educational opportunities. However, it requires thoughtful implementation, ongoing refinement, and consideration of Ethical implications to ensure its positive impact on the education sector.

2.3. An Overview about Artificial Intelligence in Academic Research

AI has brought about significant changes to Academia, revolutionizing the way research is conducted, knowledge is generated, and education is delivered. The integration of AI technologies in Academia has the potential to streamline processes, enhance research outcomes, and foster innovation. One of the primary ways AI is changing Academia is through data analysis. Researchers can leverage AI algorithms to analyze vast amounts of data quickly and efficiently. This enables them to identify patterns, correlations, and trends that may not be easily discernible through traditional methods.

Furthermore, Artificial intelligence is transforming the research process itself. It can assist researchers in literature review and knowledge synthesis by automatically scanning and extracting relevant information from a wide range of scientific papers. This not only saves time but also helps researchers stay up-to-date with the latest advancements in their field. Another area where AI is making a significant impact in academia is in education. AI-powered technologies are being used to develop intelligent tutoring systems, adaptive learning platforms, and personalized educational experiences. These technologies can analyze students' learning patterns and provide tailored feedback, support, and resources.

Moreover, Artificial Intelligence has the potential to augment human capabilities in Academia. It can automate repetitive tasks, freeing up researchers' time

to focus on higher-level cognitive activities. This includes automating Data collection, Analysis, and even manuscript Writing. By streamlining these processes, Researchers can devote more time to critical thinking, Hypothesis generation, and exploring New Research Avenues.

2.4. The Meaning of Artificial Intelligence in Academia

Artificial intelligence plays a significant role in Academic Research across various disciplines, contributing to the advancement of knowledge and the development of innovative solutions. In Academia, Artificial intelligence can have several meanings depending on the context:

> *Academic Institution:* In the context of an Academic institution, AI might refer to Artificial Intelligence courses, research, or programs offered by the institution. This could include undergraduate or graduate-level courses in AI, research initiatives exploring AI applications, or even entire departments or schools dedicated to AI studies.

> *Academic Research:* AI in Academia often involves the development of new algorithms, Methodologies, and Technologies related to Artificial Intelligence. Researchers in Academia may focus on advancing the field's theoretical understanding, exploring novel applications, or addressing ethical considerations related to AI.

> *Educational Technology***:** AI is increasingly being integrated into educational technology within Academic Settings. This includes the development and Use of AI-driven tools for personalized learning, Adaptive Assessments, automated grading, and other applications aimed at enhancing the educational experience.

> *Artificial Intelligence for Data Analysis:* In Academia, AI is frequently used for Data Analysis and pattern recognition in various fields. Researchers may employ AI techniques to analyze large datasets, extract

meaningful insights, and make predictions or classifications in disciplines such as social sciences, biology, or physics.

➢ *Natural Language Processing (NLP):* In Academic contexts, Artificial Intelligence, particularly NLP, may be applied to language-related tasks, such as analyzing and understanding Academic texts, generating summaries, or developing Language Translation Tools.

➢ *Artificial Intelligence Ethics and Policy:* With the growing impact of AI, Academic institutions often engage in research and discussion regarding the Ethical Implications of AI Technologies. This includes examining issues related to bias in algorithms, Data Privacy, and the Societal Impact of AI.

➢ *Artificial Intelligence in Teaching and Learning:* AI technologies are increasingly used in Academia to enhance Teaching and Learning experiences. This may involve the development of Intelligent Tutoring Systems, Educational Chat bots, and Adaptive Learning platforms. In Summary, in the Academic context, AI encompasses a broad range of Activities, from offering courses and conducting research on AI Technologies to integrating AI into various aspects Of Education and Research across disciplines.

2.5. The Impact of Artificial Intelligence on Academia

The impact Of Artificial Intelligence on Academia is significant and multifaceted, influencing Various Aspects of Research, Teaching, and the Overall Academic landscape. Here are some Key Areas of Impact:

✓ **Research Enhancement:** Contain Data Analysis**;** which AI enables more sophisticated and efficient Data Analysis, helping researchers extract meaningful insights from large datasets.

- ✓ **Efficient Literature Reviews:** AI tools aid researchers in conducting more comprehensive and efficient literature reviews by quickly analyzing vast amounts of Academic papers and publications.AlsoPersonalized Learning, AI is used in educational technology to provide personalized learning experiences, adapting content and pace based on individual student needs and learning styles. And Automated Grading; AI facilitates automated grading of assignments and exams, saving educators time and providing quicker feedback to students.

- ✓ **Language Translation and Accessibility:** AI-powered language translation tools improve accessibility to research papers and educational materials for non-native speakers, fostering global collaboration; As Predictive Analytics, AI-driven predictive Analytics help institutions identify students who may need additional support, allowing for early intervention and personalized academic assistance. Also,Scientific Discovery, AI is contributing to scientific discovery by assisting in the formulation of hypotheses, conducting simulations, and predicting outcomes in various research domains.

- ✓ **Robotics and Lab Automation:** AI and Robotics are employed in laboratories, automating repetitive tasks and experiments, enhancing efficiency, and minimizing errors.

- ✓ **Ethics and Bias Considerations:** Researchers are exploring the ethical implications of AI in academia, addressing issues such as bias in algorithms, privacy concerns, and the responsible use of AI technologies.

- ✓ **Interdisciplinary Collaboration:** AI fosters interdisciplinary collaboration by providing Tools that can be applied across diverse Academic fields, encouraging researchers to collaborate on complex problems.

- ✓ **Changing Research Paradigms:**AI is reshaping research paradigms, allowing for more Data-driven and computational approaches, leading to a deeper understanding of complex phenomena.

✓ **Access to Resources:** AI facilitates better access to research resources, including online databases, digital libraries, and collaborative Tools, enhancing the global reach of Academic Work.

The Impact of Artificial Intelligence on Academia continues to evolve, presenting opportunities for innovation and efficiency while necessitating careful consideration of ethical, social, and educational implications. As Artificial Intelligence Technologies advance, their influence on Academic research, Teaching Methodologies, and institutional practices is likely to grow.

2.6. The Use of Artificial Intelligence for Academic Research

The role of Artificial Intelligence (AI) in Academic Research has garnered significant attention in recent years. This Transformative Technology, powered by machine learning algorithms and Data Analytics, is revolutionizing the research landscape. By enabling researchers to process vast amounts of Data, extract meaningful insights, and automate repetitive Tasks, AI has the potential to accelerate the pace of scientific discovery and enhance the quality of research outcomes.

Artificial intelligence has found numerous applications in Academic research across various disciplines. Here are some examples of how AI is being used in Academic Research:

- **Data analysis and pattern recognition:** AI algorithms can analyze large datasets and identify patterns, correlations, and trends that may not be easily recognizable by humans alone. This is particularly useful in fields such as genomics, climate science, and Social Sciences.

- **Natural language processing (NLP):** NLP Techniques enable computers to understand and generate Human Language. Researchers use NLP to analyze large volumes of textual Data, extract information, summarize Documents, and detect sentiment. It has Applications in fields like Literature, Linguistics, and Social Sciences.

- **Computer vision:** AI-based computer vision systems can process and interpret visual Data, such as images and videos. Researchers use computer vision to Analyze medical images, satellite imagery, and surveillance footage, among others. It has applications in fields like Biology, Astronomy, and Environmental sciences.

- **Robotics and automation:** AI-powered Robots and automated systems are increasingly being used in Academic Research to perform tasks such as lab experiments, Data collection, and Sample Processing. These Robots can work 24/7, reducing human error and increasing efficiency in research workflows.

- **Recommendation systems:** AI algorithms can provide personalized recommendations based on user preferences and behaviors. In Academia, these systems can suggest relevant Research Papers, conferences, or collaborations based on a researcher's interests and previous work.

- **Simulation and modeling:** AI techniques, such as Machine Learning and Neural Networks, can be used to create complex models and simulations. Researchers can use these models to study and predict phenomena in fields like physics, economics, and social sciences.

- **Knowledge discovery and synthesis:** AI can assist Researchers in discovering and synthesizing information from vast amounts of existing Research Papers, patents, and other Academic sources. This can help identify research gaps, find relevant Literature, and generate new insights.

2.7. The Future of Artificial Intelligence in Academic Research

The Future of Artificial Intelligence in Academic Research holds immense potential for Transformative Advancements. Here are some Trends, Opportunities, and potential Impacts to consider:

> **Interdisciplinary collaboration:** Artificial Intelligence brings together Researchers from different disciplines, fostering collaboration and enabling breakthrough insights.

> **Data-driven discoveries:** Artificial Intelligence algorithms extract valuable insights from large datasets, revolutionizing research across disciplines.

> **Personalized and adaptive learning:** Artificial Intelligence Technologies provide tailored Educational experiences, Assessing student performance and offering Targeted feedback.

> **Enhanced scientific discovery:** Artificial Intelligence assists Researchers in Hypothesis generation, experiment Design, and Data Analysis, accelerating the Research Process.

> **Ethical considerations and responsible AI**: Researchers address bias, transparency, privacy, and accountability to ensure ethical and responsible AI use.

> **AI-enabled automation:** Artificial Intelligence streamlines research workflows, automating Tasks like Data collection and Analysis, Improving efficiency.

> **Augmented creativity:** Artificial Intelligence serves as a creative partner, generating ideas, synthesizing information, and pushing boundaries in fields like Art and Design.

> ➢ **Enhanced peer review and scientific communication:** Artificial Intelligence automates aspects of peer review, aids in Language Translation, and Recommends relevant Research papers.

> ➢ **Democratization of research:** Artificial Intelligence platforms provide access to computational power, Datasets, and collaboration Opportunities globally, democratizing Research.

2.8. Artificial Intelligence Tools for Research and Academic Writing

For many people, the Academic writing process can be a Daunting and exhausting experience. Papers and reports can take hours or Days to complete and require intense dedication to perfect. University students admitted to writing articles with the help of (ChatGPT). The ChatGPT program is an AI program, and it's capable of producing human-like responses and Academic work.

Here are Tools that can greatly simplify the process for researchers and Educators, who are the ones who most need them. These resources include:

- **ChatGPT**

Is an Artificial Intelligence (AI) chatbot that uses Natural Language Processing to create humanlike conversational dialogue. The language model can respond to questions and compose various written content, including articles, social media posts, essays, code and emails ChatGPT is similar to the automated chat services found on customer service websites, as people can ask it questions or request clarification to ChatGPT's replies. The GPT stands for "Generative Pre-trained Transformer," which refers to how ChatGPT processes requests and formulates responses. ChatGPT is trained with reinforcement learning through human feedback and reward models that rank the best responses. This feedback helps augment ChatGPT with machine learning to improve future responses.

- **Otter.ai**

Otter is an App that allows you to simply speak into your Smartphone or tablet and it converts that audio into Text Format. This means you can get your thinking on to paper faster than you usually would and minimize the risk of losing your train of thought. It's also great for getting work done while you're sitting in Traffic; and it can double as a initial transcribing aid for your interviews.

- **Grammarly**

Grammarly is more then just a spelling and grammar checker – it picks up far more complex issues such as; Inconsistent writing style and unclear sentence structure , Overuse of specific works and ineffective vocabulary , Impolite, insensitive or non-inclusive language , Inappropriate tone or formality level , and Plagiarism .

- **QuillBot**

QuillBot is a paraphrasing and summarizing tool that helps millions of students and professionals cut their writing time by more than half using state-of-the-art AI to rewrite any sentence, paragraph, or article.Let's keep it simple: QuillBot is an online writing platform with a bunch of tools aimed at elevating and perfecting your writing. QuillBot paraphrases, summarizes checks for grammar and plagiarism, translates outlines, creates citations, and sets you up for success in school, work, and your personal life. Essentially, QuillBot makes writing painless.

- **Perplexity**

Perplexity AI is a New Artificial Intelligence chat Tool that's designed to act as a powerful search engine, but with some added impressive capabilities. Basically, using it is kind of like having your own personal Google search engine, but with bells on! When you prompt Perplexity AI with a question, its powerful AI will search for the perfect answer, using real-time information to give you the best generative text experience available.

2.9. Conclusion

To conclude; AI is transforming the research process itself. It can assist researchers in literature review and knowledge synthesis by automatically scanning and extracting relevant information from a wide range of scientific papers. This not only saves time but also helps researchers stay up-to-date with the latest advancements in their field. Another area where AI is making a significant impact in Academia is in education. AI-powered technologies are being used to develop intelligent tutoring systems, adaptive learning platforms, and personalized educational experiences. These technologies can analyze students' learning patterns and provide tailored feedback, support, and resources. Moreover, AI has the potential to augment human capabilities in academia. It can automate repetitive tasks, freeing up researchers' time to focus on higher-level cognitive activities. This includes automating data collection, analysis, and even manuscript writing. By streamlining these processes, researchers can devote more time to critical thinking, Hypothesis generation, and exploring New Research Avenues.

Chapter three: Research Methodology and Data Collection

3.1. Introduction.

3.2. Research design and Methodology.

3.3.Data collection phase.

3.4. The Research Instruments.

3.5. Sample population.

3.6. Data Analysis phase.

3.7. Students' Questionnaire analysis.

3.8.Teachers' Interview analysis.

3.9.Discussion of the main results.

3.10. Conclusion.

3.1. Introduction

This chapter lays the groundwork for the research, by outlining the methodology, research design, and Data collection procedures used in the Study. This chapter focuses on the practical aspect of the study and explains the methods and tools used, As well as the mixed method that requires the use of the questionnaire and interview. In addition to a comprehensive explanation of the questionnaire and the interview methods used, this chapter also highlights the study of the methodology used in this study. Finally, this chapter emphasizes the study design, the sample, the instruments, the data collection process, and data Analysis.

3.2. Research Design and Methodology

To achieve the Research Objectives, a Mixed-Method approach was employed, utilizing both qualitative and quantitative Methods. The increasing popularity of this approach can be attributed to Researchers' recognition of the distinct advantages and Limitations of both Qualitative and Quantitative Methods.

3.3. Data Collection Phase

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test Hypotheses, and evaluate outcomes. The process of collecting Data involves several steps and is a continuous cycle that starts with selecting the data collection instrument and ends with the actual collection of information. In this study, Two Data collection phases were used: an Online Questionnaire and an Interview, The aim of gathered both quantitative and Qualitative Data at different times is to gain more information about incorporating Artificial Intelligence in Academic Research at Tlemcen University.

3.4.The Research Instruments

Collecting information is a crucial aspect of any research project. In scientific studies, it involves acquiring and quantifying information on a phenomenon or specific variable(s). The data collection process involves using one or more instruments such as Questionnaires, Observations, and Interviews. The scope of the research problem and objectives influence the choice of data collection instrument(s). For this research project, two data collection instruments were selected: An Online Questionnaire and an Online Interview, to gather the necessary information required for the Study. Therefore, students' Questionnaire administration used in this study followed a rigorous process, which included several stages such as examination, modification, test study, and Data collection. The Questionnaire was created using Google Forms, with the supervisor added as a collaborator to ensure accuracy and suggest any necessary modifications. After the supervisor's revisions, a pilot study was conducted to ensure validity and clarity. Two students from the target population were selected to respond to the online questionnaire. Ultimately, the Questionnaire was distributed to the participants via email and Messenger, but only (24) Doctorate students answered it.

Interviews were chosen as a complementary method for Data collection, specifically with Teachers. The rational behind this selection was to obtain a more nuanced understanding of the subject matter, for the interview, the population sample consists of three (03) Teachers.

3.5.Sample Population

Population, as defined by Enon (1995), is a collective group of individuals from whom researchers may obtain data and information for analysis.

Easton and McColl (2014) believe that a sample is only a tiny portion of the largerpopulation that is important to the study topic. The target group, to whom the study's findingsmay be extrapolated, is this "whole" population. Trochim (2008) explains that the studypopulation, or a portion of the target population that is available to the researcher, is where thesamplewas taken.

In this research the population sample consist of (24) doctorate

studentsfrom the university of Tlemcen . For the interview, the population sample consists of three Teachers.

3.6.Data Analysis Phase

The next step after Data collection is Data Analysis, which involves organizing, evaluating, and interpreting Data to address research Questions and Achieve research objectives. This process entails applying analytical and logical thinking to comprehend the gathered Data. Two main Data Analysis approaches exist: Quantitative Data Analysis and Qualitative Data Analysis. This Research project utilizes both Qualitative and Quantitative Data Analysis Techniques to investigate about Incorporating Artificial Intelligence in Academic Research, The results of the Online Questionnaire were analyzed quantitatively, while the data collected through classroom observation was analyzed qualitatively.

The researcher's role is to analyze the Data in order to accomplish the research aim and provide a response to the research question after choosing and using the research instrument. About the Qualitative and Quantitative Analysis the survey was created and distributed online using Google Forms, and the web-based Tool automatically stores the input and produces the results.

3.7. Students' Questionnaire Analysis

This research portion of Data analysis is considered the most important part of research work since Data will be analyzed quantitatively, starting with the students' questionnaire, in order to support the incorporating of Artificial Intelligence in Academic Research Addition to the Teachers interview,

Q1: Have you ever used AI tools or Methods in your research work?
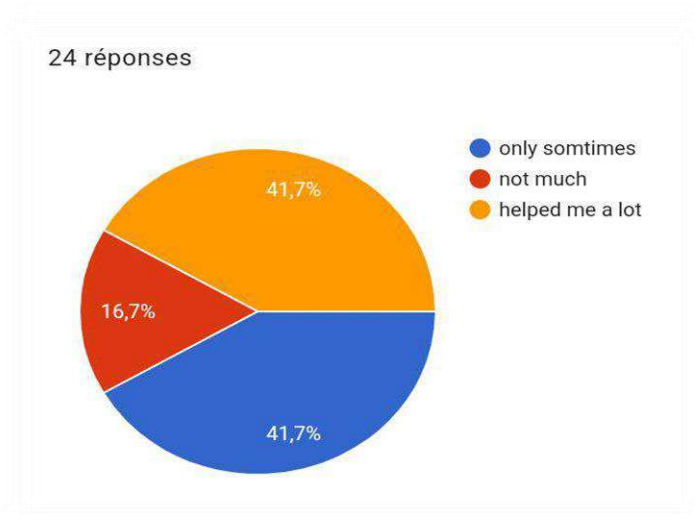
Figure.3.1. Artificial Intelligence Tools

The results revealed that (41,7%) of students poked out only sometimes, while (41,7%) student choose not much, and the last category has been chosen helped me a lot, here the results showed that even if These assistants can quickly find information, answer questions, and provide updates on various topics, but still there are researchers that worked with the traditional manual methods and had a fear about this AI tools.

Q2:Do you feel satisfied when using Artificial Intelligence applications in your Academic Research?
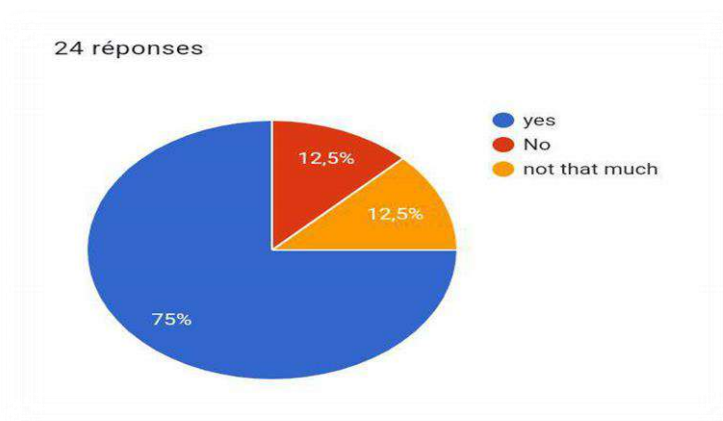
Figure.3.2. Satisfaction with AI Applications in Academic Research

The statistics in this Question are that a large proportion of students are satisfied with using Artificial Intelligence applications in their research by (75%), but only a small proportion of students have agreed to no, not much by (12.5%).

Q3: In your opinion, do you find that artificial intelligence applications are useful to the researcher, or are they merely applications that do not allow the educator to innovate on his own in his research?
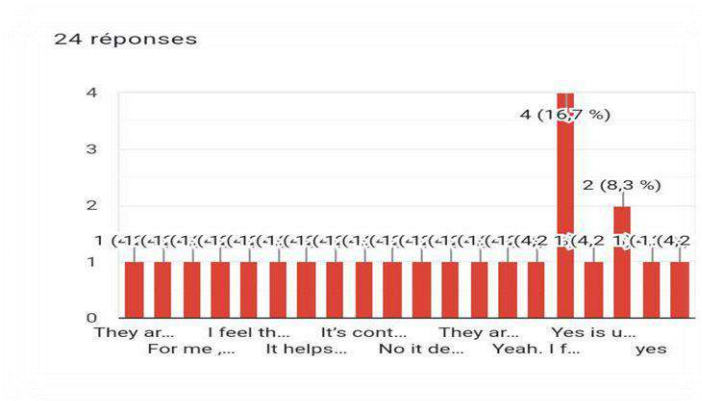
Figure.3.3. Opinions on Artificiel Intelligence Applications.

In this Question, Most of Educators said yes and find that Artificial Intelligence applications are useful to the researchers and some of students their point of view was that this apps can facilitate the research in many ways such as use them to summarize the key points of a research paper , create flashcards.

Q4: have you encountered any challenges when incorporating AI into your Academic work?
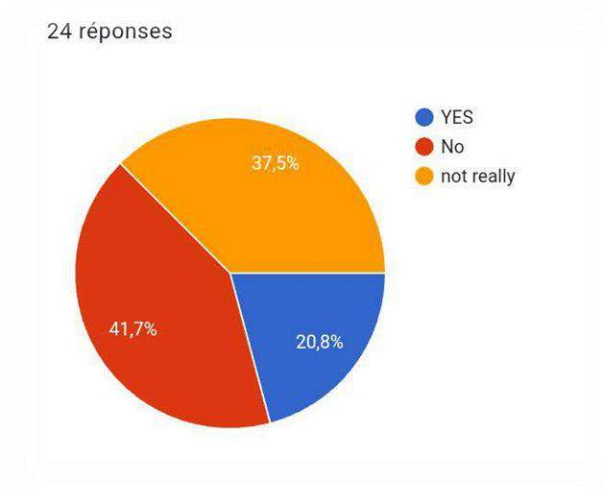
Figure.3.4. challenges in Incorporating (AI) in Academic Research.

(41, 7) of students said yes for having a challenges like a lot of false information and not accurate, while (37, 5)does not have a challenges when incorporate AI into their Academic Research, and only (20, 8) choose not really.

Q5: What specific AI technologies have you employed in your Academic Research?

Most of educators are using AI tools and its really interesting such as chat GPT , Grammarly, Quillbot, bing chat , Otterai , perplexiety, but only a minority of students have nothing to do with these apps.

Q6: Do you agree that With AI-powered Data mining and Analysis, researchers are able to gather and analyze larger amounts of Data in less time?
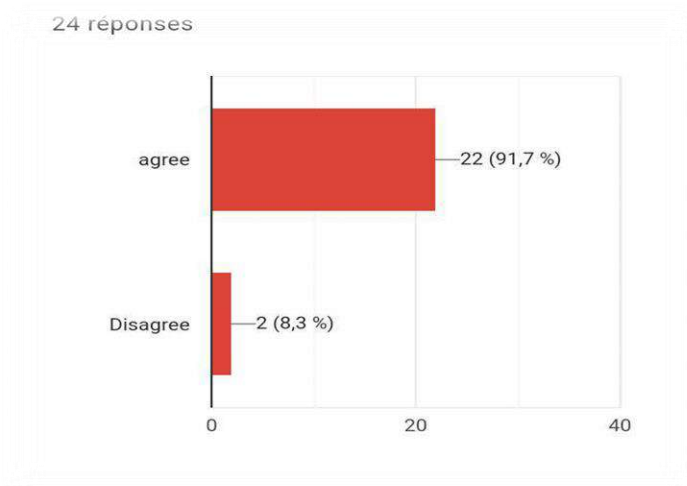
Figure 3.6. The speed of Artificial Intelligence apps in collecting Data.

(91,7) Of educators are agreed that with AI-powered Data mining and analysis researchers can analyze a lot of data in less time , while a few of students are disagree .

Q7: Do you think that Artificial Intelligence providing more accurate and in-depth insights than traditional manual methods?.
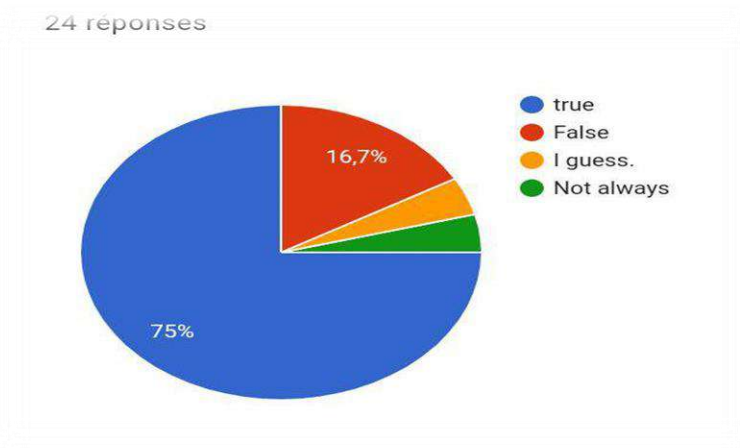
Figure.3.7. Artificial Intelligence and Traditional manual methods.

Most of the students agreed to that Artificial Intelligence is better than traditional manual methods by (75 %), while (16,7) said false and not agreed .

Q8: Do you believe that there are any risks or drawbacks associated with the widespread adoption of AI in Academic Research?
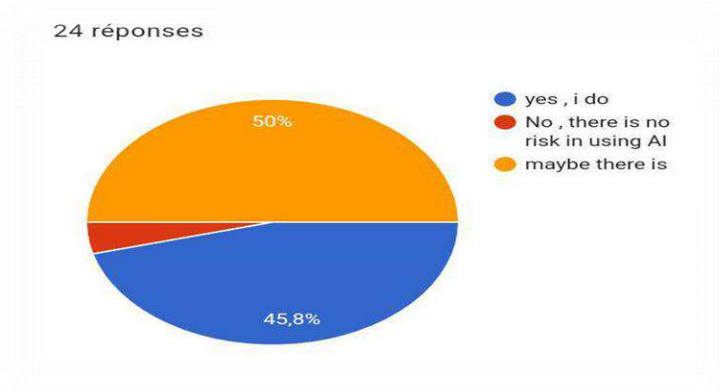
Figure.3.8. Risks with adoption Artificial Intelligence in Academic Research.

Q9: What are the key benefits you've observed from integrating AI into your research process?
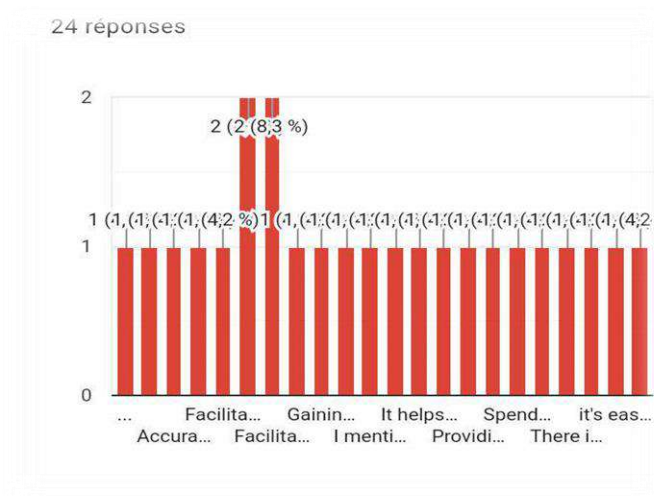
Figure.3.9. The Key Benefits of Integrating AI in Academic Research.

Half the students think there's a Risk of using Artificial Intelligence Applications, while (45,8) of educators said that no there is no risk in using AI apps .

In this Question , Educators are really satisfied by AI power and it help them with their research by facilitate and gaining time, it doesn't take much time, accurate

and precise information's , spend less time in saving information's and make their research more creative and better then traditional Manual methods .

Q10: Are there any specific AI-related skills or knowledge gaps that you feel researchers in your field need to address?
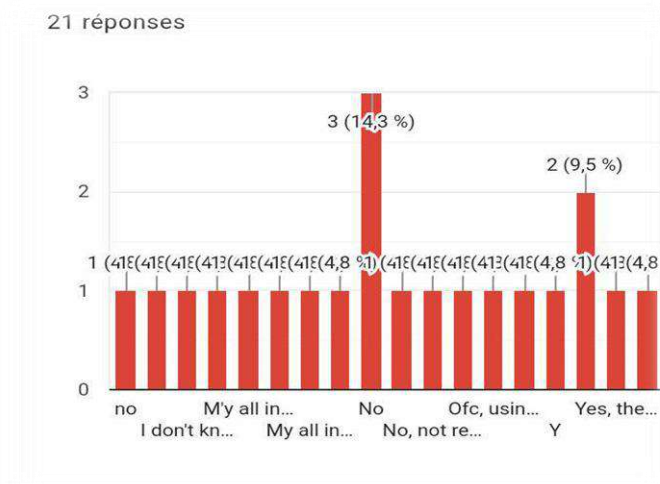
Figure.3.10. skills relevant to AI that researchers need to address**.**

Most of the answers were "no." And the rest of educators their answers was that using AI requires referring to the original work to avoid plagiarism other than this nothing specific , also some students said Yes the art of using AI in correct and ethical way .

3.8.Teachers' Interview Analysis

The purpose of these Questions is to gather the Teacher's perspective on whether Artificial Intelligence is really useful to researchers and would it help them with their academic research, and also to see if they're users of Artificial Intelligence, as well as their opinion on the effect of Artificial Intelligence on researchers and whether Artificial Intelligence becomes the principal course designer, will it limit the creativity of students who are different from the typical students in the past and ultimately whether or not this artificial intelligence really has a negative effect.

Question 1: In your opinion, do you find that Artificial Intelligence Applications are useful to the Researcher, or are they merely applications that do not allow the educator to innovate on his own in his Research?

- Teacher 01: It depends on how you approach the concept, but I think it is more negative than positive; it hinders student's motivation and students' autonomy, the lost important parameters in learning success.
- Teacher 02: Yeah I think it's very important in any research.

Question 2: have you encountered any challenges when incorporating AI into your Academic Work?

- Teacher 0: yes, because of Lack of training.
- Teacher 02: yes, mainly because of the bad internet in our country. The other reason might be that a lot of the AI is paid and a lot of times we can't afford them.

Question 3: What specific AI Technologies have you employed in your Academic Research?

- Teacher 01: Deep learning platform and speech recognition.
- Teacher 02: Chatgpt, Grammarly, Quillbot..

Question 4: If Artificial Intelligence becomes the principal course designer, will it limit the creativity of students who are different from the typical students in the past?

- Teacher 01: true.
- Teacher 02: that might be true for some cases

3.9. Discussion of the Main Results

The main objective of the Questionnaire was to gather a comprehensive set of information on the idea of Artificial Intelligence in Academic Research. The Data collected from the Questionnaire provided critical insights and valuable information on

this specific subject. In addition, interviews were conducted with doctors and teachers to complement the findings of the Questionnaire. These Interviews provided more valuable insights, the challenges that Teachers face in using Artificial Intelligence and its impact on researchers. The combination of the questionnaire and teacher interviews allowed a well-considered understanding of the Importance of embracing Artificial Intelligence for Academic Research, and whether it is really useful for researchers, or just a way to hinder the intellectual and clerical abilities of the researcher. Also the purpose of this research is to give an idea of artificial intelligence and to know how important AI tools are in Academic Research and how Students and Researchers can use them in their Research.

The results showed that most students are happy to use artificial intelligence applications in their studies, and some researchers believe that although there are some risks and fears, these programs can be beneficial to them and to some students. According to their point of view, these applications can help research in several ways. These assistants can quickly find information, answer questions, and provide updates on various topics. Also based on the Research questions and hypothesis and as this survey shows that:

- despite the positive use of artificial intelligence applications and their many benefits, such as summarizing time, updating their ideas and helping them to provide resources for their research

- there is a fear of these applications that we have seen in the answers of teachers and students. But the only problem affecting it is the Internet, where speed and intensity affect these applications.

- In Comparison with developed countries: all universities work with artificial intelligence

- teachers exchange lectures easily and, more importantly, that students only use laptops and their phones to record the lecture, and that, given their needs and requirements, they have no problems using industrial intelligence applications in their academic research.

The first research hypothesis has been confirmed that artificial intelligence is useful in the academic Research field, because of its ability to process large amounts of data, uncover patterns and generally automate repetitive tasks, enabling researchers to tackle complex problems and generate new knowledge more effectively.

The second research hypothesis was not confirmed. As the results show, it is a controversial phenomenon. On the one hand, this may help researchers to gain insight or ideas about his study but at the same time, it may be difficult for the researcher to fully control his research.

3.10. Conclusion

This chapter identifies the research design, methodology, and data gathering techniques employed in this investigation. Two research instruments were used: an interview with three teachers and a questionnaire about using artificial intelligence in academic research in the context of PhD students at Tlemcen University. The results showed that most of students are happy with the usage of artificial intelligence applications in their studies, and some researchers believe that these programs can be helpful to both themselves and some students. According to their perspective, these applications can help with research in a variety of ways.These assistants can quickly find information, answer questions, and provide updates on various topics.AI tools significantly enhance efficiency, accuracy, and productivity in both research and everyday activities. By automating routine tasks, providing deep insights through advanced data analysis, and offering personalized support and recommendations For example, they can be used to make flashcards or summarize the main ideas in research papers.

Chapter Four: Concluding Chapter

Chapter Four : Concluding Chapter

4.1.Introduction.

4.2.Pedagogical implications.

4.3.Limitation.

4.4.Suggestion and recommendations.

4.5.New research perspectives.

4.6.Conclusion.

4.1. Introduction

This chapter seeks to offer insightful recommendations based on the facts and outcomes of the analysis, building on the conclusions and ideas discussed in the preceding chapter. In summarizing the current research, and students who come to the Ph.D. with comprehensive knowledge about Artificial Intelligence and the importance of embracing it with Academic Research, as well as with Artificial Intelligence identified the meaning of Artificial Intelligence and explored the results of Incorporating Artificial Intelligence in Academic Research, Furthermore, This chapter's major goal is Providing teachers techniques and tools that help them with academic research. By implementing these recommendations, Educators can better support Artificial Intelligence and the ease of using its applications to help doctoral students   with   academic   research.

4.2. Some Pedagogical Implications

The integration of artificial intelligence into academic research has important educational implications. Knowledge-based technologies offer enormous potential to strengthen teaching and learning processes and provide smart tools and services that can support students, faculty and administrators at all stages of the student's life cycle. Academic research should depend not only on technological capabilities, but also on educational logic. In order to ensure that the application of these standards is consistent with educational objectives and values, it is important to adopt care ethics when examining the possibilities of algorithmic decision-making systems integrated into educational Technologies.

Above and beyond that, Artificial Intelligence Applications do not fully assist students and researchers in their research, but provide them with a comprehensive idea of the subject, and the student expands on that idea, so these Applications are not an obstacle to them, but rather help them in their own way, after seeing the results of the Questionnaire, it shows that most students use the" Chat Gpt" app, which, as mentioned before , is not an extension of the whole idea, but rather a general idea that needs to be expanded upon.

4.3. Limitations of the Study

Any research study entails limitations, and this research work does just that. Every research project has limitations, and this research study is not exceptional, the researcher faced problems in this research, namely

➢ The study's time frame was constrained for the researcher that is typically conducted over a short period of time, which may restrict the data collection methods that can be used, leading to potential limitations in the general ability of the findings.

➢ The lack of information's and articles that shed light on this topic.

➢ The difficulty of communicating with doctoral students because of their lack of university presence.

➢ The lack of internet.

➢ The sample size was very small because they were busy and did not want to answer the questionnaire for some reason.

4.4. Some Suggestions and Recommendations

Artificial Intelligence (AI) has the potential to significantly Impact Academic Research, offering opportunities for enhancing information gathering, Analysis, and evaluation. However, it also presents challenges related to ethical considerations, Academic integrity, and the need for effective evaluation methods.

- There are some Recommendations and Suggestions that will help researchers and students who come to the Ph.D.
  ✓ Understanding AI in education: Familiarize yourself with the definitions and applications of AI in education to ensure a clear understanding of its potential and limitations,

  ✓ Ethical use of AI: Ensure the ethical use of AI tools in Academic Research, including guidance on their benefits and limitations to uphold academic integrity,

✓ Interdisciplinary research: Engage in interdisciplinary studies of AIEd that actively involve students and educational researchers to capture a broader range of perspectives,

✓ AI tools for academic research: Utilize AI tools to enhance academic research, such as Google Scholar for staying updated on the latest research papers and Site for analyzing scholarly articles and assessing the dependability of references. By considering these recommendations, Academic Researchers can leverage the potential of AI to enhance their work while being mindful of the challenges and ethical considerations associated with its use.

Here are some suggestions for using artificial intelligence effectively in Academic Research

✓ Enhancing Research Processes: Utilize AI tools for reading, annotating, note-taking, and Data Analysis to streamline the research process and make it more efficient.

✓ Avoiding Plagiarism: Be cautious when using AI tools to generate content and ensure that the output is fact-checked to prevent unintentional plagiarism. AI-generated text should not be copied verbatim to avoid plagiarism issues.

✓ Critical Thinking: Use AI tools to support Academic Research, not replace critical thinking abilities. Researchers should reflect critically on their work and not rely solely on AI-generated content.

✓ Choosing the Right Tools: Identify and select appropriate AI Tools that best suit the research problem at hand. Ensure that the algorithms are trained, tested, and validated for accurate results.

- ✓ Managing References: Use AI tools for managing and citing references rather than relying on them to generate references. Researchers should gather relevant, clean, and suitable data for analysis by AI Tools.
- ✓ Fact-Checking: Verify content generated by AI Tools and do not accept it as absolute truth. Researchers should read the original text instead of solely relying on AI-generated summaries.
- ✓ Ethical Use: Remove conscious and unconscious human bias from machine learning algorithms before using them in research to ensure ethical and unbiased outcomes.

By following these suggestions, researchers can harness the power of Artificial Intelligence effectively in Academic Research while maintaining academic integrity, critical thinking, and ethical standards.

4.5.New Research Perspectives

The term "new research perspectives" often denotes creative methods or concepts that can be investigated within a specific area of study. It entails locating and filling in any holes in existing understanding and pursuing novel lines of investigation to produce fresh perspectives and improve the field's condition. This can entail creating novel hypotheses, approaches, or research questions to investigate phenomena in novel ways.

In recent years ; there has been a growing trend in higher education to educational modern technologies and practices in order to improve the overall educational experience ; while (AI) is shaking up many industries ,Academic Research is no exception whether is it is used for writing , editing , or citing research paper , AI tools can help support research processes . In the field of Incorporating Artificial Intelligence In Academic Research ; Here are some potential research perspectives relating to our study the use of artificial intelligence in Academic Research , and its effectiveness ; the research explores how these AI tools impact On

educators and Academia ; this research work also investigate the future of Artificial In Academic Research .

4.6.Conclusion

Drawing conclusions from the study that has been done; Academia is one of the key sectors driving the expansion of Artificial Intelligence (AI) and machine learning, with scholars from a variety of disciplines demanding, developing, and utilizing new applications for AI in their research. In fact, AI is becoming increasingly embedded in academic research as scholars turn to AI tools to find and analyze everything from datasets to published research articles, and from potential collaborators to job applicants. While the potential of these new technologies is exciting, the ramifications of using AI in academic research are only beginning to be explored. AI in education holds tremendous promise for enhancing the learning experience, providing personalized, efficient, and engaging educational opportunities. However, it requires thoughtful implementation, ongoing refinement, and consideration of ethical implications to ensure its positive impact on the education sector.

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APPENDICES

Appendix 1: Students' Questionnaire

Q1. Have you ever used AI tools or methods in your research work?

- o Only sometimes
- o Not much
- o Helped me a lot

Q2. Do you feel satisfied when using Artificial Intelligence Applications in your Academic Research?

- o Yes
- o No
- o Not that much

Q3. In your opinion, do you find that Artificial Intelligence Applications are useful to the researcher, or are they merely applications that do not allow the educator to innovate on his own in his Research?

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Q4. Have you encountered any challenges when incorporating AI into your Academic work?

- o Yes
- o No
- o Not really

Q5. If yes; how ?

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Q6. What specific AI technologies have you employed in your Academic Research?

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Q7. Do you agree that With AI-powered data mining and analysis, Researchers are able to gather and analyze larger amounts of Data in less time?

 o Agree

 o Disagree

Q8. Artificial Intelligence providing more accurate and in-depth insights then Traditional Manual Methods.

 o True

 o False

Q9. Do you believe that there are any Risks or drawbacks associated with the widespread adoption of AI in Academic Research?

 o Yes I do

 o No ; there is no risks in using Ai

 o Maybe there is

Q10. What are the key benefits you've observed from integrating AI into your Research process?

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Q11. Are there any specific AI-related skills or knowledge gaps that you feel researchers in your field need to address?

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Appendix 2: Teachers' Questionnaire

Q1. In your opinion, do you find that artificial intelligence applications are useful to the researcher, or are they merely applications that do not allow the educator to innovate on his own in his research?

....

....

....

Q2. Have you encountered any challenges when incorporating AI into your academic work?

- o Yes
- o No
- o Not really

Q3. If yes, How ?

....

....

....

Q4. What specific AI technologies have you employed in your Academic Research?

....

....

....

Q5. If Artificial Intelligence becomes the principal course designer, will it limit the creativity of students who are different from the typical students in the past?

- o True
- o False
- o Other

Summary

The current Investigation highlights the incorporate of Artificial Intelligence in Academic Research. This idea is directed to Doctoral students and researchers at Algerian universities to gain an overview of this artificial intelligence and its role in Academic Research. The main objective of this research is to find out whether artificial intelligence applications are useful to researchers and whether they affect the student's clerical abilities. In this investigation, we applied the descriptive method by developing two questionnaires: the first was distributed to doctoral students and some researchers from the English language branch and to English language teachers. Overall, the results from the data collection tools showed that the idea of artificial intelligence was positive and had a strong resonance among students, especially for using artificial intelligence applications that they said were useful; however, there were some concerns that needed to be taken into account from risks and others , Butresearchers can harness the power of Artificial Intelligence effectively in Academic Research while maintaining academic integrity, critical thinking, and ethical standards.

Résumé

L'enquête actuelle met en lumière l'incubation de l'intelligence artificielle dans la recherche académique. Cette idée s'adresse aux étudiants de doctorat et aux chercheurs des universités algériennes afin d'obtenir un aperçu de cette intelligence artificielle et de son rôle dans la recherche académique. L'objectif principal de cette recherche est de déterminer si les applications d'intelligence artificielle sont utiles pour les chercheurs et si elles affectent les capacités clérouques de l'étudiant. Dans cette enquête, nous avons appliqué la méthode descriptive en élaborant deux questionnaires: le premier a été distribué aux étudiants de doctorat et à certains chercheurs de la branche de la langue anglaise et aux enseignants de langues anglaises. Dans l'ensemble, les résultats des outils de collecte de données ont montré que l'idée de l'intelligence artificielle était positive et avait une forte résonance parmi les étudiants, en particulier pour l'utilisation d'applications d'Intelligence Artificielle qu'ils ont dit être utiles; cependant, il y avait quelques préoccupations qui devaient être prises en compte à partir des risques et d'autres. Mais les chercheurs peuvent exploiter

efficacement le pouvoir de l'intelligence artificielle dans la recherche universitaire tout en maintenant l'intégrité académique, la pensée critique et les normes éthiques.

الملخص

يسلط البحث الحالي الضوء على دمج الذكاء الاصطناعي في البحث الأكاديمي. هذه الفكرة موجهة لطلاب الدكتوراه والباحثين في الجامعات الجزائرية للحصول على لمحة عامة عن هذا الذكاء الاصطناعي ودوره في البحث الأكاديمي. الهدف الرئيسي من هذا البحث هو معرفة ما إذا كانت تطبيقات الذكاء الاصطناعي مفيدة للباحثين وما إذا كانت تؤثر على القدرات الكتابية للطالب. وقد قمنا في هذا البحث بتطبيق المنهج الوصفي من خلال تطوير استبيانين: الأولى وزعت على طلاب الدكتوراه وبعض الباحثين من فرع اللغة الإنجليزية وعلى معلمي اللغة الإنجليزية. بشكل عام، أظهرت نتائج أدوات جمع البيانات أن فكرة الذكاء الاصطناعي كانت إيجابية وكان لها صدى قوي بين الطلاب، خاصة بالنسبة لاستخدام تطبيقات الذكاء الاصطناعي التي قالوا بإنها مفيدة؛ لكن كانت هناك بعض المخاوف التي يجب أخذها بعين الاعتبار من مخاطر وغيرها.ولكن يمكن للباحثين تسخير قوة تطبيقات الذكاء الاصطناعي بفعالية في البحوث الأكاديمية مع الحفاظ على النزاهة الأكاديمية، والتفكير النقدي والمعايير الأخلاقية.