

The impact of artificial intelligence on the future of scientific research - From the point of view of university professors

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Abstract:

This study aimed to explore the relationship between artificial intelligence and university professors, focusing on its impact on scientific research and its role in shaping the future of universities, through a field study of the views of university professors at the Faculty of Humanities and Social Sciences at the University of Tebessa. The study seeks to provide in-depth insights into the opportunities and challenges posed by these technologies, and to propose effective strategies to enhance integration between artificial intelligence and the academic environment, in a way that achieves a balance between technology and the role of the human element in university education

Keywords. Artificial Intelligence -Academic environment-Modern Technologies - Scientific Research

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1.introduction :

In recent years, the world has witnessed an unprecedented boom in the field of artificial intelligence, as this technology has become a fundamental focus in various sectors, including higher education and scientific research. Artificial intelligence is seen today as a powerful tool that can improve academic performance, enhance the quality of scientific research, and provide innovative solutions to the challenges of the educational process. However, this development is accompanied by fundamental questions about the impact of these technologies on the role of university professors, as they are one of the main pillars of universities.

In this context, research into the impact of artificial intelligence on teaching methods and scientific research emerges as a necessity to understand the transformations that may reshape the academic environment. While artificial intelligence offers great opportunities, such as accelerating research processes and personalizing tasks for students, it also poses challenges related to adapting to this technology, ensuring the preservation of professors' independence, and reducing social gaps between academics.

2. The problem:

One of the main reasons for the progress of countries is their interest in the educational system and making it a priority to build an equal society. Education is considered the vital sector on which any country relies, as it is the indicator by which the development of societies is measured. We find that most countries are trying to raise the level of education for individuals. Therefore, it is necessary for higher education institutions to adapt to the changes brought about by the new world order and the accompanying social and economic transformations that are reflected in university education and the quality of its outputs.

As interest in higher education and its changing patterns has increased due to the social goals and objectives assigned to it, which reflects the aspirations of society in facing environments with accelerating needs and requirements, which has made it necessary for higher education institutions to adapt to modern developments, especially those related to the use of computer software and the shift

towards e-learning, which necessitates for take corrective action And For the paths of its educational programs to achieve the required performance, especially in terms of dealing with new ideas and practices, which the university is considered its first factory and the main supplier and incubator of energies and competencies, and which advanced countries have been able to gain distinction in scientific and technical development, which has been clearly reflected in their intellectual advancement.

Based on the idea of excellence in higher education, the problem of educational quality appears, for which all available technical and scientific developments have been employed that contribute to raising those educational outcomes, and for which all available technical and scientific developments have been employed that contribute to raising those educational outcomes, the most important of which is the use of artificial intelligence applications to enhance the link between the quality of higher education and the requirements of the labor market.

In recent years, there has been increasing interest in what is known as e-learning, which requires purely technological means and tools, which the university is responsible for providing either in the form of patents or providing human competencies capable of adopting advanced computer programs, making distance education and the use of artificial intelligence applications an important means of raising the level of students, professors and researchers, which gives it a local and global position.

With the rapid development of artificial intelligence technologies and their increasing impact on various areas of life, scientific research is witnessing a radical transformation that includes teaching methods, analysis tools, and interaction between researchers. However, the role of university professors remains pivotal in shaping the future of scientific research. Here, questions arise about how artificial intelligence affects academic research practices, the extent to which professors accept these changes, and how these technologies can enhance or hinder their academic and research performance. (Asmaa Belilita, 2022, p 45)

Artificial intelligence is one of the most prominent technological developments that increasingly affects various aspects of life,

including the field of higher education and scientific research. In universities, these technologies are expected to contribute to improving and developing teaching and research methods, opening up new horizons for learning and innovation. However, there are major challenges facing university professors in employing these technologies, whether at the level of changing their academic roles or adapting to modern technology that may affect traditional ways of working. Therefore, questions arise about how artificial intelligence will affect the future of university education and scientific research from the point of view of university professors, as well as about how to adapt this technology to the established educational and research patterns

2-1-The central question

What is the impact of artificial intelligence on the future of scientific research from the point of view of university professors, and how can it be used to enhance their academic and research roles without compromising their traditional status?

2-2-.Sub-questions:

- 1.How do university professors see the impact of artificial intelligence on scientific research methods in their academic fields?
2. What challenges do university professors face in integrating AI technologies into their practical research?
3. How can artificial intelligence enhance the efficiency of university professors in managing their research projects?
4. What concerns might university professors have about the role of artificial intelligence in influencing their intellectual and research independence?
5. To what extent do university professors consider artificial intelligence a threat or an opportunity to improve the quality of scientific research?

3. Research objectives:

- Exploring the impact of artificial intelligence on scientific research and university education

- Analyzing how artificial intelligence affects scientific research methods and university teaching methods, in addition to the impact of these practices on the university professor.
- Identify the challenges university professors face when using AI technologies in their research and teaching.
- Identifying the difficulties and obstacles that university professors may face when using artificial intelligence in the fields of education and scientific research
- Learn how artificial intelligence can contribute to improving the academic performance of university professors, whether by improving the quality of scientific research or enhancing teaching methods and approaches.
- Discovering the extent to which artificial intelligence technologies affect the independence of university professors in making academic and research decisions, and how it can enhance or limit the freedom of academic thought.

4. Importance of research:

The importance of the study stems from the pivotal role that artificial intelligence plays in reshaping many sectors, including higher education and university research. The importance of this study is evident through the following points:

- Keeping pace with technological developments and highlighting the changes brought about by artificial intelligence technologies in the academic environment, which helps in understanding the challenges and opportunities provided by these technologies.
- Enhancing the role of university professors through insights on how to enable them to use artificial intelligence to enhance their role in teaching and scientific research, which contributes to developing their academic performance.
- An attempt to highlight the need to develop effective strategies to adapt university professors to artificial intelligence technologies, which will enable them to benefit from them in an optimal way without compromising the quality of academic work or their independence.
- The study attempts to achieve a balance between reliance on artificial intelligence technologies and the role of university

professors as a vital human element in university education and scientific research.

- Providing a comprehensive and integrated understanding of the relationship between artificial intelligence, university professors, and scientific research, which enhances the ability of universities to benefit from these technologies while maintaining the quality of education and scientific research.

5. Study concepts

5-1-IntelligenceArtificial: It is a simulation of human intelligence and understanding of its nature by creating computer programs capable of simulating intelligent human behavior. Artificial intelligence is currently present everywhere around us, starting with self-driving cars, unmanned drones, translation or investment software, and many other applications spread throughout life. (Ashri R, 2020,p 134)

It is one of the branches of computer science and software that is characterized by its ability to simulate human intelligence, meaning that the application has the ability to deal with data and information, store it, analyze it, reformulate it, with the ability to learn, find relationships between different information, and reach recommendations and decisions, and implement them as well(Chapelle C. A., & Sauro Sh, 2017,p 87)

It is one of the most exciting and influential future technologies in all aspects and sectors of life, making it a fundamental factor in shaping the nature and features of the future. It is a mistake to limit the traditional interpretation of artificial intelligence to programming to teach machines and computers to act on their own without prior human intervention, or with limited intervention, but it is simply a way of life, and comparing its aspects to the previous style becomes like a meaningless comparison (Dodigovic M,2005, pp.66-67) Also,It is a part of computer science that aims to designSystemsSmart gives the same features thatWe know it as intelligence in behavior Humanitarian (Minh Quang Pham,2020, pp. 617–628)

.Definition:It is clear to us that artificial intelligence in the university is a representation of human knowledge and a simulation of human intelligence through electronic programs, applications and digital technologies, which can be employed in a way that serves faculty members.AndTeaching (professors), saves time and effort, facilitates the process of following up on students remotely and evaluating them, as well as helping them in both aspects of the teaching process and in completing their academic research.

6. The rise and development of artificial intelligence.

Artificial intelligence traces its philosophical roots back to the Greek philosophers Socrates.Socrates", Aristotle", and the French Francis Bacon and Russell Bertrand who presented what is known as (positivismlogicol), and its roots go back to mathematics through three fields: computing, logic, probability theory and algebra, which was founded by the Arab scholar Al-Khwarizmi. It also dates back to the first half of the twentieth century, where researchers began studying how to represent human knowledge and thinking within computer systems. In 1956, a conference was held in Dartmouth, USA, where the concept of artificial intelligence was defined and research objectives were set for its development. Since then, multiple technologies have developed, and thinkers identify three waves of artificial intelligence development: (Ritzer, G,2011, p. 125)

- The first wave (1950-1980): It relies on rules, control, input, output, and pre-defined firmware. It is the first experiment in building artificial intelligence, and its most prominent applications are the first chess programs.
- The second wave (1980-2010): It relies on the application of machine learning and deep learning algorithms.DeepLearning and Neural Networks were among the most famous applications of this wave in machine learning, natural language processing, and robotics.
- The third wave (2010-present): It relies on the use of artificial intelligence in complex problems that require a combination of machine learning, natural language processing, robotics, and intelligent automation techniques. Common applications

of this wave include deep learning in voice and image recognition, speech recognition, speech-to-text conversion, and artificial intelligence applications in the fields of health, medicine, smart cars, e-commerce, and others (Camic, C, 1998, p283)

7. Field study

7.1. Survey study:

The exploratory study is one of the first steps in social and human research, as it helps the researcher to explore and discover the circumstances surrounding the phenomenon that he wants to study it and collect it. Data and information about it in order to understand it and identify the obstacles that it may stand in the way of conducting it to control it in the primary study, and then formulating the research problem in an accurate formulation in preparation for studying it in-depth. In addition, we are trying to achieve goals Next:

- ✓ Identifying the characteristics of the original study community, represented by the professors of the University of Martyr Sheikh Al-Arabi Al-Tabsi, Faculty of Humanities And social.
- ✓ Determine sample size Intentionality.
- ✓ building And test the interview guide as the main tool for data collection.
- ✓ Identify the knowledge gap For study.

After that, I completed the transition to the application of the second stage in the exploratory study, which is the exploratory interview on a sample of professors in the Department of Sociology at Tebessa University in an attempt to search for indicators and define the research problem based on the knowledge gap, which was represented in the impact of artificial intelligence on the future of university education, where we went down to the field where we held brief meetings with a group of professors. At this stage, an important discussion took place about artificial intelligence and its uses in education, especially higher education, where this discussion can be divided into three axes through which we were able to define the cognitive problem represented in the problem of artificial intelligence

techniques, uses of artificial intelligence, and ethics of artificial intelligence.

7.2.Study community and sample

Before discussing the method used in the current study, we must first point out the community from which the sample will be drawn, which is known as the study community, and defining it clearly is considered one of the most important stages of scientific research, such that identifying its components, limits and nature facilitates the researcher's process of choosing the appropriate methods and tools, as well as the method adopted in the study.

- 1- The study community refers to all units or elements that make up the community that the researcher will study. This community may be individuals or things, for example newspapers, villages, universities, countries, or other things, depending on the nature of the research and the researcher's scientific specialization. (Martin bulmer,2022,pp 123-125)
- 2- The study community is represented by university professors at Tebessa University. Given the impossibility of limiting and studying the community in its entirety, the researcher resorted to the sampling method in the current study. The sample is defined as part of the total community of the study, such that it carries the same characteristics and qualities and represents it in its entirety. Through the exploratory study that we conducted, we found that the intentional sample is the most appropriate, and this is due to the diversity of specializations of university professors in the various faculties present at the university.

7.3.Study limitationsField:

--borderSpatial:College of Humanities and Social Sciences-universityTebessa.

BordersHumanity:Purposive sample of 30 male and female professorsCollege of Humanities and Social Sciences-universityTebessa.

BordersTime: First semester of the yearUniversity2022- 2023

7.4.Study method:



Maurice knows The method is defined as “a set of procedures and steps adopted in order to reach a result, meaning that the method is the researcher’s subjection of his research activity to precise organization in the form of known steps in which he determines his research path from the starting point to the point of arrival and determining the result.” (Alan bryman et edward bell,2016,p99)

The scientific method also means the path leading to the discovery of facts in the various sciences by means of a set of rules to reach known results, or it is an organized plan for several mental or sensory operations in order to discover a fact or to prove it. () Therefore, the method is the path that the researcher takes to reach the absolute truth. The nature of the study topic determines the appropriate approach. To study it, and for our topic, entitled “Professors’ Attitudes towards the Use of Artificial Intelligence in...” The university, then This research seeks to accurately describe this phenomenon and collect as much information as possible about it, analyze it, and interpret it in an organized scientific manner in order to arrive at verifying the validity of the study hypotheses and achieving its objectives, and Here we see that the descriptive approach is the most appropriate approach for this topic..

The descriptive approach focuses on accurate and detailed description. For the phenomenon or Specific topic on a specific image or Quantity. (U.S. Bureau of Labor Statistics,2022,p 45) It is also known as an investigation that focuses on a phenomenon as it exists in the present with the aim of diagnosing it, revealing its aspects, and determining the relationships between its elements or between other phenomena. ()

7.5.Data collection tools:

Scientific studies are based on a set of tools that transfer research from its ambiguous form to clear and proven facts, which are what is needed. The researcher to complete his research in the best possible way, and the latter varies according to its uses in collecting the data necessary to deal with a specific research problem. Among these tools we find observation and interview.

-Note: Observation is one of the techniques used especially in field studies because it is the tool that makes the researcher more connected to the research. Scientific observation represents a systematic method carried out by the researcher with complete accuracy according to specific rules to reveal the details of phenomena, and to know the relationships that link their elements. It depends on the researcher observing a phenomenon in the field of research, field or laboratory, and recording his observations and collecting them to extract indicators from them. This is done by means of sensory perception (with the naked senses) or by using machines. () In the current study, we relied on the simple observation method, without participation in the exploratory study in order to examine the field of study.

-The interview The interview is considered one of the basic tools for collecting data and the most common and effective in empirical studies, due to the data it provides about the subject to be studied. It is defined as “the verbal exchange that takes place face to face between the interviewer and another person or persons...” ()

Based on this, the interview guide was built as follows:

Axis One: Artificial Intelligence (Electronic Tools Problem)

Q1: Do you know what is called artificial intelligence?

Q2: What artificial intelligence technologies do you know?

Q3: How can artificial intelligence technologies be used and applied?

The second axis: Uses of work pressures and their relationship to worker stability in the Algerian institution Artificial intelligence

Q1: Do you think that the use of artificial intelligence applications may lead to changes in the nature of academic work?

Q2: Does it use artificial intelligence applications to improve the student experience?

Q3: Do you encourage the use of technology and artificial intelligence applications in the teaching process and the completion of scientific research?

Q4: Can artificial intelligence, after the development of time, take the place of the teacher?

Q6: What? What are the future trends for using artificial intelligence in the university?

Axis III: Ethics of Artificial Intelligence



S1What are the ethics related to the use of artificial intelligence applications in the university?

S2How do you see the future of sociology in the age of artificial intelligence?

S3Do you think there are ethical controls governing artificial intelligence applications?

8.Analyze interview results:

The first question: By questioning the study sample, their opinions ranged between artificial intelligenceIt is the Internet technology and electronic programs that can process a large amount of information in a short time.,It is also aPrograms that help the researcher or browser to select information in record time and in scientific systematic ways according to advanced software,So is hetechnequebecomeKnown inRecentlyThe latter is relied upon in many areas.Economic and social.. It is noted that they agreed that artificial intelligence It is a technology that prepares the researcher to browse and select information in record time.,This can be interpreted as the use of advanced technology and software to process data in sociological academic work representing an important development that contributes to deepening our understanding of social interactions and societies to a greater extent, and this technology can remain a powerful tool to support sociological research.

Question 2: became clear from this question that most of the sample members use most of the artificial intelligence applications and welcome them.chat gpt-Cablot - Bing-BardIt can be inferred that most professors have knowledge of most of the applications of artificial intelligence, and this is due to their awareness of everything new that appears in the field of artificial intelligence, coinciding with the conferences and forums that have been held in recent years at the level of various universities in the country.

Question 3:Through the response of the sample vocabulary, artificial intelligence applications help them toSearch for information inTheir research and academic studies, as well asIn research and presentation design In preparing lessonsBusinessdirected And preparing lecturesThis can be explained by the fact that artificial intelligence applications help professors provide quick and easy access to multiple

information sources via the Internet, which enables them to have access to up-to-date and accurate information and keep up with everything new. In general, these technologies have brought about changes in the methods of academic work and learning, and provided new tools and resources to improve efficiency and effectiveness in the field of research, education and academic assessment.

Question 4: Through this question, it became clear that the study sample confirms that it is impossible to compensate artificial intelligence. Humans, they all share the idea that artificial intelligence is impossible to surpass human intelligence, and the above can be explained despite the fact that artificial intelligence has advantages and the ability to process and analyze data quickly, and may have an important role in enhancing the capabilities of teachers and helping them accomplish their pedagogical tasks, but it is still far from the idea of compensating this with that.

Question 5: According to the sample response, it became clear that artificial intelligence improves the performance of the university student, on condition that if there is good use and good behavior. This can be explained by the fact that AI applications improve the student experience by personalizing education, providing diverse educational resources, and enhancing the process of interaction and participation.

Question 6: While at this level and through this question, the study sample members agreed that they encourage the use of artificial intelligence techniques. But in the controls, rational and good exploitation within the framework of ethics and scientific integrity. Therefore, professors are encouraged to use these applications to benefit from their advantages in improving the learning and research experience, in terms of investing time and providing them with the desired references.

Question 7: The sample vocabulary sees that artificial intelligence applications may cover some of the tasks that the teacher performs, but it cannot completely occupy his place, but replacing the human mind is impossible, as replacing teachers with artificial intelligence is not a realistic reality at the present time. Perhaps in the future, these technologies will become a strong partner for teachers in the educational process, and it can be a powerful tool to enhance

innovative learning. However, the teacher or the human mind remains necessary for classroom interaction.

Question 8: The study sample's response to this question was that if artificial intelligence and its techniques are used in a conscious manner, we can raise the level of the university, scientific research and pedagogical performance - reducing literary and human specializations and focusing on scientific subjects. It is clear that there are positive trends in this field to raise the university and advance scientific research. This is due to artificial intelligence applications working to improve production efficiency as well as improve the quality of education, support scientific research, and provide customized learning experiences.

Question 9: Based on the study sample's response, the use of artificial intelligence techniques imposes a kind of research laziness, which may be used as a means of plagiarism and cheating, as it hides the efforts made by the student and the professor, in their opinion, it affects the ethics of scientific research. Accordingly, it is clear that the majority of professors support the idea that artificial intelligence may detract from the scientific value of scientific research as a result of the absence of ethics related to scientific research, and this can be explained by the lack of oversight, which leaves the field open for ethical behavior and violations, incorrect programming, and the margin of error. If the data is inaccurate, the results produced by the system may lack credibility. Therefore, it is necessary to provide and guarantee values and ethics in all areas of research and applications. This is due to the rapid development of technologies, which has made it difficult to establish ethical rules to govern them, as well as cultural differences from one society to another. It is difficult for official bodies and legal organizations to keep pace with the rapid technological developments in the field of artificial intelligence, which leads to taking time to enact the necessary legislation and controls.

Question 10 It became clear from the sample response that the professors' use of artificial intelligence techniques led to a rapid development in the type of academic studies completed, with the emergence of new horizons for sociological research. The more these

techniques develop, the more they excel in analyzing social phenomena. The above can be explained by the contribution of artificial intelligence with its techniques to expanding knowledge and understanding social relations, and this is through expanding the areas of research, as well as with the development of time, the possibility of using artificial intelligence to examine complex social models and trends and extract new patterns and interpretations in the field of sociology.

9. Analytical reading of the general results based on the theoretical approach of the study:

From the previous data, we conclude that the majority of professors have negative opinions about the use of artificial intelligence in the university. This is what we noticed in the exploratory interview (survey study). The majority of professors do not encourage. The use of artificial intelligence in the university is limited to a small group of students, and this is due to the lack of experience and training in these applications, as well as the fear of unconscious use and employment in completing their research (credibility and scientific integrity), as well as the fear of its negative effects because the increasing reliance on technology may lead to a reduction in academic research interaction between students and professors, which negatively affects the quality of education and human relations in the university.

from. Through the previous data, we conclude that the majority of professors have positive attitudes towards the use of artificial intelligence in the teaching process, as newly hired professors had positive attitudes towards the use of artificial intelligence in the teaching process and welcomed it, especially if it was exploited and invested in a rational framework, as the application of artificial intelligence in the university, especially in the teaching process, contributes to enhancing student interaction and participation and providing diverse educational content, as well as personalizing education in the sense of providing an educational experience tailored to each student's needs according to his educational level, unlike old professors who prefer classical teaching methods, and reject the idea of using artificial intelligence applications in the teaching process, because in their opinion, artificial intelligence and its applications may

lead to the loss of human communication, lack of privacy and honesty, and the technological transformation may lead to changes in the needs of the labor market, and it is better to present lessons using old teaching methods.

From the previous data, we conclude that the majority of professors have negative attitudes towards the use of artificial intelligence in the process of completing academic scientific research. This was observed during the interview with a sample of professors of different academic ranks. According to their view, excessive reliance on technology, especially artificial intelligence applications of different types, may reduce the role of the researcher and the accuracy of the results, and the lack of transparency and objectivity in the scientific research process. Artificial intelligence applications may generate research laziness and the absence of what is called scientific credibility and integrity, and the absence of scientific research ethics, which in turn are the basis of scientific research.

10.Conclusion

As we move forward, we must address the real challenges AI poses, from reproducing bias to misinformation and potential misuse. Our focus should not be on preventing a distant Skynet scenario, but on the ways to the table now. So as we continue to concrete issues AI bring explore the transformative potential of AI in the social sciences, we must remember that AI is neither our enemy nor our savior. It is a tool whose value lies in how you use it. It has the potential to enrich our collective wisdom, but it can equally enhance human folly.

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