Attitudes Of Faculty Members At Al-Jouf University Towards The Use Of Artificial Intelligence In University Teaching In The Kingdom Of Saudi Arabia

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ABSTRACT

The study aimed to reveal the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia. To achieve the objectives of the study, the researcher prepared a tool consisting of (33) paragraphs. (98) A faculty member from the Colleges of Education affiliated to Al-Jouf University during the second semester (2022/2023 AD).The results of the study showed that the total average of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching was (3.54), with a medium degree of attitudes. 0.024), and for the academic rank variable (0.047), which are non-statistically significant values at the significance score (0.05), meaning that there are no statistically significant differences in the total score according to the variables of gender, number of years of experience and academic rank. The study recommended the need to encourage faculty members to employ various artificial intelligence programs in teaching students.

Keywords: Artificial Intelligence, Trends, Jouf University, University Teaching.

Introduction:

In recent decades, the world has witnessed a tremendous development in the explosion of knowledge, and information development, which has become forces that control the world, and the plans of the Kingdom of Saudi Arabia and its ambitious

vision have tended to form a knowledge society, digital transformation and benefit from technology in all its fields, including artificial intelligence in all fields and sectors, the most important of which is education, so that artificial intelligence systems and applications in education in the Kingdom will individualize the curricula for each learner according to his needs and characteristics, and you will find counterpart robots in our schools and among our students, and Each learner has a personal robot that helps and supports the learner during his learning and a smart private teacher, which will achieve the principle of lifelong learning and our students will gain the skills of the twenty-first century, in addition to that, artificial intelligence systems will understand the feelings and emotions of our students and provide them with guidance and counselling, so that it takes their hands and guide them to future jobs that suit their potential and abilities. Artificial intelligence has become one of the topics that attract the most coverage in all academic fields, as the field is witnessing widespread due to accelerated technological reasons on the one hand and purely economic reasons contrived by companies on the other hand, which have been reinforced by the emergence of big data in recent years (Carlos, Kahn, & Halabi 2018). The history of the emergence of the term artificial intelligence dates back to the fifties of the twentieth century when the scientist Alan Turing presented what is known as the Turing test, which means evaluating the intelligence of the computer, and classifying it intelligently if it is able to simulate the human mind, and then the first program using artificial intelligence was created by Christopher Strachey, as he was able to run checkers via the computer and develop it, then Anthony and Tenger from the University of Cambridge designed a simulation experience through a computer for the shopping process that It is carried out by the human person in more than one detective and has achieved success in what is known as machine learning. The concept of artificial intelligence was officially announced in (1956) at Dartmouth College, and in (1997) the first computer was able to overcome a human competitor in chess, and the pace of acceleration in artificial intelligence began at the beginning of the twenty-first century until interactive robots became available in stores, and even went beyond that to become a robot that interacts with different emotions through facial expressions, and other robots

that have become difficult tasks such as the Nomad robot that performs a task search and explore the following places in the South Pole, and determine the location of meteorites in the region (Al-Fadil, 2016).

Artificial intelligence has become a widely circulated concept and has been used in all scientific-technical fields and even the humanities. Belharet, et al, 2020 believes that artificial intelligence is one of the main pillars on which computing devices, or technology in general, are based, in addition to the fact that artificial intelligence is characterized by the ability of technological devices to perform many tasks similar to the tasks of human resources such as driving cars and recognizing images to distinguish sounds and talking robots. Rahmatizadeh, Valizadeh-Haghi & Dabbagh, (2020) asserted that artificial intelligence is the ability of a machine to simulate the human brain by interpreting the data it receives from its environment, learning from it, and using this data and information to successfully complete tasks, even in the most unexpected and new scenarios. Stachowicz-Stanisch, A. Aleksander, A. (2018) defined it as: "Computer systems designed to interact with the world through capabilities (e.g., visual perception, speech recognition, and intelligent behaviors that you think are essentially human (e.g., evaluating available information, and then taking logical action to achieve the goal)."

In light of the progress that the world is witnessing today, it has become normal to acquire smart devices and deal with smart information programs. A program is usually smart if it automatically performs unprogrammed behavior, where it can make new decisions to adapt to its situation and that of its surroundings over time (Qamoura and Krush, 2018). Artificial intelligence (AI), one of the modern and innovative sciences that rely on the computer and its programs mainly and fundamentally, it is the cornerstone of making programmed and computerized machines perform tasks similar to human intelligence operations that are represented in learning, deduction and decision-making (Al-Sharqawi, 2001). His chance of success in achieving his mission or the mission of his team (Al-Rashidi, 2016). Many of the literature agrees that AI is "the study and design of intelligent customers, and a smart customer is a system that accommodates its environment and takes positions that increase." Artificial intelligence is described

as the science that makes machines think like humans, that is, the computer has a mind, artificial intelligence has certain behaviors and characteristics of computer programs that make them simulate human mental abilities, and their work patterns, and the most important of these characteristics is the ability to learn, deduce, and react to situations on which the machine was not programmed, and perhaps the (NEOM) city project is one of the most important features of the Kingdom's applications in artificial intelligence, as this project will transform the Kingdom into a leading global center in innovation and trade based on Modern technologies (Al-Hussein 2019). Artificial intelligence is the main pillar of this project, which will work to make (NEOM) a smart city that includes all smart services, including smart schools (Al-Khamis, 2017).

The importance of artificial intelligence: The importance of artificial intelligence is represented by the following

- Machine learning: As one of the branches of artificial intelligence, which means that the computer is able to learn on its own from any previous goods or experiences, which makes it able to predict and make the appropriate decision quickly, and this is through the development of algorithms that allow such a matter.

- Data mining: It means searching and mining for specific data and certain patterns within a large set of data by computer programs, as companies can benefit from data mining to develop their performance, increase their sales, and reduce production costs.

- Knowledge representation: Knowledge representation is the field of artificial intelligence that is concerned with enabling machines to think and make decisions, as the knowledge acquired by the machine is collected and stored in a database used to exchange and manage knowledge, and serve as a reference for making any intelligent decisions that may be issued by the machine.

- Logical thinking and probabilistic thinking: Logical thinking in artificial intelligence is one of the different forms of thinking, as facts are deduced and inferences from available data, and logical thinking corresponds to what is known as probabilistic

thinking, which takes the concept of probability and uncertainty of knowledge, in order to deal with all uncertain future circumstances, that are likely to be doubted.

- Information retrieval and semantic web: Information retrieval means the search for data and documents of any kind, that may exist via the web through the concept of the semantic web, which converts the data on the World Wide Web into a global database in which information is interconnected, so that it is understood by machines and its use is not limited to humans only, through this matter, the machine can book tickets online or use dictionaries found via the web (Al-Obaidi, 2010).

Characteristics of artificial intelligence: Artificial intelligence is distinguished from human intelligence as relatively permanent and less effort and cost, and its most important characteristics are.(Karsenti, 2019).

1. It is characterized by its ability to solve problems with a mechanism based on objective solutions, and accurate assessment of solutions, by providing multiple solutions to problems that are difficult to analyze by the human element and within a short period.
2. Artificial intelligence is an attempt to give computers some human capabilities, and therefore it is the word intelligence that means the ability of the human element.
3. Artificial intelligence is concerned with modern technical concepts and methods, and how to invest them to develop the functions of computers so that they simulate human capabilities.
4. Artificial intelligence includes studying the logical thinking processes of the human element, and then trying to implement it from the computer; therefore, what distinguishes artificial intelligence is its relative stability, as it is not exposed to the factors that affect the human element such as forgetting.

Artificial intelligence applications that can be employed in the educational process

1. Virtual reality technology (VR): Virtual reality refers to a computer representation that creates a perception of the real world, through virtual reality information and experiences can be transferred to the minds in an attractive

and more effective way, such as taking virtual tours in historical or tourist places or viewing the solar system closely.

2. Augmented reality technology (AR): From this technology, the learner can be transferred to three-dimensional reality scenes, where these scenes are integrated in front of him, to create a complex display of reality, as this technology provides a range of educational options, such as simulating a complex surgery, or doing an anatomy of the human body for medical students, or doing a scientific experiment and other educational options.
3. Smart chatbots: They are computer programs designed for intelligent simulation of human conversations, as they provide a form of interaction between the user and the program, and the interaction is from text, voice, or both together. These applications take different forms, such as: messaging, websites, smart device applications, or over the phone, and learners can interact with them by asking questions related to a specific field, and then the robot plays an active role in answering the questions posed to it, it also solves, supports, advises, or even empathy, depending on what the users need from help.
4. Audio Industry: Digital programs that convert written texts into audio according to the specified default language, and then use it in websites, mobile applications, digital books, e-learning materials, or documents.
5. Expert Systems: Computer programs, simulating the behavior of the expert human in his use of knowledge, as well as issuing judgments, rules of conclusion, and providing appropriate solutions and advice to problems, as the experience of the expert human is transferred to the expert computer system from programming languages prepared for this purpose.
6. Educational Robotics: It is an electromechanical machine capable of carrying out its tasks by following a set of instructions saved in the electronic memory of the device, and the commands are programmed and designed through programming languages specialized in the computer, and connected to the parts of the robot. These robots can be used in the educational field by using them as an educational means to explain a specific topic.

7. Smart Educational: Games that are programmed by computers to achieve a specific educational goal, characterized by suspense, challenge, imagination, and competition, as they are designed in a way that stimulates mental activity, increases the level of concentration, improves the ability to make logical decisions, and solve problems in a quick way.
8. Smart Evaluation: Computer programs that can assess higher thinking skills, correct assignments, and complete complex tests automatically, as well as review a wide range of data, analyze the performance of learners, highlight their strengths and weaknesses, and provide them with the necessary support in a timely manner.
9. Read and Distinguish Texts: This is a method of converting handwritten or imaged texts into text files that can be edited, and this is done by analyzing the document and comparing it with the fonts stored in the database, or with the typical attributes of the characters, and these programs also use a spelling checker to guess unknown words.
10. Summarize Texts: Computer programs, which can summarize long texts with extreme accuracy and in an easy-to-read way, so that its users can absorb the summary, and extract the most important information in record time, whether the original texts are research articles, or publications on other means of communication (Al-Subhi, 2020).

Due to the importance of the subject of the study, previous studies showed that, **the study of Al-Atal, Al-Anzi and Al-Ajmi (2021)** aimed to identify the importance of artificial intelligence technology in the educational process, the challenges facing its use in education from the point of view of students of the College of Basic Education in the State of Kuwait and the impact of gender variables in the academic year, and the cumulative average in that, and the study used the descriptive approach, and the study sample consisted of (229) male and female students studying the computer teaching methods course at the College of Basic Education, and a questionnaire was applied to them that included (31) phrases distributed on two axes. The results showed that there were statistically significant differences at the level of significance (0.05) between the averages of the study sample members on the importance of

artificial intelligence technology in the educational process according to the variable of the school year, while there were no differences on the challenges facing the use of artificial intelligence technology in education according to the gender and cumulative rate variables, while there are no differences about its importance in the educational process.

The study of Al-Hujaili and Al-Farani (2020), entitled Artificial Intelligence in Education in the Kingdom of Saudi Arabia, aimed that investment in artificial intelligence has become one of the most prominent goals and aspirations of the Kingdom of Saudi Arabia in its various institutions and sectors, most notably the education sector, as an integral part of the Kingdom's Vision (2030). This paper aimed to shed light on artificial intelligence in education in the Kingdom of Saudi Arabia, and the study touched on the following aspects: what artificial intelligence can offer to education in the Kingdom, artificial intelligence applications in education in the Kingdom, artificial intelligence systems, and the future and artificial intelligence systems in education in the Kingdom.

Jena's (2018) study sought to reveal the effectiveness of the AI neural network approach on achievement, the survival of the learning effect, and the modification of misconceptions among students, especially the concepts of photosynthesis, race, and transmission. The semi-experimental approach was used, and the study sample consisted of (40) male and female students as one experimental group who had (60–80%) misconceptions before being taught using artificial intelligence, and an achievement test and an alternative concepts test were applied to them, and the results indicated that there were statistically significant differences between the average scores of students in the pre- and post-application of the achievement test and the alternative concepts test in favor of the post-application, which indicates the effectiveness of artificial intelligence on achievement and the survival of the impact of learning and modifying misconceptions in science.

The study (luka & Ackerly & Magda, 2018), entitled Artificial Intelligence in Higher Education "Current Uses and Future Applications": The study aimed to identify some current and future applications of artificial intelligence in higher education, in addition to some of the challenges facing their

implementation, and the study used the descriptive survey method, and the study tool "questionnaire" was applied to Georgia State University, and the most prominent results of the study were: Artificial Intelligence can provide round-the-clock, seven-a-week assistance to students who navigate through the registration process, and in the field of teaching and learning, AI can help teachers identify students who are struggling academically, and provide them with the resources they need to succeed and in the future it can help faculty supervise large classes while continuing to interact with students on a deeper level.

The study of Wang, S., Yu, H., Hu, X., & Li, J. (2020), sought to reveal the desire of faculty members in universities in Anhui Province in the People's Republic of China to use artificial intelligence applications in education, in light of the theory of the spread of innovations, and the relationship of some variables to that such as comparative advantage, compatibility, trust, experience and complexity, and to achieve this goal, the study followed the descriptive (survey) approach, and relied on a questionnaire applied randomly to a sample of faculty members in universities in Anhui Province, whose number reached (178), The results showed that the use of faculty members for artificial intelligence applications in education was low, and comparative advantage, compatibility, trust, and experience are the contributing factors in determining the desire of faculty members to use smart teaching systems, while complexity does not have a significant impact on faculty members' willingness to use smart teaching systems, and recommended encouraging faculty members to use artificial intelligence applications in education.

Al-Subhi's study (2020) aimed to identify the reality of the use of faculty members at Najran University for artificial intelligence applications that can be employed in the educational process, the challenges facing their use, and the relationship of some variables such as gender, and the degree to that, and the study employed for this purpose the descriptive (analytical) approach, and the descriptive (survey) approach for their suitability in nature, and achieving their goals, and a questionnaire was applied to a sample of (301) faculty members at Najran University for the first semester of the academic year 1442 AH, and the results concluded that the use

of Faculty members at Najran University for the applications of artificial intelligence in education came with a very low degree, and that there is a remarkable agreement that there are many challenges that prevent the use of these applications, and the results showed that there is no impact on the reality of faculty members' use of artificial intelligence applications attributed to the gender or degree variable, as well as the absence of an impact on the challenges facing their use of artificial intelligence applications attributed to the previous variables, and in conclusion, a set of recommendations were made, the most prominent of which was the need to hold training courses for faculty members to inform them of the new in the field of artificial intelligence applications, And motivate them to use modern technological means, and provide the educational environment with the necessary devices to employ these applications in the educational process.

The current study agreed with most of the previous studies in terms of the scientific method used, and in focusing on the role of artificial intelligence and its applications as one of the most important mechanisms for developing the educational process, and the current study focused on the role of artificial intelligence in developing the educational process in Saudi universities, and the current study benefited from previous studies in many aspects, the most important of which are: Enriching the general framework and theoretical background of the current study, in light of the theoretical frames of reference for those studies, and choosing the appropriate scientific method and determining its procedures, As well as identifying the research tools and the steps followed in preparing them.

Study Problem:

The problem of the study appeared because the researcher works in university teaching in Saudi universities, and for the technical and technological role used in teaching, and the faculty member is considered the backbone of university education for carrying out several tasks and roles within the university, including teaching, scientific research and community service, in addition to administrative and leadership roles at the university, and the quality of university education outputs depends largely on the quality of the performance of the faculty member and his efficiency in carrying out the

academic roles entrusted to him, the higher the level of academic performance of a faculty member teaching has increased the quality of its graduates, the level of scientific research in universities has increased and its contribution to community service has increased. There appeared many computerized programs that moved the student from the classroom to the wide world as they address many senses and employ multiple thinking skills, and simulate the reality of applied living by students, so it was necessary to review the recommendations of conferences that dealt with e-learning and the development of interactive e-learning environments, and there are a number of researches that have researched in this regard, it has recommended the effectiveness of employing the neural network of artificial intelligence and its impact on achievement and survival of learning and the promotion of concepts with evidence and evidence and this is the result of the study (Jean, 2018), The results of the study of Azmi, Ismail and Mayars (2014) showed the effectiveness of an e-learning environment based on artificial intelligence in solving the problem of computer network maintenance in teaching courses, and the results of the study of Al-Najjar (2012), which adopted the effectiveness of a smart educational program in developing the skills of building educational websites among educational website developers in light of comprehensive quality standards. The problem of the study was to reveal the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia, the researcher saw the need to conduct this study, and for that, this study answered the following questions:

Study Questions:

The first question: What are the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia?

The second question: Are there statistically significant differences at the significance level ($\alpha = 0.05$) between the arithmetic averages of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence attributed to variables (gender, number of years of experience, academic rank)?

Objectives of the study: The current study aimed to achieve the following

- Revealing the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia.
- Revealing the role of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching according to a variable (gender, number of years of experience, academic rank)?

The importance of the study: The current study gains its importance through the following

- The theoretical importance contributes to providing a conceptual framework on the employment of artificial intelligence in university teaching, and the applications of artificial intelligence in training faculty members in Saudi universities.
- Artificial intelligence contributes to enabling humans to use human language in dealing with machines instead of computer programming language, which makes machines and their use accessible to all segments of society.
- Smart systems contribute to the areas in which decision-making is made in these systems, and they enjoy independence, accuracy and objectivity, and therefore their decisions are far from error, bias, racism, prejudices, or even external or personal interventions.
- Smart machines relieve humans of many risks and psychological pressures, and make them focus on more important and more humane things, by employing these machines to carry out healing and dangerous work, explore unknown places, and participate in rescue operations during natural quarts.
- The faculty member benefits from programs that simulate the performance of the human expert in his field of expertise appointed to publish his findings of science, community service, and harness robots in human conversations with his students, and smart learning systems are the first to seek him, to benefit from them in his self-learning, and the education of his students.

Study limits: The results of this study are determined by a set of limits, namely

- Human, spatial and temporal determinant: This study was applied to faculty members at Al-Jouf University in the Kingdom of Saudi Arabia during the second semester of the academic year (2022/2023 AD).
- Objective determinant (procedural): The results of the study were limited to the validity and stability of the measurement tool used in the study, which was prepared and developed by the researcher, and was represented by the preparation of a questionnaire consisting of (33) items in light of the variables of the study (gender, number of years of experience, and academic rank).

Terminological and Procedural Definitions of Study Terms:

- **Directions: Direction** is defined by (Al-Nuseirat, Al-Tweissi, Al-Ma'ani and Krishan, 2013) A set of ideas, beliefs and knowledge that include positive or negative evaluations related to a central idea or central topic that is the subject of direction or its description, and that this knowledge and concentration of emotions tend to produce certain patterns of behavior. **The researcher defines** it procedurally as the degree of feeling of faculty members and their tendency towards employing artificial intelligence, which is expressed as a result of their responses to the paragraphs of the tool contained in the study, which the researcher designed.
- **Artificial Intelligence:** It is a department of computer science concerned with designing systems that illustrate human intelligence (understanding language, learning new information, reasoning and problem solving), and it detects aspects of human golden activity, such as: understanding, creativity, education, perception, problem solving, feeling, in order to apply them to computers. (Siham Al-Nuwaihi, 2001, 11), and defined it (Rabab'aa, 2009, 4) as: "the study of intellectual abilities through the use of computer models, which is concerned with the way to simulate human thinking."
- **Faculty members:** They hold high academic qualifications in one of the educational fields and hold academic ranks

(professor, associate professor, assistant professor), and teach students at Al-Jouf University in the Kingdom of Saudi Arabia.

- **Method and procedures:** The following is a description of the study population and sample, the study tool, methods of verifying its validity and stability, study variables, and statistical treatments that will be used to reach the results.
- **Study methodology:** The researcher used the quantitative analytical survey method to collect and analyze data in order to answer the questions of the study, as this approach is the most appropriate for such studies.
- **Study population and sample:** The study population consisted of all faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia, which numbered (98) faculty members according to the statistics of the Personnel Department at the university for the academic year (2022/2023 AD). An intentional sample was taken from them (49) faculty members, and (49) faculty members in the faculties of education at Al-Jouf University, and table (1) shows the distribution of the sample members according to their variables.

Table (1) Distribution of the study sample on variables

Variable	Variable levels	Number	The Percentage
Gender	Female	**49**	**50%**
	Male	**49**	**50%**
Experience	Less than (5) years	**31**	**32%**
	From (5 to 10) years	**45**	**46%**
	More than (10) years	**22**	**22%**
Rank	Lecturer and Teaching Assistant	**43**	**44%**

	Assistant Professor	**43**	**44%**
	Professor and Associate Professor	**12**	**12%**
	Total	**98**	**100%**

Study Tool: The researcher used a questionnaire "Attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia". The questionnaire consisted of (33) items.

Authenticity of the questionnaire: To verify the validity of the questionnaire, it was presented to a committee of arbitrators and experts in the field, numbering (12) arbitrators with competence and experience, and the directives and proposals of the members of the committee were taken, as the linguistic wording of some paragraphs was modified when six arbitrators agreed on that.

Construction Truthfulness: To verify the validity of the construction of the scale of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia, the scale was applied to an exploratory sample, and the correlation coefficient between the scores of the paragraphs was extracted The total degree of the scale, and Table (2) shows these results

Table (2) Correlation coefficients between the paragraphs of the scale and the field to which they belong and the total degree of the scale of the scale of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia

Paragraph Number	**Correlation with the overall degree**	**Paragraph Number**	**Correlation with the overall degree**	**Paragraph Number**	**Correlation with the overall degree**
1	.599	12	.523	23	.547
2	.447	13	.689	24	.691

3	.576	14	.569	25	.364
4	.527	15	.672	26	.453
5	.641	16	.557	27	.525
6	.393	17	.640	28	.452
7	.537	18	.549	29	.586
8	.529	19	.566	30	.431
9	.612	20	.437	31	.515
10	.489	21	.534	32	.342
11	.694	22	.394	33	.438

Table (2) shows that the correlation coefficients between the paragraphs of the scale of faculty members' attitudes at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia and the total score of the scale ranged between (0.342 and 0.694), which are appropriate values and indicate the sincerity of the construction of the scale of faculty members' attitudes at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia.

Stability of the scale: To verify the stability of the scale of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia, the scale was applied to an exploratory sample, and the stability coefficient was extracted by the method of internal consistency using the Cronbach alpha equation and the total stability of the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia reached (0.928), which is a high value and indicates the stability of the scale of attitudes of faculty members at Al-Jouf University towards The use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia.

The criterion used to judge averages:

The following criterion was used =
Error!

Degree = $\frac{5-1}{3}$ = 1.33

Thus, the response levels of the sample members for each paragraph of the scale were classified as follows:

Low score: (1-2.33).

Average score: (2.34-3.67).

High score: (3.68-5).

Study variables: The study included the following variables

First: Intermediate variables:

Qualification Gender: It has two categories: (male, female).

Number of years of experience: It has three levels: (less than 5 years, 5–10 years, and more than 10 years).

Rank: It has three categories: (lecturer and teaching assistant, assistant professor, professor and associate professor).

Second: Dependent variables: The attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia, which is expressed by the arithmetic averages of the estimates of the sample members on the paragraphs of the questionnaire.

Statistical treatments: arithmetic averages and standard deviations, triple variance analysis test were used.

Study results and discussion: This study aimed to reveal the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia by answering the following questions:

Results related to the first question: What are the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia? To answer this question, the arithmetic averages, standard deviations, and the degree of attitudes of faculty

members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia were extracted, and Table (3) shows these results:

Table (3) Arithmetic averages, standard deviations, and the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia in descending order

Rank	Number	The Paragraphs	Arithmetic average	Standard deviation	Grade
1	4	I love teaching via use of applications based on artificial intelligence techniques	3.81	0.981	High
2	5	I see that there are technical challenges in the implementation and integration of artificial intelligence in the education infrastructure	3.77	1.023	High
3	6	I see that artificial intelligence provides an individualized learning experience without the need for a lecturer	3.72	1.082	High
4	3	I believe that artificial intelligence techniques will make the teaching process more effective and interactive with students	3.71	0.995	High
5	22	I see that artificial intelligence will facilitate my daily business	3.69	0.957	High
6	7	I believe that the use of artificial intelligence techniques in education will help increase students' motivation during the lecture	3.68	1.011	High
7	9	I advise my fellow faculty members to use artificial intelligence techniques in education because it is more than just a learning tool	3.68	1.031	High
8	10	I encourage my students to use the robot as an educational tool that facilitates the teaching process and develops the performance of lecturers	3.68	1.136	High
9	1	I believe that artificial intelligence techniques will help me track students' performance and achievements	3.67	1.082	Medium
10	2	I believe that artificial intelligence techniques will be a tool of communication and connection with my students	3.64	0.911	Medium

11	11	I believe that artificial intelligence helps automate tasks, analyze student performance, and bridge the educational gap	3.63	1.187	Medium
12	8	I believe that the current courses I teach are designed to employ artificial intelligence techniques in teaching	3.62	1.050	Medium
13	29	I see that artificial intelligence is useful for people with special needs, such as translating text from writing to audio or opposite	3.61	0.892	Medium
14	15	I believe that artificial intelligence helps prevent students from dropping out of school to provide early warning screening derived from artificial intelligence	3.60	0.992	Medium

Rank	**Number**	**The Paragraphs**	**Arithmetic average**	**Standard deviation**	**Grade**
15	19	Using artificial intelligence will allow me to perform work faster	3.59	0.940	Medium
16	23	Artificial intelligence can customize courses for students	3.59	0.983	Medium
17	24	I see that artificial intelligence is doing its job in the field of education without the necessary infrastructure for that	3.59	1.063	Medium
18	28	I see that artificial intelligence provides realistic solutions to the most difficult problems and address them in a timely manner	3.59	1.044	Medium
19	32	The Correct platform works to develop electronic tests and correct them in the most accurate ways	3.53	1.076	Medium
20	12	Artificial intelligence allows focus in preparing lessons and improving student engagement	3.50	1.028	Medium
21	26	AI uses intelligent teaching systems, machine learning techniques, and self-learning algorithms that collect and analyze large datasets	3.50	1.038	Medium
22	14	I see that artificial intelligence provides a chatbot to answer students' questions quickly	3.49	1.067	Medium
23	25	Artificial intelligence technologies contribute to answering queries and reducing the time to search for answers	3.44	1.026	Medium

24	18	I see artificial intelligence as safe, reliable and trustworthy	3.43	1.045	Medium
25	27	I see that AI eliminates the use of the need to teach face-to-face and learners can acquire knowledge independently of time and place	3.42	1.015	Medium
26	33	Artificial intelligence offers many features and advantages that make the educational institution step towards academic accreditation	3.39	1.163	Medium
27	17	I see that chatbots improve classroom efficiency and help faculty communicate with students' parents	3.35	1.150	Medium
28	31	I see that artificial intelligence in distance education has a major role in developing the educational movement, avoiding many problems, and working to find strong and effective solutions	3.35	1.076	Medium
29	16	I believe that employing social interaction programs through artificial intelligence leads to reducing social interaction between lecturers and students	3.32	1.099	Medium

Rank	**Number**	**The Paragraphs**	**Arithmetic average**	**Standard deviation**	**Grade**
30	30	Artificial intelligence provides instant translations to translate any text into the native language spoken by the learner, so he does not face any difficulty in receiving information	3.29	1.149	Medium
31	13	I see that artificial intelligence programs provide educational services to low-income students	3.27	1.163	Medium
32	21	Using AI will improve my efficiency in my daily life	3.27	1.099	Medium
33	20	I see that AI will improve my ability to do the work	3.24	1.065	Medium
		Overall average of directions	3.54	0.850	Medium

Table (3) shows that the total average of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia amounted to (3.54) and with a degree of medium trends,

while the arithmetic averages of the paragraphs of the scale of faculty members' attitudes at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia for the field of obstacles to the use of artificial intelligence applications ranged between (3.24 and 3.81). Where the paragraph (I love teaching via use of applications based on artificial intelligence techniques) came in the first place with the highest arithmetic average (3.81) and with a high score, Followed by the paragraph (I see that there are technical challenges in the implementation and integration of artificial intelligence in the education infrastructure) in second place with an arithmetic average (3.77) and a high degree, then the paragraph (I see that artificial intelligence provides an individualized learning experience without the need for a lecturer) came in third place with an arithmetic average (3.72) and a high degree, and then the paragraph (I believe that artificial intelligence techniques will make the teaching process more effective and interactive with students) in fourth place with an arithmetic average (3.71) and a high degree and the paragraph came (I see that artificial intelligence will facilitate my daily business) in the fifth rank with an arithmetic average (3.69) and a high score, As for the paragraphs that came in the last five ranks, the paragraph (I believe that employing social interaction programs through artificial intelligence leads to reducing social interaction between lecturers and students) ranked twenty-ninth with an arithmetic average (3.32) and an average degree, then the paragraph (Artificial intelligence provides instant translations to translate any text into the native language spoken by the learner, so he does not face any difficulty in receiving information) in the thirtieth rank with an arithmetic average (3.29) and an average degree, Then the two paragraphs (I see that artificial intelligence programs provide educational services to low-income students, and Using AI will improve my efficiency in my daily life) ranked first and thirty-second with an arithmetic average (2.27) and an average degree, while the paragraph (I see that AI will improve my ability to do the work) came in the last rank with the lowest arithmetic average (3.24) and with an average degree.

Results related to the second question: Are there statistically significant differences at the significance level (α = 0.05)

between the arithmetic averages of the attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence attributed to variables (gender, number of years of experience, academic rank)? To answer this question, the arithmetic averages and standard deviations of the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia were extracted according to variables (gender, number of years of experience, academic rank) and Table (4) shows these results:

Table (4) Arithmetic averages and standard deviations of the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to variables (gender, number of years of experience, academic rank)

Variable	Variable levels	Number	Arithmetic average	Standard deviation
Gender	Female	49	3.69	.870
	Male	49	3.38	.810
Years of Experience	Less than (5) years	31	3.63	.930
	From (5 to 10) years	45	3.50	.793
Academic Rank	Lecturer and Teaching Assistant	22	3.47	.876
	Assistant Professor	43	3.62	.940
	Professor and Associate Professor	43	3.49	.777

Table (4) shows the existence of apparent differences in the arithmetic averages and standard deviations of the total degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to variables (gender, number of years of experience, academic rank), and to find out

the significance of the differences, a triple variance analysis test was conducted, and Table (5) shows these results:

Source	Total of squares	Degrees of freedom	Average squares	F value	Statistical significance
Gender	**1.619**	**1**	**1.619**	**2.199**	**.142**
Years of Experience	**.035**	**2**	**.017**	**.024**	**.977**
Academic Rank	**.069**	**2**	**.034**	**.047**	**.954**
Wrong	**67.743**	**92**	**.736**		
Total	**70.119**	**97**			

Table (5) Analysis of the triple variance of the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to variables (gender, number of years of experience, academic rank)

Table (5) shows that the value of "F" for the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to the gender variable amounted to (2.199), the years of experience variable amounted to (0.024), and the academic rank variable (0.047), which are non-statistically significant values at the degree of significance (0.05), meaning that there are no statistically significant differences in the total degree of the degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to gender variables, number of years of experience, academic rank.

The researcher attributes this result to the fact that faculty members are the backbone of university teaching and work at the university and have the tasks of teaching, scientific research and community service, in addition to their administrative and leadership roles at the university, and the quality of university education outputs depends largely on the quality of their performance and their efficiency in carrying out the academic roles entrusted to them, and artificial intelligence seeks to understand the nature of human intelligence through the formation of programs on the computer that imitate smart actions or actions, analyze external data and derive knowledge bases. New and adapt these rules and use them to achieve new goals and tasks. Therefore, faculty members are exposed through training workshops to explain the systems of artificial intelligence in the teaching process, develop programs and models for its application during the teaching process, spread the culture of artificial intelligence and consolidate it among faculty members and students, and inform them of the systems that protect information security when applying artificial intelligence during the teaching process. As a result of faculty members facing several obstacles, such as the prevalence of a culture of resistance to change in the teaching of students in colleges of education in Saudi universities, and fear of employing artificial intelligence techniques in the educational process as it monitors certain behaviors and characteristics of computer programs that make them simulate human mental abilities and work patterns, The transition from traditional education to education based on the employment of artificial intelligence techniques in the educational process requires the creation of regulations and legislation that impose on the faculty member the use of artificial intelligence in teaching The results of the study showed that there are no statistically significant differences in the total degree of attitudes of faculty members at Al-Jouf University towards the use of artificial intelligence in university teaching in the Kingdom of Saudi Arabia according to gender variables, number of years of experience, academic rank. The result of this question is consistent with the results of the study (Luka & Ackerly & Magda, 2018), whose results highlighted the provision of round-the-clock, seven-day weekday assistance to students who navigate through the registration process, in the field of teaching and learning, helping teachers identify students who

are struggling academically, providing them with the resources they need to succeed and in the future can help faculty supervise large classes while continuing to interact with students on a deeper level. It differs with the results of the Al-Subhi study (2020), which showed that there was no impact on the reality of faculty members' use of artificial intelligence applications attributed to the gender variable or academic degree, and the results of the study of Al-Atal, Al-Anzi and Al-Ajami (2021), whose results showed that there are no differences on the challenges facing the use of artificial intelligence technology in education according to the variables of gender and cumulative average, while there are no differences about its importance in the educational process.

Recommendations: In light of the findings of the study, it recommends the following recommendations:

- The need to work to create enhanced conditions for the use of artificial intelligence and the employment of some artificial intelligence applications in the educational process (such as smart education systems) in Saudi universities.
- The need to prepare specialized platforms to display illustrative lessons in the use of artificial intelligence systems applications in knowledge management processes and their relationship to the development of faculty members' capabilities and skills and academic and administrative leaders in Saudi universities.
- The need to increase the interest of Saudi universities to provide available facilities and use them in activating the role of artificial intelligence.
- The need to hold workshops and training courses to clarify the concept of artificial intelligence while providing continuous technical support to employ artificial intelligence applications in training faculty members in Saudi universities.

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