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# Employing artificial intelligence applications in conducting research: Effectiveness and challenges from the perspective of faculty members and graduate students in Emirati Universities

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## Abstract

The current study aimed to identify the effectiveness of employing artificial intelligence (AI) applications in conducting research from the perspective of faculty members and graduate students in Emirati universities. It also aimed to identify the challenges hindering such use. The researcher adopted quantitative, qualitative, and descriptive analytical approaches. He designed a five-point Likert questionnaire to collect data about such effectiveness. He uploaded it to Google Forms. He distributed it to several WhatsApp groups to collect data from faculty members and graduate students in five Emirati private universities. Sixty-five faculty members and one hundred sixty graduate students (including males and females) filled in the questionnaire forms. In addition, the researcher interviewed fifteen faculty members and twenty graduate students (including males and females) who were chosen from the same universities to identify such challenges. Thus, the researcher used the purposive sampling technique in this study. It was found that using AI applications in conducting research is effective. The challenges hindering such use include facing technical problems while using these applications. The researcher recommends offering faculty members free access to some AI applications that can assist them in the research process.

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## 1. Introduction

The research process is an important process because it assists decision makers in making decisions. It also offers information about the effectiveness of different instructional methods. Such information contributes to improving the quality of the teaching process [1]. The research process is a systematic process that involves using scientific methods for generating

knowledge, which can be employed for answering a query or improving an existing system. It requires following specific steps and a specific methodology [2].

The steps of conducting research include: a) developing the research question, b) searching for the relevant references and evaluating their quality, c) choosing the approach, and developing the methods of collecting the needed data. d)-choosing the sample and administering the data collection methods, e) analyzing data, f) reaching results [3].

Due to the complexity of the process of conducting research, artificial intelligence (AI) applications have been increasingly used in this process [4]. AI refers to a set of programs, tools, systems and applications that simulate human intelligence and capabilities. Such programs, tools, systems and applications are capable of understanding and processing natural language, performing reasoning and problem-solving processes and learning new pieces of information based on the programming [5].

There are several uses for AI applications in the research process. For instance, researchers may use AI applications to find printing and language-related errors in their manuscripts. They may use AI applications to find the technical concepts and expressions they want to express the intended meaning. They may use AI applications to receive recommendations about the way of improving their research. In addition, they may use AI applications to analyze data (including quantitative and qualitative data). That shall contribute to saving the researchers' time and effort [4]. They may use AI applications for summarizing studies' results and coming up with new research ideas, questions, and hypotheses. They can use them to get reliable answers for their research-related questions [4].

There are several advantages to using AI applications by researchers. For instance, such use enables researchers to save their time and effort when conducting research for many reasons. These reasons include the following: 1) AI applications offer easy and fast access to reliable information and make summaries for reference. 2) AI applications provide researchers with reliable answers to their questions quickly. 3) AI applications offer researchers effective plans and time schedules to manage their time and organize the process of conducting research. 4) AI applications can recommend references based on relevancy instead of spending much time in libraries [6].

Other advantages of using AI applications by researchers include enabling researchers to achieve accurate and reliable results, as AI applications are capable of conducting fast analyses of data. They also allow researchers to produce coherent texts, as AI applications can organize ideas into sentences that are logically connected to each other [6].

Because there are many advantages to using AI applications in conducting research, the researcher believes that further studies should be conducted on such use. This is because such studies will contribute to promoting awareness among researchers about the services offered by these applications.

## 2. Statement of the Problem

The researcher of the present study has published many studies in many well-known peer-reviewed journals. After gaining much experience in the research field, he noticed that AI applications can be effectively used for assisting researchers in doing research-related tasks. For instance, he noticed that some AI applications can assist researchers in summarizing and translating studies, finding references and paraphrasing texts. The same ideas were suggested by Za'abtah and Saba' [6]. The latter researchers also added that AI applications can be used effectively for analyzing documents (e.g., reports, financial statements, legal documents, and etc).

In addition, the researcher asked several faculty members and graduate students about the advantages of using AI applications in the research process. Those faculty members and graduate students added that such use has many benefits, but there are challenges hindering it. For instance, they complained about having concerns about data privacy and security. They also complained about the technical problems associated with such use. In light of that, the researcher found that it's necessary to conduct this study. The problem of this study is represented in the following questions:

(What is the effectiveness of employing artificial intelligence (AI) applications in conducting research from the perspective of faculty members and graduate students in Emirati universities?)

### *2.1. Questions*

This study aimed to answer the questions below:

Q.1.What are the attitudes of faculty members and graduate students in Emirati universities towards using AI applications in conducting research?

Q.2.What are the challenges hindering faculty members and graduate students in Emirati universities from using AI applications in conducting research?

### *2.2. Objectives*

This study aimed to

- Identify the attitudes of faculty members and graduate students in Emirati universities towards using AI applications in conducting research.
- Identify the challenges hindering faculty members and graduate students in Emirati universities from using AI applications in conducting research

### *2.3. Significance of the Study*

1)-This study informs decision makers and policy makers in the Emirati Ministry of Higher Education and Scientific Research with information about the effectiveness of using AI applications in the research process. That shall contribute to making effective decisions and policies that improve the quality of research in the UAE.

2)-As far as the researcher knows, this study is the first study that addresses the effectiveness of using AI applications in conducting research.
3)-This study promotes knowledge among faculty members in the UAE about the advantages of using AI applications in conducting research.

*2.4. Limits*

- Spatial limits: The researcher targeted the UAE in this study.
- Temporal limits: The relevant quantitative and qualitative data were acquired during the second semester of the academic year (2024-2025).

*2.5. Definitions*

- Artificial intelligence: It refers to a set of programs, tools, systems and applications that simulate human intelligence and capabilities. Such programs, tools, systems and applications are capable of understanding and processing natural language, performing reasoning, and problem-solving processes and learning new pieces of information based on the programming [5].
- Research: It's a systematic process that involves using scientific methods for generating new knowledge, which can be employed for answering a query or improving an existing system. It requires following specific steps and a specific methodology [2].

## 3. Theoretical Framework

*3.1. Uses of AI Applications in Conducting Research*

There are several uses for AI applications in the research processes. Such uses include: translating references. That's needed by many researchers, because a great percentage of the online references are published in the English language. It's needed because comprehending such references may be difficult for those with poor competency in the English language. Other research-related uses in the AI applications include: summarizing videos and academic references. They include: receiving recommendations and guidelines while writing research, which is needed to draft research of high quality. They include: assisting the researchers in expressing their ideas through drafting sentences and finding the right technical expressions. They include: finding the latest relevant studies, which dispense with the need to visit libraries. They include: finding definitions for expressions and concepts which is needed to facilitate the process of reading and comprehending references [6].

Other uses for AI applications in the research processes include: a)-generating ideas and suggestions in order to introduce new hypotheses and questions and assist the researchers in writing the statement of the problem b)-editing the text and checking the presence of printing errors c)-recommending the best relevant technical terms to be used. d)-organizing references and providing researchers with the citations of references based on the citation style. e)-summarizing information in order to avoid spending many hours reading long studies. f)-checking the similarity rate. That shall enable researchers to comply with the well-known research-related ethics. g)-developing questionnaires and passing them to the sample h)-analyzing the collected data instead of passing them to an analyst. That shall save the costs of the services of the data analysts [7].

The uses of AI applications in the research process include: searching for specific references, uploading them, and generating new ideas. They include: receiving notifications about the latest studies published on the topic. They include: summarizing studies and providing researchers with knowledge of technical terms. They include: searching for specific information within studies, reports, and books, and paraphrasing sentences and paragraphs. They also include: providing researchers with mind maps and figures that can be presented in their manuscripts. They also include: recommending journals to publish the research in based on the field of the targeted research [8].

Other uses for AI applications in the research processes include: saving the collected data and saving articles to gain fast access to them later on. Thus, AI applications can serve as assistants to assist researchers in saving and retrieving data. Other uses for AI applications in this regard include: providing researchers with explanations and illustrations for the references that may be difficult for them to comprehend. That's needed when reading articles addressing complicated theories and scientific concepts. Other uses for AI applications in the research process include: offering interpretation for data. That shall facilitate the process of writing the results and their discussion [9].

*3.2. Examples of AI Applications Used in Research*

Examples on AI applications that can be used by researchers include Gemini. The latter application can provide researchers with reliable references [10]. It can also be used for analyzing data (e.g., medical data about respondents) and suggesting plans for researchers [11]

Examples on AI applications that can be used by researchers include: ChatGPT. ChatGPT can be used for finding printing errors, analyzing the collected data, offering answers to questions and finding solutions for problems. It can also employed for turning the audio texts into written texts instead of spending hours typing [4]

*3.3. Challenges Hindering the Use of AI Applications in Conducting Research*

There are several challenges hindering the use of AI applications in the research processes. For instance, some users of AI applications have poor competency in English language. However, most AI applications today use English language. In

addition, many AI applications are available online for a high price. That hinders the ones with a limited budget from purchasing such applications. Furthermore, many students and faculty members don't have adequate knowledge about the services offered by AI applications. That requires developing programs for promoting knowledge about those services in school and universities. Furthermore, many students and faculty members don't know how to use AI applications. Thus, that requires providing them with special training courses about the way of using AI applications [12].

Other challenges hindering such use of AI applications include: having concerns about the privacy of the administered data and fears from facing problems related to cyber security [13]. They include: the lack of specialists in AI in many universities. Thus, it would be difficult for students and faculty members to fix the technical problems they face while using AI applications fast. Other challenges in this regard include: having concerns by many students and faculty members about the security of the data saved in AI programs and applications. That's because today the web is full of hackers who want to hack into systems and applications to damage, delete or steal data. Other challenges in this regard include: the difficulty of developing special AI applications by universities to be used by students and faculty members for meeting academic goals. That's because the development of AI applications is costly and requires recruiting many AI specialists and developing complicated plans [14].

According to Ramadan [8] the challenges hindering the use of AI applications in the research process include: the poor IT infrastructure in many developing countries. That requires developing many developmental programs by public institutions in those countries to improve this infrastructure. Other challenges hindering such use of AI applications include: the high cost of maintaining and upgrading AI software. They include: having AI applications offering access to information that includes bias.

Other challenges hindering such use of AI applications include: offering access to unreliable data that isn't supported by evidence. They include: offering access to data that are based on ideologies that are not in agreement with the ideologies of the researcher or the society he/she lives at [15].

## 4. Literature Review

Abdelhafiz et al. [16] explored the attitude of researchers in Egypt towards using ChatGPT in the research process. They adopted the descriptive analytical approach. They used a survey that was uploaded to Google Form. They surveyed 200 researchers in Egypt. It was found that the respondents have positive attitudes towards using ChatGPT in the research process. It was found that such use shall facilitate the process of collecting data from respondents and the process of analyzing such data. It's effective for paraphrasing texts, and analyzing data.

Eid [7] explored the effectiveness of using AI applications in improving the process of conducting humanitarian research from the perspective of the students in the Doctoral School of Literature, Humanities & Social Sciences at the Lebanese University. Through adopting the descriptive analytical approach, a survey was developed and administered. The latter researcher surveyed 130 students chosen from the latter school. He used the SPSS program. Several results were reached. For instance, respondents have positive attitudes towards using AI applications in the research process. Such uses of AI applications include: finding the relevant studies, generating relevant ideas, and paraphrasing sentences and paragraphs efficiently. They include: summarizing the results of studies, categorizing studies based on certain criterion (e.g. date of publication or relevancy), and writing the citation of a reference based on a specific citation style. They include: recommending the best methodology, data collection instruments, data analysis methods and sample size for researchers. They include: checking the compliance with grammar, the similarity rate and the presence of repetition.

Mustafa [15] explored the attitudes of the young researchers specialized in the field of social service towards using AI applications in the research process. He adopted a descriptive analytical approach and administered a survey. He surveyed 390 graduate students chosen from the Social Service Faculty in Fayoum University in Egypt. Based on the analysis results, the respondents have positive attitudes towards using AI applications in the research process. AI applications can assist researchers in writing the research questions, hypothesis and statement of the problem. They can assist researchers in analyzing data which analysis requires much time. They allow researchers to communicate with other researchers who are specialized in the same field to benefit from their expertise. They can recommend journals to publish the research in. They can analyze a great number of studies and provide researchers with the results of this analysis. They can offer reliable summaries for studies.

Ahmad and Hussein [17] explored the attitudes of faculty members in Egypt towards using AI tools in scientific research. They used the descriptive analytical approach. Data were collected through the interview and survey methods. They were collected from 47 faculty members in Egypt. Based on results, respondents have positive attitudes in this regard. They use AI tools for finding references, searching within manuscripts, paraphrasing, translating and editing texts, managing references, and analyzing data.

## 5. Comments on the Literature Review

Similar to the studies of Abdelhafiz et al. [16], Eid [7] and Mustafa [15] the present study used a survey to collect data. Similar to the study of Ahmad and Hussein [17] the present study used the interview method to collect data. However, the present study.

The study of Mustafa [15] surveyed graduate students only and the study of Ahmad and Hussein [17] surveyed faculty members only. Contrary to those studies, the present study surveyed faculty member and graduate students. Thus, that allows the researcher to reach more reliable results about the effectiveness of using AI applications in the research process. Contrary to the aforementioned studies, the present study was conducted in UAE. The aforementioned studies were conducted in Arab countries (i.e. Egypt, and Lebanon). However, the present study was conducted in UAE.

## 6. Methodology

### *6.1. Approach*

To meet the study's goals, the researcher adopted the quantitative, qualitative and descriptive analytical approaches). The quantitative approach is usually adopted in order to process numerical data, whereas the quantitative approach is usually adopted to process non-numerical data [18].

### *6.2. Population and Sample*

The population consists of all the faculty members and graduate students at Emirati universities. The researcher conducted interviews and used the questionnaire method. To be specific, he designed a five-point Likert questionnaire to collect data about such effectiveness. He uploaded the questionnaire to Google Forms. He passed it to several WhatsApp groups to collect data from faculty members and graduate students in five Emirati private universities. Those universities include: two universities in Abu Dhabi, a university in Dubai, a university in Sharjah, and a university in Ajman.

Sixty-five faculty members and one hundred sixty graduate students (including males and females) filled out the questionnaire forms. In addition, the researcher interviewed fifteen faculty members and twenty graduate students (including males and females) who were chosen from the same universities to identify such challenges. Thus, the researcher used the purposive sampling technique. He presented the characteristics of the respondents below:

**Table 1.**
Characteristics of the surveyed faculty members. N=65

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 37 | 56.92308 |
| | Female | 28 | 43.07692 |
| Academic rank | Assistant professor | 27 | 41.53846 |
| | Associate professor | 24 | 36.92308 |
| | Professor | 14 | 21.53846 |

**Table 2.**
Characteristics of the surveyed graduate students. N=160

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 74 | 46.25 |
| | Female | 86 | 53.75 |
| Program type | Higher diploma | 59 | 36.875 |
| | Master's program | 39 | 24.375 |
| | PhD program | 62 | 38.75 |

**Table 3.**
Characteristics of the interviewed faculty members. N=15

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 8 | 53.33333 |
| | Female | 7 | 46.66667 |
| Academic rank | Assistant professor | 5 | 33.33333 |
| | Associate professor | 7 | 46.66667 |
| | Professor | 3 | 20 |

**Table 4.**
Characteristics of the interviewed graduate students. N=20

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 12 | 60 |
| | Female | 8 | 40 |
| Program type | Higher diploma | 6 | 30 |
| | Master's program | 8 | 40 |
| | PhD program | 6 | 30 |

### *6.3. Instruments*

The researcher developed a five points Likert questionnaire that includes three parts. Part one collects demographic data about faculty members. Part two collects demographic data about graduate students. Part three collect data about the effectiveness of using AI applications in conducting research. It was drafted based on the references of: Za'abtah and Saba' [6]; Eid [7]; Ramadan [8]; El-Said [4]; Zafour et al. [9] and Mustafa [15].

The researcher also developed a question sheet for interviewing faculty members and graduate students. This sheet collects data about the respondents 'characteristics and includes the following questions:

Q.1.Do you support the use of AI applications in the process of conducting research?

Q.2.What are the challenges hindering faculty members and graduate students in Emirati universities from employing AI applications in the process of conducting research?

*6.4. Validity of Instruments*

The researcher passed the questionnaire and the question sheet of the interview in their initial versions to four faculty members. Those faculty members have significant expertise and knowledge. They include two faculty members specialized in teaching methods and two faculty members specialized in educational technology.

The four experts were asked to assess the two instruments in terms of clarity level, language use, and ability to meet the research goals. They were asked to make corrections and modifications where needed and write down their recommendations. All the faculty members informed the researcher that the two instruments are clear, free from language-related errors, and capable of meeting the targeted goals. They added that the two instruments were written in a professional manner. However, one of them recommended adding the word (reliable) to an item to become as follows: (Using artificial intelligence (AI) applications in the process of conducting research provides me with a reliable translation for references).

*6.5. Reliability of the Questionnaire*

The Cronbach's alpha value was calculated to check the extent of reliability of the questionnaire. It's 0.735. It's considered a high value due to being greater than 0.70, as added by Salehi and Farhang [19].

*6.6. Statistical Analysis*

The researcher conducted a descriptive analysis of the interviewees' answers. He also employed a special software called SPSS software and used the following statistical tools to process the quantitative data:

- Means and standard deviations
- Frequencies and percentages
- Cronbach's alpha coefficient value

For classifying the calculated means, the criteria displayed below were adopted.

**Table 5.**
The criteria used for the classification of means.

| Range | Level | Attitude |
|---|---|---|
| 2.33 or less | Low | Negative |
| 2.34-3.66 | Moderate | Neutral |
| 3.67 or more | High | Positive |

**Note:** *Source: [20].

The five-point Likert scale was employed in the study's survey. It consists of five categories that aim to rate the attitude of each respondent on each item. Those categories are displayed below:

**Table 6.**
The categories and scores of the Likert scale used in this research.

| Category | Score |
|---|---|
| Strongly agree | 5 |
| Agree | 4 |
| Neutral | 3 |
| Disagree | 2 |
| Strongly disagree | 1 |

**Note:** * [21].

## 7. Results and Discussion

*7.1. The Study's First Question*

Q.1.What are the attitudes of faculty members and graduate students in Emirati universities towards using AI applications in the research process?

First: The interviewees' answers to the first question of the interview:

The first question in the interview: Do you support the use of AI applications in the process of conducting research?

The answers of the interviewees are shown below in Table 7:

**Table 7.**
Interviewees' answers to the first question. N=35 interviewees.

| Answer | Frequency | Percentage |
|---|---|---|
| Yes | 35 | 100% |
| No | 0 | 0% |

It's clear that 100% of the interviewees support the use of AI applications in conducting research. That indicates that such use of AI applications shall contribute to improving the quality of the research articles and facilitate the process of conducting research.

Second: The questionnaire's results

Means were calculated to identify the attitudes of the surveyed graduate students and faculty members towards using AI applications in conducting research.

**Table 8.**
The arithmetic mean represents the effectiveness of using AI applications in conducting research.

| No. | Statement | Mean | Std. | Attitude |
|---|---|---|---|---|
| | Using artificial intelligence (AI) applications in the process of conducting research | | | |
| 1. | Assists me in planning for this process | 4.28 | 0.79 | Positive |
| 2. | Provides me with reliable translation for references | 3.60 | 0.54 | Neutral |
| 3. | Allows me to find the language-related errors in my research | 3.57 | 0.23 | Neutral |
| 4. | It is effective for paraphrasing sentences and paragraphs | 3.40 | 0.48 | Neutral |
| 5. | Provides me with good summaries for books and studies | 3.47 | 0.40 | Neutral |
| 6. | Allows me to find the information I am searching for within a specific reference | 4.43 | 0.69 | Positive |
| 7. | Provides me with the most relevant references | 4.92 | 0.15 | Positive |
| 8. | It is effective for analyzing quantitative data | 4.79 | 0.81 | Positive |
| 9. | It is effective for analyzing qualitative data | 4.71 | 0.56 | Positive |
| 10. | Provides me with the technical concepts and expressions I want to express the intended meaning | 4.89 | 0.33 | Positive |
| 11. | Provides me with new research ideas | 4.55 | 0.67 | Positive |
| 12. | Assists me in organizing my research-related ideas | 4.62 | 0.83 | Positive |
| 13. | Provides me with reliable answers to my research-related questions | 4.70 | 0.25 | Positive |
| 14. | Assists me in managing my time effectively | 4.65 | 0.18 | Positive |
| 15. | Provides me with good explanations for the references that may be difficult for me to comprehend | 4.33 | 0.69 | Positive |
| 16. | Provides me with the right citations for the references in accordance with the identified citation style | 4.90 | 0.27 | Positive |
| 17. | Provides me with good solutions for the problems I face during this process | 4.80 | 0.39 | Positive |
| 18. | It is effective for providing me with figures that represent research-related data | 4.51 | 0.77 | Positive |
| 19. | Provides me with good recommendations that contribute to improving my research | 4.30 | 0.52 | Positive |
| 20. | It is effective for detecting the similarity rate accurately in a manuscript | 4.98 | 0.73 | Positive |
| 21. | Assists me in developing research instruments | 4.95 | 0.75 | Positive |
| 22. | Assists me in writing research questions and hypotheses | 4.87 | 0.69 | Positive |
| 23. | Contributes to improving my creative thinking skills | 2.22 | 0.81 | Negative |
| 24. | Contributes to improving my problem-solving skills | 2.20 | 0.60 | Negative |
| | Overall | 4.27 | 0.54 | Positive |

Due to having a high overall mean (4.27), the researcher concluded that using AI applications in conducting research is effective. The same result was found by Eid [7]. It's attributed to offering many services by such applications, such as data analysis, search, and paraphrasing services.

It was found that using AI applications in conducting research assists researchers in planning for the process of conducting research, because the mean of item (1) is 4.28. The same finding was reached by Za'abtah and Saba' [6]. That's because AI applications can develop plans for organizing the research process. Such plans identify the sequence of the research steps and the time allocated to each research-related task.

It was found that using AI applications in conducting research allows researchers to find the information they are searching for within a specific reference, because the mean of the sixth statement (4.43) is high. The same result was reached by Ramadan [8]. It's attributed to the ability of such applications to analyze the content of long manuscripts (e.g., books or studies) to find the information related to the targeted input. It was found that using AI applications in conducting research provides researchers with the most relevant references, because the mean of the seventh statement (4.92) is high. The same result was found by Gelling [3]. It's attributed to the ability of such applications to filter the results of searching for references based on relevancy to the target input.

It was found that using AI applications in conducting research is effective for analyzing quantitative and qualitative data, because the means of the eighth and ninth statements are 4.79 and 4.71, respectively. The same result was reached by El-Said [4]. It's attributed to the ability of such applications to use machine learning algorithms for connecting with multiple data sources, identifying patterns across several datasets and processing data. It's attributed to the fact that AI models are capable of identifying anomalies, patterns, correlations, and trends in the administered data.

It was found that using AI applications in conducting research provides researchers with the technical concepts and expressions they want to express the intended meaning, because the mean of the 10$^{th}$ statement is deemed high (4.89). The same result was reached by Ramadan [8]. It's attributed to the fact that some faculty members and graduate students lack

knowledge about many technical expressions in their field. Thus, those faculty members and students can find such expressions through administering the intended meaning into the AI application.

It was found that using AI applications provides the researchers with new research ideas, because the mean of the eleventh statement (4.55) is deemed high. The same result was reached by El-Said [4]. That's because those applications are capable of providing researchers with new ideas based on the administered keywords, sentences, or questions.

It was found that using AI applications in conducting research assists researchers in organizing their research-related ideas, because the mean of the twelfth statement (4.62) is deemed high. The same result was reached by Za'abtah and Saba' [6] and Eid [7]. That's because such applications can provide researchers with mind maps, lists, and figures that represent the administered ideas in an organized manner.

It was found that using AI applications in conducting research provides researchers with reliable answers to their research-related questions, because the mean of the thirteenth item (4.70) is high. The same result was reached by Za'abtah and Saba' [6]. That's because AI applications use numerous databases and machine learning models to reach answers to the questions administered by researchers.

It was found that using AI applications in conducting research assists researchers in managing their time effectively, because the mean of item No. (14) is high (4.65). The same result was reached by Za'abtah and Saba' [6]. That's because those applications can provide researchers with time schedules that prevent wasting time and dedicate a reasonable amount of time for each task.

It was found that using AI applications in conducting research can provide researchers with good explanations for the references that may be difficult for them to comprehend, because the mean of item (15) is high (4.33). The same result was reached by Zafour et al. [9]. That's because some AI applications include a virtual tutor that's capable of providing researchers with illustrations for the content of videos, books, and articles.

It was found that using AI applications in conducting research provides researchers with the right citations for the references in accordance with the identified citation style, because the mean of item (16) is high (4.90). The same result was reached by Eid [7]. That's because AI applications can employ the rules of citation based on the identified citation style.

It was found that using AI applications in conducting research provides researchers with solutions for the problems they face, because the mean of item (17) is high (4.80). The same result was reached by El-Said [4]. It's attributed to the ability of AI applications to process the administered data about the targeted problem to present several effective solutions. Furthermore, it was found that using AI applications in conducting research provides researchers with figures that represent research-related data, because the mean of item (18) is high (4.51). The same finding was reached by Ramadan [8]. It's attributed to the ability of AI applications to design figures, tables, and charts to represent the data related to the respondents' characteristics or attitudes.

It was found that using AI applications in conducting research provides researchers with recommendations that improve the quality of their research, because the mean of item (19) is high (4.30). The same finding was reached by Mustafa [15] and Eid [7]. That's because AI applications can offer recommendations about the best sample size, data collection methods, data analysis instruments and etc. It's because such recommendations are based on the data found in databases and online references. In addition, it was found that using AI applications in conducting research assists researchers in developing research instruments and writing research questions and hypotheses, because the means of items (21) and (22) are 4.95 and 4.87, respectively. The same results were reached by Eid [7]. That's because AI applications can suggest survey items and interview questions after accessing relevant data in databases and academic journals. It's because AI applications can recommend additional survey items based on such data.

Despite such advantages, it was found that the respondents have neutral attitudes towards the ability of AI applications to offer reliable translation for references and find language-related errors. That's because the means of items (2) and (3) are 3.60 and 3.57, respectively. Those results aren't in agreement with the findings of Za'abtah and Saba' [6]. They're attributed to the fact that AI applications aren't capable of taking the context and cultural elements into consideration when translating and editing texts. That shall lead to committing language-related errors by those applications.

Despite such advantages, it was found that the respondents have neutral attitudes towards the ability of AI applications to offer summaries for books and studies, as the mean of item (5) is neutral (3.47). This result differs from the one found by Ramadan [8]. This is because those applications may commit language-related errors when writing such summaries. The researcher concluded that using AI applications in conducting research does not improve researchers' creative thinking or problem-solving skills, as the means of items (23) and (24) are 2.22 and 2.20, respectively. The same results were reached by El-Said [4]. This is attributed to the fact that using such applications to find solutions and generate new ideas may reduce researchers' use of their creativity and analytical skills.

### *7.2. The Study's Second Question*

Q.2.What are the challenges hindering faculty members and graduate students in Emirati universities from using AI applications in conducting research?

To offer an answer to the study's second question, the researcher analyzed the interviewees' answers to the second question in this interview:

When asking the respondent about the challenges hindering their use of AI applications in conducting research, the following challenges were identified:

*7.2.1. Facing Technical Problems While Using Such Applications*

Two faculty members and five graduate students added that facing technical problems may discourage many users of AI applications from continuing to use them in conducting research. For instance, facing such problems shall discourage researchers from using AI applications. The same finding was reached by Alderbashi [14].

*7.2.2. The high price of some AI applications*

Four faculty members and two graduate students noted that many AI applications are displayed online at a high price. They mentioned that setting a high price will discourage researchers from purchasing AI applications for their research. A graduate student remarked: *''The prices of the useful AI applications are really high''.* For instance, some graduate students allocate a limited budget for the research process. Other graduate students are in a difficult financial situation. This shall hinder those students from buying and using AI applications. The same finding was reached by Ramadan [8].

*7.2.3. Lack of Knowledge about the Way of Using AI Applications*

Six faculty members and three graduate students added that the lack of knowledge about how to use AI applications will hinder researchers from utilizing those applications. In fact, a graduate student added: '*I have never attended a course on how to use AI applications. Thus, I need to take training courses on that.*' For instance, graduate students are not provided with training courses on how to use AI applications. This will hinder them from utilizing AI applications.

*7.2.4. Concerns About the Security of the Administered Data*

*Five faculty members and four graduate students added that they have concerns about the security of the administered data. They added that such concerns discourage many researchers from using AI applications.* For instance, some students and faculty members may fear administering data about their research title, data, and instrument to the AI apps, because they are afraid of having such data stolen or accessed by strangers. That shall discourage them from using AI applications. The same result was reached by Mudgal et al. [13].

Thus, the researcher believes that it's necessary to provide graduate students and faculty members with extensive training courses on the way of using AI applications. He believes that it's necessary to recruit AI specialists in Emirati universities to assist students and faculty members in addressing the problems faced while using AI applications. He believes that it's necessary to provide students and faculty members with free access of some AI applications.

## 8. Conclusion

It was found that using AI applications in conducting research is effective. For instance, such uses for AI applications include allowing researchers to find the information they are searching for within a specific reference. They include providing researchers with the most relevant references and new research ideas. They include analyzing quantitative and qualitative data. They include organizing the research-related ideas, which allow researchers to write coherent texts. They include providing researchers with good explanations for the references that are difficult to comprehend. As for the challenges hindering such use, they include facing technical problems while using AI applications and the high prices of some AI applications.

## 9. Recommendations

The researcher recommends:

- Providing faculty members with free access to certain AI applications that can assist them in the research process. This is due to one of the identified challenges being the high cost of some AI applications.
- Recruiting AI specialists in Emirati universities to assist faculty members in addressing the problems they face when using AI programs and applications. This is because one of the identified challenges is related to encountering technical issues while using such applications.

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