

International Journal of Learning, Teaching and Educational Research
Vol. 23, No. 10, pp. 583-598, October 2024
<https://doi.org/10.26803/ijlter.23.10.28>
Received Aug 23, 2024; Revised Oct 18, 2024; Accepted Oct 24, 2024

Saudi Postgraduate Students` Ethical Commitment between Awareness and Application of Artificial Intelligence in Scientific Writing

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Abstract. This research explores the extent of ethical awareness among postgraduate students and their commitment to ethical standards when using artificial intelligence (AI) techniques in scientific writing (SW). It identifies gaps between what students know about ethics and how they apply this knowledge in their SW, specifically in content generation, analysis, and data handling. The study also evaluates the implications of postgraduate students' increasing use of AI for academic integrity and the verification of sources, focusing on developing effective strategies and measures to ensure ethical compliance. The study participants comprised 68 male and female students from the College of Education at King Faisal University, Saudi Arabia. A descriptive survey research design was used: researchers developed a questionnaire to determine postgraduate students' level of moral commitment between awareness and the application of AI in their dissertations, theses, and research projects. Results indicated that this commitment is moderate. There were no statistically significant differences between the participants' scores due to age, gender, seniority at university, study type, study state, or subject specialization. The study recommends establishing and implementing intensive awareness training programmes for postgraduate students focused on the importance of ethics in using AI in accordance with academic integrity standards. The study also suggests that institutions review and update academic policies to ensure clear ethical principles regarding the use of AI in SW are included.

Keywords: artificial intelligence; scientific writing; ethical commitment; postgraduate students; King Faisal University

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1. Introduction

The world is witnessing a massive technical revolution across all areas of life. Recent developments in artificial intelligence (AI) have perhaps had the most prominent impact (Fleck, 2018). Notably, AI is becoming more complex in the level of functions it can perform. This means it can be considered as an autonomous science gaining significant interest as it plays an important role in advancing the overall quality of life (Gaber et al., 2023). The idea behind AI is to enable computer systems to be capable of analyzing data and different situations, reacting and making decisions according to the circumstances (Tutorial Point, 2015), and employing data in specific contexts to achieve particular goals and perform tasks through flexible adaptation (Zhang & Lu, 2021). AI also facilitates computer systems to identify data patterns, make predictions, answer questions, and generate content at scale (Son et al., 2019).

Many educational institutions, especially universities and colleges, have employed AI technologies in their systems. Both faculty members and students benefit from AI technologies, as they generate an increasing demand for information that enables them to perform their research tasks while meeting scientific requirements (Al-Khathami, 2010). AI applications significantly enhance academic integrity in scientific research (Rodrigues et al., 2024) by detecting plagiarism and facilitating automated reviews. Additionally, they can aid in identifying sources, accurately citing them, rephrasing statements in context, conducting literature reviews, improving SW, and promoting research equity (Klucevsek & Brungard, 2016). Moreover, employing AI applications helps improve the quality of research work, saves time and effort, and aids in formatting scientific papers and producing them correctly (Altynbekova, 2021).

Figure 1 shows some applications dependent on AI that aid postgraduate students and researchers in their research and SW. These tools are classified into five groups: those that help in research and investigation (Aithal & Aithal, 2023); those that assist in building research ideas, formulating questions, and constructing hypotheses (Garbuio & Lin, 2021); those that facilitate sourcing previous studies and research literature related to the subject of the study (Borges et al., 2021); those that support writing, editing, and translation (Altynbekova, 2021; Zhao et al., 2024); and those that help create tables to analyze data and construct questionnaires (Wu et al., 2021).

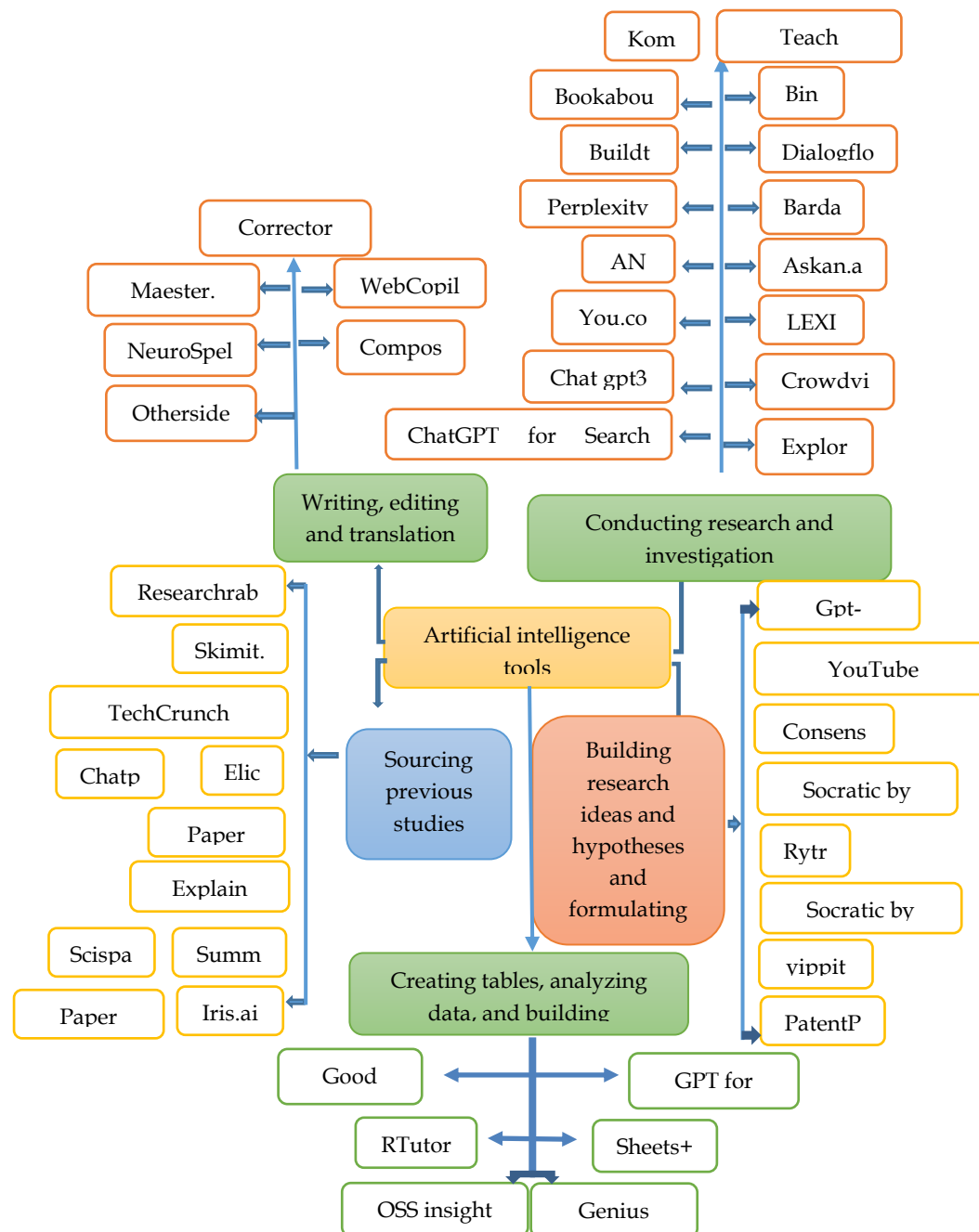


Figure 1: AI tools that help postgraduate students write research papers

Postgraduate students and researchers should consider that no matter how accurate these applications are and how effective their results are, they remain mere tools and aids. Although they are beneficial for academic activities, making SW faster and easier, ethical concerns have been raised about their usage (Salvagno et al., 2023). These include highlighting some negative scientific research behaviours, such as bias, lack of transparency, and lack of academic integrity (Ivanov, 2023).

University postgraduate students, researchers, and faculty members are considered to be the group most concerned with sound scientific research in their studies and dissertations (Mustafa, 2023). These outputs are based on quality

regulations that encompass adherence to ethical standards (Uunona & Goosen, 2023). Ethical compliance involves the moral considerations and principles that guide postgraduate students and researchers to use AI applications in a responsible and ethical manner (Floridi, 2023), protect intellectual property rights, defend scientific values, reduce bias, and promote fairness and transparency (Zhang et al., 2023). They also protect data privacy in line with global standards (Ivanov, 2023).

With the widespread use of AI applications for generating content, AI models have varied dramatically in many fields, including SW articles (Gilat & Cole, 2023). Because of its challenges, total reliance on AI tools and applications for scientific research is currently not appropriate (Nguyen et al., 2023), at least until the necessary procedures and controls have been developed to enhance scientific integrity and ensure that students benefit. Suppose graduate students and researchers use AI-supported tools appropriately (Kassymova et al., 2023). In that case, they are afforded services that save time and effort in practical applications, translation and summarization of literature, identification of research gaps, and data analysis (Nazari et al., 2021).

Based on what has already been stated, it can be recognized that education is witnessing a significant technological development, albeit one that presents postgraduate students and researchers with some major challenges. Examples include the extent of their awareness and knowledge of AI applications and how they can develop their skills in ethically employing these tools for SW (Rowland, 2023). AI applications have a major role in developing the SW skills of postgraduate students (Khabib, 2022), underlining the importance of this research. Its significance is also evident in that AI applications are one of the primary factors that affect the performance of postgraduate students' SW in terms of citing sources, detecting plagiarism, paraphrasing, and improving their writing. The practical impact of this study is highlighted through the preparation of a tool that aids the revealing of awareness and use of AI applications by postgraduate students in the Saudi environment. It also helps uncover postgraduate students' deficiencies when employing AI applications in their research work in light of ethical controls and procedures.

Perhaps one of the main concerns is that graduate students are not aware of or committed to ethical standards while employing AI in SW. Students struggle to grasp how to use technology appropriately, putting them at risk of academic plagiarism and loss of credibility. In the absence of explicit norms for the use of AI, students' ethical practices vary significantly. In addition, another issue is the lack of educational literature directing postgraduate students' use of AI applications when conducting scientific research in light of global ethical standards and the responsibility that falls on researchers' shoulders to keep pace with technological developments. Hence, researchers sought to understand postgraduate students' awareness of ethical commitment for AI applications in SW. Thus, the study aims to examine the moral awareness and ethical use of AI in SW among graduate students at King Faisal University and identify significant differences in moral commitment and moral use based on factors such as age, gender, university seniority, study programme type, and specialization.

Based on the above, the following research questions were generated:

Q.1. What is the degree of moral awareness of postgraduate students at the College of Education, King Faisal University regarding the applications of AI in SW?

Q.2. What is the degree of ethical use of applications of AI in SW by postgraduate students at the College of Education, King Faisal University?

Q.3. Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW, according to the variables (age, gender, seniority of study at university, type of study programme, specialization)?

2. Methodology

2.1. Method

The study used a descriptive survey research design because it was appropriate for the study's goals and nature, since the study intends to investigate the ethical commitment among Saudi graduate students to the awareness and application of AI in SW.

2.2. Research Population and Sample

The current study's sample population consisted of 194 postgraduate students (master's and doctorate level) attending the College of Education at King Faisal University in Al-Ahsa Governorate, Saudi Arabia. According to the college's statistical committee, all were enrolled in the second semester of 2023-2024. A questionnaire was distributed electronically to the participants. Sixty-eight graduate students responded, corresponding to 35% of the population. Table 1 shows the demographic distribution of the research participants.

Table 1. Summary of the demographics of study participants

Category	Frequency	Percentage (%)
Age		
Less than 30 years	29	42.65%
30-40 years	20	29.41%
40 years and above	19	27.94%
Gender		
Male	20	29.41%
Female	48	70.59%
Seniority at University		
MAS	56	82.35%
Ph.D.	12	17.65%
Study type		
Dissertation	56	82.35%
Research project (thesis)	12	17.65%
Study status		
Part-time	37	54.41%
Full-time	31	45.59%
Specialization		
Special education	13	19.12%
Curriculum and teaching methods	16	23.53%
Education and psychology	9	13.24%
Physical education	5	7.35%
Educational leadership	9	13.24%
Art education	8	11.76%
Kindergarten	8	11.76%

2.3. Research instruments

To identify the views of the participating graduate students at the College of Education at King Faisal University regarding their ethical awareness and ethical use of AI applications in SW, the researchers developed a questionnaire based on reviewing the relative literature, which consisted of 20 phrases. The questionnaire was selected since it is the most appropriate instrument that suits the method and objectives of the study, and it was divided into two sections.

The first section included ten phrases measuring the degree of graduate students' ethical awareness of the applications of AI in research writing. To generate data for this section, a five-point Likert scale was employed with responses (5 for "I always know", 4 for "I often know", 3 for "I sometimes know", 2 for "I rarely know", 1 for "I never know") relating to each phrase.

The second section contained ten phrases to measure the level of graduate students' ethical use of AI in research writing. A five-point Likert scale was used to obtain data for this section with responses (5 for "I always use", 4 for "I often use", 3 for "I sometimes use", 2 for "I rarely use", 1 for "I never use") relating to each phrase.

To verify the external consistency of the questionnaire, the questionnaire was distributed to 10 experts in the field in order to obtain their opinions regarding how the phrases measure what they intended to measure, and the agreement

percentage was 90%. Therefore, based on the experts' recommendations and suggestions, some phrases were deleted and modified.

Moreover, the internal consistency among its items was calculated using a study sample of 54 postgraduate students of both genders at the College of Education at King Faisal University. The correlation coefficients between the phrases ranged from 0.752 to 0.907. Furthermore, the reliability of the research instrument was calculated using Cronbach's alpha coefficient, which was 0.967. The values of the correlation coefficients and Cronbach's alpha coefficient indicated that it had a high degree of validity and reliability.

3. Results

3.1. The first research question

The first study question asked was: *What is the degree of moral awareness of postgraduate students at the College of Education, King Faisal University regarding the applications of AI in SW?*

The mean and SD of the survey responses were calculated, with the results shown in Table 2. Regarding moral awareness, the overall mean was 2.95, with an SD of 1.05. These values indicate that the study sample has a moderate degree of moral awareness. Item 2, "I know quality AI applications in paragraph translation," was ranked first with a mean of 3.38 and an SD of 0.993. Item 1, "I know credible AI applications in data collection," was second, with a mean of 3.34 and an SD of 1.114. Item 9, "I know AI applications in compiling relevant studies," was third, with a mean of 3.03 and an SD of 1.486. Item 5, "I know credible AI applications for paraphrasing," was ranked eighth with a mean of 2.76 and an SD of 1.328. Item 7, "I know AI applications with accuracy in detecting plagiarism," was ninth, with a mean of 2.76 and an SD of 1.405. Item 10, "I know AI applications that are reliable for performing statistical treatments accurately," was tenth with a mean of 2.72 and an SD of 1.348.

Table 2. Descriptive statistics of the respondents' degree of moral awareness regarding the applications of AI in SW (n = 68)

	items	n	M	SD	Rank
1	I know credible AI applications in data collection.	68	3.34	1.114	2
2	I know quality AI applications in paragraph translation.	68	3.38	0.993	1
3	I have knowledge of AI applications and accuracy in documenting references according to APA7.	68	2.82	1.304	6
4	I have knowledge of AI applications and integrity in proofreading.	68	3.00	1.270	4
5	I know credible AI applications in tool settings.	68	2.76	1.328	8
6	I know reliable AI applications for paraphrasing.	68	2.91	1.255	5
7	I know AI applications with accuracy in detecting plagiarism.	68	2.76	1.405	9
8	I know objective AI applications in paragraph summarization.	68	2.81	1.249	7
9	I know AI applications in compiling relevant studies.	68	3.03	1.486	3
10	I know AI applications that are reliable for performing statistical treatments accurately.	68	2.72	1.348	10
	Mean* for total		2.95	1.05	

Note, M=mean. SD=Standard deviation.

3.2. The second research question

The second study question asked: *What is the degree of ethical use of applications of AI in SW by postgraduate students at the College of Education, King Faisal University?*

The mean and SD of the survey responses were calculated with the results shown in Table 3. The overall mean for the ethical use factor was 2.69, with an SD of 1.18. These values indicate that the study sample has a moderate degree of ethical use. Item 2, "Use AI applications to proofread the translation while ensuring the correctness of scientific terms," was ranked first with a mean of 2.91 and an SD of 1.39. Item 9, "Use AI applications to collect relevant studies," was second, with a mean of 2.91 and an SD of 1.48. Item 1, "Use AI applications to collect scientific data and ensure its credibility," was third, with a mean of 2.82 and an SD of 1.44. Item 3, "Use AI applications to document references according to APA7 and review them accurately," was ranked eighth with a mean of 2.59 and an SD of 1.37. Item 6, "Use AI applications to rephrase paragraphs and ensure the integrity of the meaning," was ninth, with a mean of 2.51 and an SD of 1.24. Item 10, "Use AI applications to prepare tools and ensure its suitability to measure study variables," was tenth with a mean of 2.46 and an SD of 1.30. Also, Table 3 shows the general mean was 2.82, with an SD of 1.05.

Table 3. Descriptive statistics of the respondents' degree of ethical use of applications of AI in SW (n = 68)

	items	n	M	SD	Rank
1	Use AI applications to collect scientific data and ensure its credibility.	68	2.82	1.44	3
2	Use AI applications to proofread the translation while ensuring the correctness of scientific terms.	68	2.91	1.39	1
3	Use AI applications to document references according to APA7 and review them accurately.	68	2.59	1.37	8
4	Use AI applications to proofread paragraphs and ensure their linguistic integrity.	68	2.78	1.30	4
5	Use AI applications to prepare tools and ensure its suitability to measure study variables.	68	2.46	1.30	10
6	Use AI applications to rephrase paragraphs and ensure the integrity of the meaning.	68	2.51	1.24	9
7	Use AI applications to avoid plagiarism.	68	2.68	1.50	5
8	Use AI applications to accurately summarize paragraphs.	68	2.62	1.34	6
9	Use AI applications to collect relevant studies.	68	2.91	1.48	2
10	Use reliable AI applications to accurately perform statistical processing.	68	2.62	1.39	7
	Mean* for total		2.69	1.18	
	Overall score		2.82	1.05	

3.3. The third research question

The third study question asked: *Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW according to the variables?*

To answer this question, it was divided into several sub-questions, as follows:

3.3.1. *Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW according to the gender variable (male-female)?*

Table 4 shows the results of the Mann-Whitney U test, showing the differences between sample members' points of view regarding awareness and application of AI in SW with regard to gender. The AI awareness dimension was (the U value = 440, $p = 0.595$). The AI application dimension was (the U value = 337, $p = 0.165$),

and the total was (the U value = 445, $p = 0.637$). All p-values are higher than 0.05. This indicates that there are no significant differences in the study sample's mean values regarding awareness and application of AI in SW with regard to gender.

Table 4. The results of the Mann-Whitney U test showing the differences between the sample members' points of view on awareness and application of AI in SW due to gender

Dimensions	Group	n	Mean	SD	SE	U	P
AI Awareness	Male	20	30.4	10.4	2.33	440	0.595
	Female	48	29.2	10.6	1.53		
AI Application	Male	20	23.8	11.4	2.54	337	0.165
	Female	48	28.2	11.9	1.72		
Total	Male	20	54.1	19.8	4.44	445	0.637
	Female	48	57.4	21.6	3.11		

3.3.2. *Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW according to the study stage variable (master's or doctorate)?*

Table 5 shows the differences between the sample members' points of view regarding awareness and application of AI in SW due to study stage. The AI awareness dimension was (the U value = 303, $p = 0.601$). The AI application dimension was (the U value = 221, $p = 0.065$), and the total was (the U value = 260, $p = 0.221$). All p-values are higher than 0.05. This indicates that there are no significant differences in the study sample's mean values regarding awareness and application of AI in SW with regard to study stage.

Table 5. The results of the Mann-Whitney U test showing the differences between the sample members' points of view on awareness and application of AI in SW due to study stage

Dimensions	Group	n	Mean	SD	SE	U	P
AI Awareness	Master's	56	29.8	10.6	1.42	303	0.601
	Ph.D.	12	28.3	10.19	2.94		
AI Application	Master's	56	28.2	12.0	1.61	221	0.065
	Ph.D.	12	20.8	9.16	2.65		
Total	Master's	56	58.0	21.4	2.86	260	0.221
	Ph.D.	12	49.2	18.12	5.23		

3.3.3. *Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW according to the study type variable (dissertation or research project)?*

Table 6 shows the differences between the sample members' points of view regarding awareness and application of AI in SW due to study type. The AI awareness dimension was (the U value = 288, $p = 0.440$). The AI application dimension was (the U value = 218, $p = 0.058$), and the total was (the U value = 245, $p = 0.143$). All p-values are higher than 0.05. This indicates that there are no

significant differences in the study sample's mean values regarding awareness and application of AI in SW with regard to study type.

Table 6. The results of the Mann-Whitney U test showing the differences between the sample members' points of view on awareness and application of AI in SW due to study type

Dimensions	Group	n	Mean	SD	SE	U	P
AI Awareness	Dissertation	12	33	12.7	3.65	288	0.440
	Research project	56	28.8	9.95	1.33		
AI Application	Dissertation	12	33.8	13.3	3.83	218	0.058
	Research project	56	25.4	11.09	1.48		
Total	Dissertation	12	66.8	24.6	7.10	245	0.143
	Research project	56	54.2	19.66	2.63		

3.3.4. *Is there a statistically significant difference between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment between awareness and application of AI in SW according to the study status variable (part-time or full-time)?*

Table 7 shows the differences between the sample members' points of view regarding awareness and application of AI in SW due to study status. The AI awareness dimension was (the U value = 527, $p = 0.567$). The AI application dimension was (the U value = 521, $p = 0.518$), and the total was (the U value = 574, $p = 0.502$). All p-values are higher than 0.05. This indicates that there are no significant differences in the study sample's mean values regarding awareness and application of AI in SW with regard to study status.

Table 7. The results of the Paired Samples Mann Whitney-Test test showing the differences between the sample members' points of view on awareness and application of AI in SW due to study status

Dimensions	Group	n	Mean	SD	SE	U	P
AI Awareness	Part-time	37	30	10.1	1.66	527	0.567
	Full-time	31	29	11.1	1.99		
AI Application	Part-time	37	26.1	11.6	1.90	521	0.518
	Full-time	31	27.9	12.3	2.21		
Total	Part-time	37	56.1	20.3	3.33	574	0.502
	Full-time	31	56.8	22.1	3.97		

3.3.5. *Are there statistically significant differences between the mean ranks of postgraduate students at the College of Education, King Faisal University in moral commitment, awareness, and application of AI in SW according to the specialization variable?*

Table 8 shows the differences between the sample members' points of view on awareness and application of AI in SW due to specialization. The χ^2 value was 6.71, and the p-value = 0.349, which is higher than 0.05. This indicates that there

are no significant differences in the mean ranks of the study sample between awareness and application of AI in SW due to specialization.

Table 8. The results of the Kruskal-Wallis test showing the differences between the sample members' points of view on awareness and application of AI in SW due to specialization

χ^2	df	p
6.95	6	0.326
8.71	6	0.191
6.71	6	0.349

4. Discussion

The findings of the study showed that the degrees of ethical awareness and the use of AI applications were at average levels. To the best of the authors' knowledge, there are no results supporting this hypothesis in the literature cited in the current study; therefore, these results can be interpreted in light of the findings of the current study. Rodrigues et al. (2024) demonstrated that AI tools can help identify students who plagiarize, in addition to the scientific implications resulting from this plagiarism. Salvagno et al. (2023) highlighted the need for using caution when utilizing AI applications to prevent unethical behaviours and fraud, while Floridi (2023) affirmed that precautions must be taken in the development of AI applications to minimize the negative effects and ethical problems that may arise. The studies by Klucsevsek and Brungard (2016), and Altynbekova (2020) also indicated that AI may significantly improve justice and honesty and save time and effort with SW publications.

Regarding this result, the authors provided some explanations, including students' ignorance of the importance of AI technology, the lack of access to appropriate training and guidance for using AI in the academic environment, or the lack of experience using AI technologies in their academic fields. Additionally, it is possible that students are not aware of the negative effects of utilizing these tools unethically, which could negatively affect their academic careers. An example of such negative effects might be facing regulatory penalties. University laws also restrict the use of AI applications in scientific research, as Al-Khathami (2010) confirms. Academic institutions aim to integrate AI technologies into their systems, which identify their unethical use and encourages faculty members and graduate students (master's and Ph.D.) to conduct research and scientific tasks in an ethical and responsible manner.

The study also found that there are no statistically significant differences in graduate students' average grades for ethical commitment, awareness, and the use of AI applications based on their gender and academic stage (master's and Ph.D.), as well as age (less than 30, 30-40, 40, and above). Since doctorate and master's degrees are offered at the same university, the researchers ascribed this to either the equal cognitive experiences of male and female students or their compliance with policies and procedures that forbid using AI applications in

scientific research. This created somewhat shared academic value and orientation between the master's and doctoral levels, which created a collective awareness towards the use of AI applications. Therefore, as previously mentioned, students did not have the experiences necessary to apply AI effectively, which can lead to numerous problems and ethical complications, as stated by Salvagno et al. (2023).

In addition, no statistically significant difference was found between the average grade levels depending on participant study type (dissertation or research project). The researchers attribute this to the fact that scientific research and its methodological procedures are considered the formative basis for both the dissertation and the research project. They are a product the researcher generates to obtain a scientific degree; each imposes some conditions and requirements that differ from one scientific degree to another, to which the researcher must adhere and provide. In the structure of the end product, the absence of differences is considered essential for the application of administrative systems and regulations that ensure the quality of postgraduate students' outputs. In addition, the total number of academic problems that emerged in the degree of moral awareness of postgraduate students are general features that prevail over all types of study; they are related to the extent of moral awareness of the applications of AI in SW.

The results showed no statistically significant difference between the average grade levels of postgraduate students at the College of Education, King Faisal University, depending on study status (part-time or full-time). This could be because the student who devotes wholly or partially to studying in academic fields is obligated to have a degree of ethical awareness when using AI applications in SW. Ethical commitment to using AI applications is one of the basic requirements when employing these tools in research work and is of definite significance to all students. This does not change depending on a student's status, whether full-time or part-time.

Finally, no statistically significant differences were found among the average levels with regard to specialization (education and psychology, special education, art education, curriculum and teaching methods, educational leadership, and kindergarten). The researchers ascribe this result to the fact that all specializations use AI in academic activities, and every student is obligated to apply standards, and follow regulations and rules. Importantly, Kassymova et al. (2023) and Nguyen et al. (2023) argue that applying AI tools is inappropriate owing to the challenges that students face; thus, scientific integrity is improved by determining the necessary procedures and regulations.

5. Limitations and Areas of Future Research

The main limitation of this study is that its scope of application was based only on the use of AI in SW by postgraduate students at the College of Education. It did not include other colleges or other subject specializations among postgraduate students at the university. The questionnaire may also have affected the accuracy of the results owing to potential biases. Because the study occurred during a specific period, it does not include subsequent developments in AI, a rapidly developing technological field. Furthermore, the conclusions drawn from this research may not be generalizable owing to rapid technological changes and other

complex variables that were not fully analyzed in this study. To address these limitations in future research, studies could be expanded to include a wider group of randomly selected participants from different specializations, educational levels, and cultures from different geographical settings to obtain more comprehensive results. This would improve representativeness, reduce biases, and eliminate statistical errors.

Furthermore, it is recommended that different methodologies, combining quantitative and qualitative methods, be used in future studies. There should not be a focus on one method only; this will enhance the validity of the results and reduce bias. It is also suggested that studies be conducted periodically to update the available data, including recent developments in AI and the extent of its connection to the ethical commitment of postgraduate students in their SW. Encouraging the continuous and periodic publication of such studies will help to increase transparency in methods and results. There is a need to integrate ethical commitment into AI curricula and train postgraduate students to enhance awareness of the ethical issues related to it in general and to SW in particular.

6. Conclusion and recommendations:

This study concluded that there is a moderate level of ethical commitment among postgraduate students (master's and Ph.D.) regarding awareness and application of AI in SW. This reveals an urgent need to strengthen ethical guidance and provide adequate training to bridge the gap between ethical knowledge and its practical application. No significant differences were found regarding moral commitment based on factors such as age, gender, or study stage, suggesting that moral challenges may be common across different demographic groups. In light of these findings, the researchers recommend establishing intensive training programmes focused on ethics in using AI to ensure that postgraduate students understand the importance of academic integrity and how they can achieve it. It is vital to update and periodically review academic policies to include clear ethical principles related to the current application of AI in SW and ensure that students adhere to them. Additionally, more workshops and seminars must be provided to increase awareness of the importance of ethics and its role in scientific research and encourage students to think critically about the consequences of using AI. Students should be encouraged to check sources and citations carefully to avoid plagiarism and promote ethical research practices. Moreover, there is a need to develop evaluation tools that help professors evaluate the extent to which students adhere to ethical standards when using AI in SW.

Acknowledgments

The authors would like to express their deep gratitude for the financial support provided by the King Faisal University, Saudi Arabia (Grant No. GRANT A036). They also extend their heartfelt thanks to the postgraduate students who consented to be involved in this research project.

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