



## PhD Students' Perceptions Regarding the Utilization of AI tools in Academic Research Writing

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### Abstract

The new wave of technology has increased the reliance on artificial intelligence (AI) tools in diverse contexts, particularly in academic writing. Postgraduate students increasingly use AI to enhance accuracy and quality in their work, as Ph.D. programs require critical thinking and argumentative writing. Tools such as Grammarly, Perplexity, and Gemini are widely employed for paraphrasing, summarizing, and generating ideas. Yet, ethical guidelines and regulations among Libyan postgraduate students remain unexplored. This paper investigates Libyan Ph.D. students' perceptions of AI applications to support their academic research writing. Guided by the mixed method approach, the study employed quantitative measures alongside semi-structured interviews with six Ph.D. candidates at the English Department, Benghazi University. The findings revealed growing reliance and acceptance of AI tools among doctoral students. However, the results emphasized students' concerns regarding ethical use and the lack of institutional regulations. In response, the current paper proposes a framework for responsible AI use in doctoral research, calling for urgent institutional policies, context-specific application, and ethical guidelines. This work contributes to the existing knowledge on AI academic use and highlights the urgent need for a well-established AI integration policy in Libya's doctoral education system .

**Key words:** AI (Artificial Intelligence), guidelines, academic writing.

### Introduction

In academic research writing, students are required to investigate hypotheses, analyze data, summarize findings from various studies, evaluate the information collected, and form conclusions (Nasser, 2018). Because of this, academic research writing can be a challenging task for college students. Researchers highlight that the process is not straightforward for learners, as they must consider several factors, including grammar, appropriate vocabulary, sentence structure, cohesion, organization of ideas, and clearly expressing their own thoughts (Dweni, 2023).

Therefore, many EFL students struggle to develop their academic writing skills. They often face challenges in formatting their ideas coherently and in areas like grammar, spelling, and punctuation (Argudo Serrano, 2025; Aljoza&Almustafa, 2024; Fitria, 2021). Most of them have limited vocabulary repertoire which hinders the content of their writing (Bulqiyah et al., 2021), and their common lexical errors in writing often involve confusion with similar words, such as near-synonyms and homonyms (Letsoela&Matlosa, 2022). Furthermore, challenges related to collocation and stylistic errors, such as redundancy, lack of specificity, first language interference and direct translation from native languages, complicate proper academic writing for those EFL students (Argudo Serrano, 2025; Letsoela&Matlosa, 2022).

Libyan students, like other EFL learners, encounter similar writing challenges. Many Libyan EFL university students exhibit weak academic writing skills due to a lack of motivation and limited ideas (Milad et al., 2021). They find it difficult to choose a title and formulate a

researchable problem, as well as to write the literature review, methodology, results, and discussion sections (Alsied& Ibrahim, 2017). Additionally, they often struggle with selecting appropriate academic vocabulary, forming strong thesis statements, organizing their ideas, and writing coherent paragraphs (Aldabbus&Almansouri, 2022). Moreover, they face difficulties in building arguments, as well as in writing correct references and citations (Dweni, 2023). They also encounter challenges in finding relevant information, structuring their thoughts, and achieving coherence in their writing (Hadia, 2023).

The ongoing evidence of the existence of these writing challenges among English language learners has prompted scholars and researchers to develop new strategies to enhance writing accuracy at various stages of the writing process (Akdemir&Eyerici, 2016; Verma, 2023). One notable strategy is the use of AI tools in academic writing, which has become a significant trend in the 21st century and its impact on education, particularly in academic writing, is increasingly apparent (Golan et al., 2023; Negoită&Popescu, 2023). At its core, "AI encompasses the development of computer systems capable of performing tasks that traditionally require human intelligence" (Macias Loo et al., 2024:12). The introduction of AI tools has revolutionized academic writing and created new opportunities to improve the quality and efficiency of the writing processes among English learners (Kurniati&Fithriani, 2022; Nakazawa et al., 2022). These tools offer instant feedback, corrections and provide important information that students need for their academic success (Hermann, 2022; Zhai et al., 2021).

Particularly in Libyan EFL settings, there has been a significant shift toward integrating AI into educational practices as a strategy to overcome challenges in academic situations (Abolkasima&Hasan, 2024; Alahwal et al., 2025; Shrif&Jamoum, 2025). This shift has created an urgent need for in-depth research on how these tools impact Libyan students' understanding and academic performance (Alahwal et al., 2025; Hmouma, 2025; Mohsen, 2025; Shrif&Jamoum, 2025; Lakshmi et al., 2024). Especially in newly established programs. It was not until 2021 that the Faculty of Languages at Benghazi University in Libya has launched its PhD programs for higher education which require students to engage in advanced academic research writing. This has created a fertile area of research to explore students' perceptions of using AI tools in their academic writing process; hence, the aim of this study. The study also seeks to develop context specific regulations to maximize the benefits of these tools while minimizing their drawbacks within the Libyan context.

### **Literature Review**

AI tools provide spell-checkers and auto-correction programs in writing. Tools, such as Grammarly, ChatGPT, and QuillBot, enhance students' writing skills (Amani&Bisriyah, 2025). They are called writing assistive technology as they point out or correct spelling mistakes, suggest to the user a range of words, and tries to predict what the intended word should be. For example, ChatGPT makes self-writing easier by aiding in the process of writing ranging from planning, composing, editing, and revising, which ultimately results in improving learners' writing skills. Also, Grammarly facilitates grammar refining and structural accuracy, while ChatGPT facilitates memory recall by reminding learners of prior writings (Amani&Bisriyah, 2025). Further, Quillbot has been recognized for its paraphrasing features that help students to summarize and reorganize text without losing meaning (Dale, 2020). However, the extent to which these tools contribute to actual writing skill development rather than merely adjusting content remains questionable (Amani&Bisriyah, 2025; Storey, 2023).

While there are potential benefits to using AI in writing, significant drawbacks also exist (Selvi, 2024; Nwozor, 2025). One major issue is that users may become overly dependent on these tools, which can harm essential writing skills (Civil, 2023; Selvi, 2024). Moreover, AI tools pose risks, such as encouraging dependence on automation, threatening originality, and diminishing critical thinking skills (Nwozor, 2025). Many EFL students appreciate how AI saves time and simplifies academic writing; however, some express concerns about its negative

effects on creativity and their ability to write independently (Amani&Bisriyah, 2025; Civil, 2023; Kurniati&Fithriani, 2022; Storey, 2023).

Specially, in Libya there are worries that over-reliance on AI could diminish the role of teachers and lead to laziness and a lack of creativity among students (Abolkasima&Hasan, 2024; Shrif&Jamoum, 2025). Additionally, concerns are raised about equity since not all Libyan students can afford the high costs of implementing AI tools, and many rural students have limited access to these tools. That is, many Libyan students struggle to cover the associated expenses of using AI tools, which further widens the gap among students (Elsherif, 2025; Shrif&Jamoum, 2025). Additionally, limited internet access in Libyan universities further complicates this issue. Libyan universities exhibit inadequate technological infrastructure (Author et al., 2025). They do not provide free internet access for their students, which limit opportunities for all students to use internet-based AI applications under their teachers' supervision in classrooms. Meanwhile, Libyan EFL teachers struggle with a lack of technological proficiency (Author et al., 2025) which hinders their ability to teach students how to effectively use and apply AI tools during classroom activities. These challenges prevent the complete benefits from AI tools in Libyan EFL classrooms.

Since the emergence of AI in EFL academic settings, it has become a subject of research to reveal its drawbacks, benefits, and implications in the Arab context (Alazam, 2021; Jamshed et al., 2024; Alnaqbi&Yassin, 2021; Almasri, 2024; Al-Zahrani&Alasmari, 2024; Farahat, 2022; Mohamed, 2022), as well as in Libya (Abolkasim&Hasan, 2024; Alahwal et al., 2025; Haroon&Hussian, 2025; Hmouma, 2025; Lakshmi et al., 2024; Mohsen, 2025; Shrif&Jamoum, 2025). In the domain of academic writing a study by Elsherif (2025) investigated how Libyan EFL student-teachers perceive the use of Grammarly as an AI-driven writing tool during their essay writing course in the English Language Department at the University of Tripoli. The results indicated that most participants had a positive view of Grammarly. They have noted improvements in their grammar, spelling, academic vocabulary, and overall writing quality which increased their confidence in EFL writing. However, students faced challenges such as technical issues and subscription costs (Elsherif, 2025).

Another study by Palkeer and Farhat (2022) examined the effectiveness of AI tools on the increase of spelling errors in the writings of EFL Libyan students at Tobruk University using qualitative analysis. The findings indicated that the heavy use of AI technological tools with auto-correct features negatively affects students' ability to notice their spelling mistakes. It was observed that students' spelling skills decline because they rely too much on technology. Many students depend on these devices to complete their homework and assignments, leading to a lack of awareness when it comes to identifying spelling errors. Their study raised concern about encouraging passive learning behavior among Libyan students when using AI tools (Palkeer&Farhat, 2022).

Many studies have raised concerns regarding the use of AI tools in Libyan academic settings (Haroon&Hussian, 2025; Elsherif, 2025; Hmouma, 2025; Lakshmi et al., 2024; Mohsen, 2025; Shrif&Jamoum, 2025). These concerns include algorithmic bias, as well as privacy and data security issues (Al-Zahrani&Alasmari, 2024; Haroon&Hussian, 2025; Shrif&Jamoum, 2025). Many students use AI techniques to cheat or plagiarize in their written assignments and exams (Farahat, 2022). Consequently, Libyan researchers have emphasized the importance of considering the ethical implications of AI in education and developing strategies to ensure its integration does not reinforce existing inequalities (Haroon&Hussian, 2025; Lakshmi et al., 2024; Shrif&Jamoum, 2025). Therefore, needs for responsible AI regulations to harness its transformative potential while maintaining ethical standards are urgent (Haroon&Hussian, 2025).

There has been a notable gap in the literature regarding regulations for the use of AI tools in EFL academic writing in Libya. Since the PhD program in Libya has been newly established, little is known in this regarding PhD students' perceptions and usage of AI in the English department at Benghazi University. Hence, this study aims to fill that gap by exploring the perceptions of Libyan PhD students regarding the role of AI tools in their academic research writing. It examines how these tools are utilized at various stages of the thesis writing process, including brainstorming, drafting, editing, and proofreading. To achieve these objectives, the paper poses the following research question:

1. What are Libyan PhD students' perceptions of the use of AI tools in academic research writing?

### **Methodology**

Participants in this study were PhD candidates from the English department at the Faculty of Languages at Benghazi University who are currently writing their dissertations. The participants who responded to the questionnaire in this study included 26 PhD candidates from the English department at the Faculty of Languages at Benghazi University who are currently writing their proposals and dissertations. These participants were chosen because the PhD program at this faculty is newly established, having launched in 2020, and there has not been much research on how PhD students perceive the use of AI tools in academic research writing. All participants are EFL teachers with over 10 years of teaching experience. A total of six PhD candidates participated in the interviews and their participation was entirely voluntary.

To answer the previously mentioned research question, the study employed a mixed research approach which incorporates aspects of quantitative and qualitative research methods in order to draw on the strengths of each, while overcoming the limitations of either one alone (Creswell, 2018). To enhance the validity and trustworthiness of the research by means of triangulations to maximize the understanding of the research issue (Creswell, 2018), the researchers of this study used both quantitative methods, represented by a questionnaire, and qualitative methods, represented by interviews, to gain a deeper understanding of the phenomena being studied.

### **Data Collection**

The questionnaire consists of closed-ended questions that facilitate data collection and simplify the analysis process (Kumar, 2014). It was distributed via Google forms, allowing participants to respond at their convenience. Adapted from Monika et al. (2023), the questionnaire uses a survey method to evaluate awareness, usage, and perceived effectiveness of AI writing tools. Specifically, the study employed the Artificial Intelligence in Academic Writing and Publication (AIWQ-40) questionnaire, which includes 40 items divided into categories: writing (9 items), content generation (12 items), paraphrasing (8 items), citation (3 items), and proofreading (8 items). Of the 60 distributed questionnaires, only 20 were received back with responses.

Quantitative data were analyzed using statistical methods, and internal consistency was assessed with Cronbach's alpha test in SPSS to determine reliability. The result for the 40 items was 0.868, exceeding the acceptable threshold of 0.7, which indicates that the questionnaire is reliable. Also, Bivariate analysis was conducted in SPSS to check the validity of the questionnaire using the Pearson correlation method. The Pearson correlation values for the AIWQ-40 items range from -0.432 to 0.978. These values indicate a strong relationship among the questions. The significance values (p-values) range from 0.027 to 0.000 for all 40 items, which are less than 0.05. This means that the analysis shows the questionnaire is both reliable and valid.

The second phase of the data collection mainly involved semi-structured interviews with six PhD candidates. Following the analysis of the questionnaire, the semi structured interviews were conducted to provide rich contextual details. Semi structured interviews provide reliable, comparable qualitative data which allow participants the freedom to articulate their views in their own words (Cohen & Crabtree, 2006). The interviews were conducted to shed light on

participants’ perceptions of the utilization of AI tools during their academic writing. Each interview lasted up to one hour. During the interviews, the researcher used the 'Voice Recorder' phone app to record the sessions. The recordings were transcribed soon after and stored for future analysis. Due to the flexibility of semi-structured interviews (Magaldi&Berler, 2020); the researchers were capable of asking follow up question to obtain more in depth insights from the participants. All six interviews were conducted and recorded online via WhatsApp and Messenger according to the participants’ availability and convenience.

Ethical considerations were carefully addressed in the study. After obtaining verbal approval from the head of the Faculty of Languages in Benghazi, the researchers informed participants that their rights were protected. Participants received a detailed form outlining the study's goals, methods, and data storage practices, and they were made aware that their involvement was voluntary. To ensure confidentiality, only the researcher had access to personal information, recordings, and transcripts. Additionally, participants were assured that their responses and identities would not affect their academic evaluations.

**Data Analysis**

This research used a mixed-method approach, combining quantitative data from a survey and qualitative data from semi-structured interviews. The quantitative data were analyzed using descriptive statistics, while the qualitative data were examined through thematic analysis. This combination allowed for a comprehensive understanding of the research topic.

**Descriptive Statistics of the Survey**

Data collected from the questionnaire were analyzed using SPSS statistics. The questionnaire included five components: writing (9 items), content generation (12 items), paraphrasing (8 items), citation (3 items), and proofreading (8 items). The results for each item, including their mean and standard deviation, are shown in schedules. In each schedule, items are organized by the highest mean for each component and are numbered as they appeared in the questionnaire for participants.

The questionnaire included a 5-point Likert scale (from 1, indicating “Strongly Disagree” to 5, indicating “Strongly Agree”) to identify PhD students' perceptions of the role of Ai in tools in academic writing (see the following Table 1).

*Table 1: Range of Means to Identify Libyan PhD Students' Perceptions*

N	Mean	Score
1	< 1.80	Strongly Disagree
2	1.81–2.60	Disagree
3	2.61–3.40	Neutral
4	3.41–4.20	Agree
5	4.21–5.00	Strongly Agree

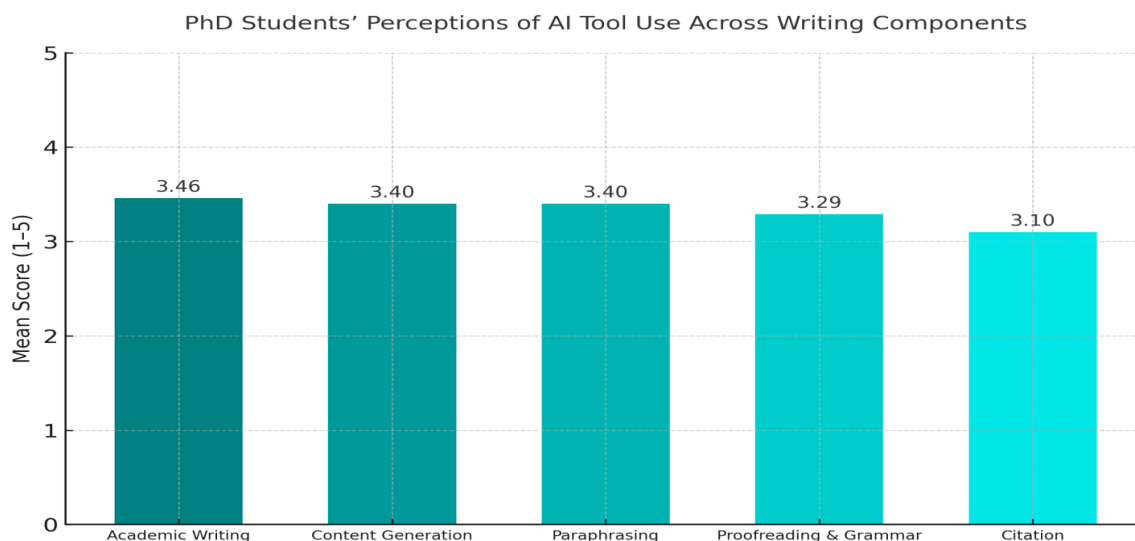
For clarity, Table 2 below presents a summary of the overall mean scores of the five questionnaire components all combined into a single table that provides a summarized overview of PhD students’ perceptions of AI tool use in academic research writing. These components include Academic Writing(items 1,8,9,10,16,17,23,28,39), Content Generation (items2,3,5,10,13,20,24,27,30,31,32,40), Paraphrasing (items4,11,19,21,22,29,33,34), Proofreading and Grammar(items 14, 15, 25, 26, 35, 36, 37, 38), and Citation (items 6,7,18). (See Appendix A)

*Table 2: The Overall mean score of Questionnaire Components*

Component	N	Mean	SD
Academic Writing	26	3.46	.869
Content Generation	26	3.40	.882
Paraphrasing	26	3.40	.999
Proofreading and Grammar	26	3.29	1.091
Citation	26	3.10	1.044

The following figure summarizes the average scores of the five components of the questionnaire, namely: Content Generation, Paraphrasing, Citation, Proofreading and Grammar Correction, and Academic Writing.

*Figure 1: The Overall Mean Score of the Five Components of the Questionnaire*



The bar chart presents the overall mean score of PhD students' perception regarding the use of AI tools in the questionnaire five components. The Figure revealed that students rated “Academic Writing” the highest, with a score of 3.46, indicating strong support for the effectiveness of AI tools in this area. Other categories, such as “Content Generation” and “Paraphrasing” received the same scores, both at 3.40, suggesting that students also find these tools helpful, though to a lesser extent. “Proofreading and Grammar Correction” scored slightly lower at 3.29, while “Citation” received the lowest score of 3.1, indicating that students may feel less confident about the effectiveness of AI tools in this area. Overall, the findings suggest a positive attitude towards the use of AI in enhancing academic writing, with a notable emphasis on its role in overall writing quality.

#### **Results of the Qualitative Analysis**

The collected data from the interviews were analyzed thematically following Braun & Clarke (2006) six-stage method of conducting thematic analysis which focuses on identifying patterns and themes in qualitative data. The six-stage method involves: (1) becoming familiar with the data, (2) comprehensively coding for significant ideas, (3) grouping codes to form broad themes, (4) reviewing these themes against the dataset, (5) defining and naming the final themes to construct an analytical narrative, and (6) presenting a detailed final report of the findings and conclusions.

While the questionnaire focused on the utilization of AI tools, the interviews explored broader perceptions, including concerns and needs. Accordingly, the analyses obtained are presented thematically with the interview data highlighting the key themes that emerged from the analysis.

#### **Results of the Research Question**

The following section presents the participants’ insights stemmed from the interviews. The interview questions were designed to address the research question.

#### **What are Libyan PhD students’ perceptions of using AI tools in academic research writing?**

This research question aimed at exploring PhD students’ perception of the application of AI tools during their proposal and dissertation writing. The responses of the interviews revealed four key themes. These themes reflected participants’ perspectives in relation to the utilization of AI tools, their considerations as well as the challenges the experienced during their PhD

journey. The three themes that emerged from the participants' answers are: (1) The Positive Impact of Applying AI Tools in Academic Research Writing, (2) Concerns and Challenges of the Use of AI Tools, and (3) Needs for Institutional Guidelines and Regulations.

### **1. The Positive Impact of Applying AI Tools in Academic Research Writing**

All six participants agreed on the positive impact that AI tools have on their academic writing. Almost all participants reported that they use tools such as Grammarly, Quilbot, Perplexity, Gemini and mostly ChatGPT to draft their writing, proof reading, check for accuracy, cohesion and coherence. One participant stated "I always proofread my work on Grammarly to check spelling and the structure of the sentences; it helps me improve my writing skills" (P 3). While another reported "I think that AI tools are teacher-like assistant when you need someone to proofread your work, these tools taught me a lot. I am learning new thing every day" (P 1). Also most participants reported that they tend to trust AI tools in organizational stances where these tools provide them with the most logical flow and steps needed in their research writing "whenever I have a topic in mind, ChatGPT is the one I hit and it always helps me organize my ideas logically" (P 2). The other positive effect of AI tools that most interviewees mentioned is that these tools saves their time in organizing references and searching for relevant papers and books related to research topics "I cannot tell you how AI tools saves my time specially in organizing my reference lists" (P 5). Participant 6 reported "I use Perplexity for searching for academic papers which I can easily download". Furthermore; all participants strongly agreed on the effectiveness of AI tools for saving time and effort and they suggested that their academic writing should be assisted by AI tools "AI tools are extremely beneficial, writing papers and looking for relevant topics are much less time consuming with AI"(P 2).

### **2. Concerns and Challenges of the Use of AI Tools**

The second theme reflected participants' main concerns and challenges that arise from the utilization of AI in their academic research writing. In this theme, participants' answers revealed four subthemes which are (a) Overreliance of using AI Tools in Academic Research writing, (b) Ethical Concerns, (c) AI-Detection False Positive and (c) Challenges of Transparency and Academic Integrity.

#### **a) Overreliance of using AI Tools in Academic Research Writing**

Five out of six participants reported their concerns about overreliance of using AI tools and depending on them when they write academic papers or research "relying too much on AI can weaken my analytical skills" (P 3). Another participant stated "I don't think I could imagine my life without AI, it made our researching process a lot easier" (P 6). "I am actually worried that depending on AI most of time might hinder my writing skills" (P 2). While participant 4 highlighted "even though AI tools do not affect my ability to think critically, I feel I rely on them whenever I have a topic in mind".

#### **b) Ethical Concerns**

All six interviewees expressed their major concerns regarding ethical issues in AI utilization such as misleading data or inaccurate information. Participant 5 noted "I always double-check the information AI tools provide me because in some cases some of the information I get are incorrect". Some participants stressed that AI provide fabricated references "ChatGPT and Perplexity sometimes provide me with inaccurate references; some of them do not actually exist" (P 1). Participant 4 expressed her worries about AI hallucinations "I don't fully trust AI content since it sometimes hallucinates and provides me with information that it is not grounded on real data". The other ethical issue that half of the participants reported is the issue of plagiarism, participant 3 emphasized being cautious when using these tools to avoid unintentional plagiarism "AI tools might affect the originality of the work because the work might be attributed to the wrong source so I have to be careful". Another participant argued "I am afraid about the data I provide to AI tools, I don't know where they store it and will they use my words against me, will my content be plagiarized" (P 6).

**c) AI-False Positive Detection**

Four of the six participants expressed their concerns about the false positive AI-detection. Three of the participants have been accused that their writing was AI generated while in fact it was totally their own original writing “I submitted a paper to a certain academic magazine and they sent me an email informing me that some paragraphs were AI generated, while at that time I didn’t use any AI tools at all!”(P 2). The fourth participant pointed out “my instructor refused my written assignment and told me that the content was AI written, and in fact I did not use AI tools while I was writing the paper” (P 4). Participant six affirmed “even though I have checked my work by AI detector before submitting my work and my instructor told me it was AI generated! I am worried about this in the future”.

**d) Challenges of Transparency and Academic Integrity**

Although all participants agreed on the efficacy of utilizing AI tools in their academic research writing, they expressed concerns and worries about transparency and academic integrity. Participant 2 emphasized that her instructors refused using AI tools in writing their academic assignments “we should make use of these useful platforms and tools instead of being afraid of using them when our professors tell us not to use them” (P 6). Four of the six participants agreed on citing AI assisted writing to ensure transparency and integrity but they reported that they were uncertain about how to do it “It is better if we cite and acknowledge using these tools, our work will be highly realistic but I have never seen such practice” (P 1).The sixth participant noted “citing AI tools would reduce the chance of plagiarism and my writing would appear more original but would our professors and supervisors allow us to”. Moreover, participants 1 pointed out “using AI tools makes me feel worried all the time. Our professors refuse their use in academic writing, we must be transparent and declare using them without being accused” and participant 5 emphasized “it is a nightmare for me, all instructors forbid us using AI when submitting papers. I think acknowledging AI-assisted writing is the solution”.

**3. Need for Institutional Guidelines and Regulations**

The last theme emerged from the answers of the interviewees’ expressed their awareness for the urgent need of institutional guidelines and regulations. Participants’ answers clearly indicated the lack of formal policy governing AI use in academic research writing “since AI emerged we haven’t received any official documents or guidelines stating how to use AI effectively” (P 2). “There are no formal rules, policies, or regulations for AI use in Libya, either in academic or daily life” (P 6).

All six participants emphasized the necessity for regulating post graduate students’ utilization of AI tools “regulations are a must in order to guide students to what is allowed and what is not” (P 1). Furthermore, participant 4 stressed “as PhD students, we need clear and specific guidelines that explain what is acceptable and what is unacceptable and to avoid relying on AI tools”. Additionally, four of the six participants drew attention to the need for practical demonstrations of AI use in academic complementing written documents and institutional brochures “progressive workshops on how to use AI tools effectively is what all professors and students need. These workshops should be held regularly and not only one time session in order to meet the recent updates of AI usage because they change rapidly”(P 5).

Participant 1 reported “In my opinion, we need both official written document and workshops to demonstrate how to use these tools in practice”. Moreover two participants suggested that there should be AI courses designed and implemented in the PhD program “I think AI courses should be one of the core subjects integrated in the PhD program” (P 4).While participant 3 recommended “it would be a good idea if the PhD program offer AI courses as an elective course where the choice is based on the student’s preference”.

**Findings**

This section reports the findings of the research question and connects them to relevant existing literature.

The research question aimed at exploring Libyan PhD students' perception of using AI tools in academic research writing which has revealed a number of findings. The findings regarding Libyan PhD students' perception are classified into three key concepts: (1) students' utilization of AI tools, (2) students' concerns about the use of AI tools, and students' needs in relation to the use of AI tools.

### **1. Finding of students' utilization of AI Tools**

The findings of the utilization of AI tools indicated that AI tools function as a supportive instrument that helps Libyan PhD students improve their academic writing skill. Although most EFL Libyan students find academic research writing challenging (Milad et al., 2021), AI tools assisted them in producing coherent writing and improving their organizational skills. In Addition, the analysis highlighted the positive impact that AI tools had on Libyan post graduate students to write sufficiently. Libyan postgraduate students utilize these tools to help them with a number of tasks such as saving time to find relevant literature, ordering reference, brainstorming ideas before actual writing, and proof reading after writing. The research findings align with the findings of (Abolkasima&Hasan, 2024; Alahwal et al., 2025; Shrif&Jamoum, 2025) which indicated the effective educational impact of AI tools to overcome academic challenges.

### **2. Students' concerns about the use of AI tools**

While the utilization of AI tools is valuable and offers a number of advantages, Libyan PhD students reported their concern regarding its use. Students' answers indicated their concerns of overreliance. Students reported that overreliance on AI tools might could put their analytic and academic writing skills at risk. This concern is similar to Civil's (2023) concern that excessive dependency on AI tools could weaken students' writing abilities. Furthermore (Amani&Bisriyah, 2025) found that one of the negative impact of using AI tools is the loss of creativity of writing independently which typically matches the findings of the current paper. The second concern that this study revealed is attributed to ethical consideration. Participants' answers revealed that using AI tools might lead to inaccurate and misleading information. Therefore, inaccurate information affects the originality and integrity of the academic work. Moreover; the findings emphasized Libyan PhD student's concerns about the storage of data. Students reported their worries that their data might be stored and used unethically which might eventually put their work in the risk of plagiarism. These finding are consistent with similar Libyan findings by (Al-Zahrani&Alasmari, 2024; Haroon&Hussian, 2025; Shrif&Jamoum, 2025) that reported concerns related to producing false outputs by AI tools along with issues related to data privacy and security.

In addition to the above two concerns, students' answers uncovered a third concern which is related to AI- false positive detections. Students stressed that not all AI detection tools are accurate with all cases. AI detection tools might detect that the content is AI generated while it was all human written or might be assisted by AI but not fully generated. Therefore, this concern has led the students to call for solution and recommendation for using AI effectively to enhance the production of research writing and reduce its risks.

### **3. Students' needs in relation to the use of AI tools**

The final finding of this current research is related to Student's need and future expectations regarding the use of AI tools in academic research writing. Student's answers unleashed the absence of institutional and departmental policies which indicate lack of formal guidance and institutional support. Their answers emphasized the urgent need to formulate clear guidelines and institutional policies to regulate students' use of AI. The students' responses recommended that these guidelines should be distributed in official written form at first and then demonstrated practically. They suggested that AI demonstrations can be applied in formal courses

implemented in the curricula of PhD program or through progressive and regular workshops. They added that such courses and workshop will be an effective process which leads students to write professionally and academically and avoid risks of inappropriate or unethical usage. These findings are in line with (Haroon&Hussian, 2025) recommendations who called for responsible AI regulations to maximize its benefits while minimize its risks.

Based on the above findings, it can be summarized that Libyan PhD students' perceive AI tools as a supportive instrument that assist them in academic research writing. These students are fully aware of the effective potentials of AI tools and are knowledgeable about AI tools' benefits and risks. Libyan PhD students are also well-skilled in respect to what they perceive as acceptable versus unacceptable usage of AI tools. They have the ability to think critically and do not depend on AI generated content. The current gap lies in the absence of formal regulation by educational authorities and institutional policies to ensure the responsible AI utilization in academic research writing.

### **Discussion**

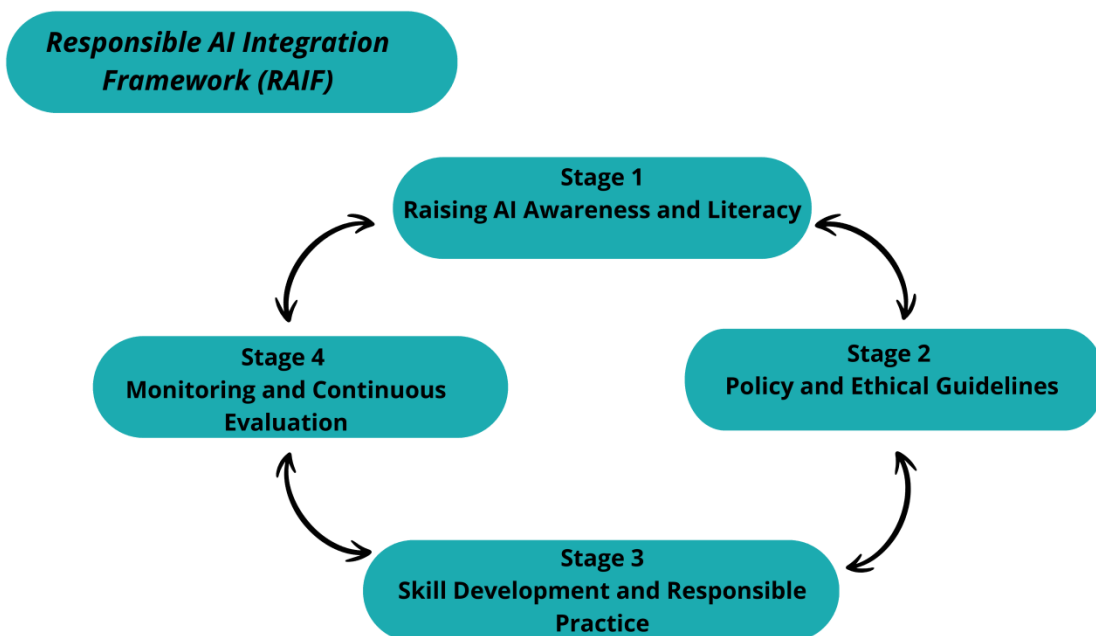
In light of the above statistical and thematic findings, it can be evident that Libyan PhD students widely utilize AI tools in their academic writing research. The statistical findings revealed a growing reliance on AI tools for academic purposes. The quantitative analysis indicated that PhD students mainly utilize these tools for proofreading, paraphrasing, citation and content generating where the overall mean score for each item was above 3. This proves general agreement on the efficacy of AI tools for academic purposes among Libyan PhD students. Furthermore; the thematic findings align with the statistical ones where all interviews appreciated the potential roles of AI tools for improving their academic writing skills and assisted them in research practice. This alignment shed light into the positive impact of the adoption of these tools in academic research writing. Despite the fact that AI tools have many advantages, there are also some disadvantages in their use. The thematic findings uncovered a number of disadvantages that PhD students' perceived as concerns and challenges. Particularly, issues related to overreliance, ethical use, academic transparency, false positive AI detection and need for guideline. These concerns may minimize the sufficient and effective role of AI tools and put PhD students in pressure while implementing them in their academic research. The interviewees have called policy makers and institutional authorities for developing AI responsible guidelines and regulations which help them to apply these tools easily in academic writing settings.

On the whole, there should be a clear set of formal guideline and rules for the responsible use of AI. These guidelines should regulate post graduate students' AI usage rather than applying them haphazardly. Moreover these regulation and rules must be presented in conferences or workshops to ensure the acceptable and ethical use of AI tools.

### **Future Directions**

Drawing from the findings and participants' insights, the researchers of this study inferred the necessity for providing a framework for AI assisted writing strategies. Consequently, the researchers of the current study proposed a framework entitled The Responsible AI Integration Framework (RAIF) which offers a structured model for universities to assist PhD students in using AI tools, such as Grammarly, ChatGPT, and Quillbot, in an ethical and effective manner during their academic writing. The key objectives of this framework is to ensure responsible use of AI tools, maintaining high academic standards, integrity, fostering critical thinking and independent writing skills among students. These objectives aim to create a balanced approach where students can benefit from AI assistance while still developing their own analytical and writing abilities. The importance of this protocol lies in protecting students' rights by ensuring their ethical use of AI tools, thereby enhancing academic integrity. By establishing clear guidelines and support systems, this framework aims to prevent misuse of AI and promote a culture of accountability in AI assisted research.

Figure 2: Responsible AI integration Framework (RAIF)



The above Responsible AI Integration Framework (RAIF) proposes a structured process to regulate and guide PhD students’ use of AI in academic writing. It begins with raising awareness and literacy training for post graduate students, followed by the establishment of institutional ethical policies. Students are then supported in developing responsible AI-use skills and are monitored to ensure ethical compliance and finally, the framework undergoes continuous evaluation to adapt to emerging AI technologies. This cyclical protocol ensures that AI is used as a supportive tool rather than a replacement for academic thinking and integrity.

The RAIF framework consists of four stages based on three core principles: awareness, ethics, and skill development. The principles emphasize understanding AI capabilities and limitations, ensuring responsible use, and fostering academic independence. Each stage of RAIF framework is described in details as follows:

**Stage 1: Raising AI Awareness and Literacy**

The goal of this stage is to ensure that PhD students comprehend what AI tools are, how they function, and their limitations. Actions include organizing university workshops on AI writing tools, providing training on data bias, plagiarism, and authorship ethics, and offering orientation modules that clarify the distinction between AI assistance and actual authorship.

**Stage 2: Policy and Ethical Guidelines**

This stage aims to establish clear institutional policies regarding the use of AI tools in academic writing. Actions involve developing a written “AI Use Policy” that requires disclosure when AI tools assist in writing, specifying acceptable and unacceptable uses of AI (e.g., approving grammar checks while disallowing idea generation without citation), and defining the boundaries of academic integrity in relation to AI.

**Stage 3: Skill Development and Responsible Practice**

This stage focuses on empowering students to use AI tools as aids rather than substitutes for original thought. Actions include integrating AI literacy into research writing courses, encouraging students to compare AI-generated text with their own revisions.

**Stage 4: Monitoring and Continuous Evaluation**

This stage focuses on evaluating how AI tools are being utilized and ensuring adherence to ethical standards. This can be achieved through supervisors’ periodic review of AI-assisted drafts, and utilizing plagiarism and AI detection tools to maintain originality. Moreover, this

stage emphasizes the continuous adaptation of AI technology integration which includes annual reviews of university AI policies and feedback from students and supervisors about AI's effectiveness and ethical issues, while also encouraging research into emerging AI applications and their associated risks.

### Conclusion

In conclusion, this present study revealed the frequent use of AI tools among Libyan PhD students in academic tasks such as proofreading, paraphrasing, citation and others. While the questionnaire showcased the widespread use of these tools, the interviews underscored students' concerns and worries. The findings pinpointed the urgent need for guidelines and formal policies to guarantee the maximum level of effective AI usage. In addition emphasis should be placed on translating these guidelines into practice through workshop and training sessions. Nevertheless, this study was limited to Benghazi University with small sample which can be attributed to participants' low response rate; however, it provided valuable insight in academic research writing. These insights add to the field of knowledge generally and to the Libyan post graduate studies specifically into integration of AI tools in academic practice. These findings could be expanded for further research across various contexts to promote the ethical use of AI tools in academic research.

### Declaration Statement

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