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Fostering EFL Students' Writing Strategy Using Metacognitive Instruction

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Abstract

This study aims to enhance the writing strategy skills of Saudi female EFL students by integrating metacognitive instruction into essay writing tasks. With a one-group quasi-experimental design, the research included 34 participants. A pretest and post-test were conducted, followed by a questionnaire to explore participants' experiences with the intervention. The instructional approach emphasised students' awareness and regulation of metacognitive processes during writing – specifically planning, monitoring, and evaluating. Data were collected and analysed using a sequential mixed-methods explanatory design, beginning with quantitative analysis and followed by qualitative insights to enrich interpretation. The findings revealed a statistically significant improvement in students' writing performance, demonstrating the effectiveness of metacognitive strategies in supporting the writing development of EFL learners.

Keywords: Brainstorming, quasi-experimental design, planning, monitoring, evaluation.

الملخص

تهدف هذه الدراسة إلى تطوير مهارات إستراتيجيَّات الكتابة لدى الطالبات السُّعوديات اللاتي يَدرُسْن اللُّغة الإنجليزية كلُغةٍ أجنبية، من خلال دمْج التعليم فوق المعرفي في مهام كتابة المقالات، استخدمت الدراسة تصميمًا شبه تجريبيٍّ لمجموعةٍ واحدةٍ، وشاركت فيها 34 طالبة، تمَّ إجراء اختبارٍ قَبْليٍّ وآخر بَعْديٍّ، تلاه استبيانٌ لاستكشاف تجارِب المشاركات مع التدخُّل التعليمي، ركز النهج التعليمي على وعي الطالبات وتنظيمهنَّ للعمليات فوق المعرفية أثناء الكتابة، وتحديدًا في مراحل التخطيط، والمراقبة، والتقييم، تمَّ جمع البيانات وتحليلها باستخدام تصميمٍ تفسيريٍّ مختلط متسلسل، بدأ بالتحليل الكَمّي وتبعه تحليل نوعي لإثراء التفسير، كشفت النتائج عن تحسُّنٍ ملحوظٍ إحصائيًا في أداء الطالبات في الكتابة، مما يدلُّ على فعاليَّة الإستراتيجيات فوق المعرفية في دعم تطوُّر الكتابة لدى متعلِّمي اللُّغة الإنجليزية كلغة أجنبية.

الكلمات المفتاحية: العصف الذهني، التصميم شبه التجريبي، ، التخطيط، المراقبة، التقييم.

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1. Introduction

Metacognition is a critical concept in learning English as a foreign language (EFL), as it involves deliberate reflection on one's cognitive processes. Flavell (1979), who pioneered the concept, defined metacognition as "thinking about thinking". Winne and Perry (2000) highlighted that metacognition encompasses learners' awareness of their academic strengths and weaknesses, the cognitive resources available to them, and their ability to regulate engagement in tasks to optimise learning outcomes.

In the context of EFL writing, metacognitive instruction has shown significant potential in enhancing students' performance. This instructional approach targets three key areas: linguistic knowledge, genre awareness, and proficiency level. By focusing on these dimensions, educators can help students critically examine their writing processes, adapt strategies to meet various writing conventions, and enhance linguistic accuracy.

Tanner (2012) emphasised that metacognitive educational approaches have successfully integrated research findings into instructional practices. Metacognition encourages learners to reflect on their thinking, identify misconceptions, and recognise conceptual shifts. It also supports effective problem solving and self-monitoring, cultivating greater independence and confidence in academic writing. Ultimately, the use of metacognitive strategies contributes to improved learning outcomes and empowers students to take ownership of their writing development.

1.1. Statement of problem

EFL university students often face difficulties in academic writing, such as organising ideas, maintaining coherence, choosing suitable vocabulary, and revising efficiently (AlMarwani, 2020; Alrabai, 2016). These difficulties are especially common among students with limited exposure to English writing instruction due to under-resourced schools or socioeconomic barriers. Students from poor backgrounds who often lack access to quality language teaching, feedback, and structured learning support.

A promising solution to these challenges is metacognitive self-regulation, which aids learners in managing their writing by helping them to plan, monitor, and assess their work.

Quigley et al. (2019) note that metacognitive strategies are particularly beneficial for students from disadvantaged backgrounds, as they foster independence and strategic thinking.

Many EFL learners lack the metacognitive awareness needed to understand writing tasks, identify requirements, choose effective strategies, and use feedback properly. These gaps prevent the creation of well-structured texts. Successful writing requires not only domain knowledge but also self-awareness, understanding of the task, and strategic skills– core parts of metacognition (Flavell, 1979; Winne and Hadwin, 1998).

Although metacognitive instruction in writing is increasingly recognised, its application in EFL higher education, particularly in Saudi Arabia, requires further investigation. This study explores how a metacognitive writing (MCW) framework can assist Saudi EFL students in overcoming writing difficulties and enhancing their performance.

1.2. Significance of the study

This study focuses on the effectiveness of metacognitive instructional strategies in enhancing students' writing skills. It seeks to bridge the gap between the theoretical framework and the practical application. Furthermore, the study is expected to provide valuable insights for trainers,

educators, and policymakers, enabling them to refine approaches for identifying task requirements and to develop effective strategies for producing written output. It will also encourage researchers to evaluate whether the proposed intervention programme is practical and to consider implementing it on a large scale.

1.3. Purpose of the study

This study aims to enhance the academic writing skills of undergraduate EFL students by implementing a metacognitive writing (MCW) framework as an instructional intervention. The framework is designed to foster strategic writing development through explicit instruction in metacognitive strategies, including planning, monitoring, and evaluating. By integrating these strategies into the writing process, the study aims to enhance students' writing performance, cultivate their writing confidence, and promote self-regulation.

1.4. Questions of the study

The study seeks to answer two research questions:
1. To what extent does the metacognitive writing (MCW) framework improve Saudi EFL students' academic writing performance?
2. How does metacognitive instruction influence students' beliefs and attitudes towards academic writing?

2. Literature review

2.1. Overview of writing skills

Writing is a complex and productive skill that requires the integration of cognitive, linguistic, and metacognitive processes. It involves generating coherent and purposeful text through planning, drafting, revising, and editing. Unlike oral communication, writing is inherently editable, allowing for the refinement of ideas and structure over time (Hyland, 2019). Effective writing demands sustained effort, as learners engage in activities such as idea generation, organisation, lexical selection, and syntactic construction, all within the constraints of the task and audience (Grabe and Kaplan, 2014).

Academic writing poses significant challenges for EFL learners. These include difficulties in organising ideas logically, maintaining coherence across paragraphs, selecting appropriate vocabulary, and revising effectively (AlMarwani, 2020; Alrabai, 2016). Such challenges are often compounded by limited exposure to academic genres and insufficient feedback in earlier educational experiences.

To address these challenges, writing instruction must go beyond surface-level correction and incorporate strategic support. Deane et al. (2008) proposed a comprehensive writing competency framework that identifies three essential strands:

1. Language and literacy skills, which include proficiency in standard English, drafting, and proofreading.
2. Writing process management, encompassing planning, evaluation, and structural control.

3. Critical thinking for writing, which involves the ability to analyse content and context to produce meaningful text.

These strands reflect the multifaceted nature of writing and underscore the need for instructional approaches that foster both linguistic competence and strategic awareness. In this study, writing is approached not only as a linguistic task, but also as a metacognitive process, where learners are guided to reflect on their thinking, monitor their progress, and adapt their strategies to improve performance (pp. 67–74).

2.2. Framework foundation for metacognitive writing instruction

Metacognitive writing instruction enhances students' ability to plan, monitor, and evaluate their writing, fostering self-regulation and deeper engagement with the writing process. Research has shown that metacognitive strategies – such as goal setting, self-monitoring, and revision – are essential for developing proficient writers (Cer, 2019; Graham and Harris, 2000; Chong, 2020).

To develop a practical metacognitive writing (MCW) framework, several theoretical models were considered. The intervention is situated within the Saudi EFL university context and builds upon established theoretical frameworks.

Nelson and Narens's (1990) model distinguishes between cognitive and metacognitive levels, emphasising the roles of monitoring and control in regulating writing behaviour. This dual-level structure supports the MCW framework's emphasis on reflective writing practices. Hayes's (1996) cognitive model of writing outlines key processes – planning, translating, and reviewing– coordinated by the writer. These processes are embedded in the MCW framework's three-stage structure (prewriting, writing, post-writing).

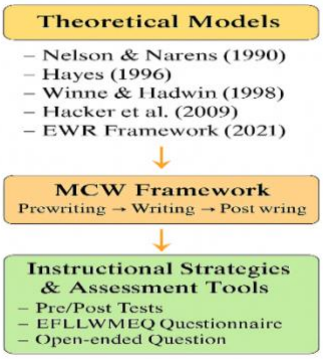
Winne and Hadwin's (1998) self-regulated learning (SRL) model, influenced by Flavell (1979), provides a four-phase cycle (task definition, goal setting, strategy use, and adaptation) that aligns with the MCW framework's instructional sequence. Their COPES framework emphasises conditions, operations, and evaluation within the framework. Hacker et al. (2009) reinforce the importance of goal-directed monitoring and control, which are operationalised in the MCW framework through structured feedback and revision activities. The English writing requirement (EWR) framework (Lughmani and Foung, 2021) provides a practical model for genre-based writing instruction that uses metacognitive tools. Its staged revision process directly informs the MCW framework's postwriting phase.

2.3. The metacognitive writing (MCW) framework and its application

The metacognitive writing (MCW) framework is a structured andragogical model designed to enhance writing instruction using metacognitive strategies. Grounded in cognitive and self-regulated learning theories (Nelson and Narens, 1990; Hayes, 1996; Winne and Hadwin, 1998), the framework is tailored to meet the specific needs of Saudi EFL university learners. It promotes higher-order thinking, self-regulation, and genre awareness by guiding students through a reflective and strategic writing process. The framework comprises three interconnected phases. First, the prewriting phase highlights the development of cognitive schemas to organise ideas and activate prior knowledge. Techniques such as mind mapping and brainstorming are used to boost motivation and support idea generation. Theoretical foundations from Nelson and Narens (1990) and Hayes (1996) inform the planning and control processes employed during this phase. Next, in the writing phase, students convert their organised thoughts into coherent texts. Instruction focuses on drafting with outlines, modelling strategies, and following genre conventions. This stage draws on Hayes's

cognitive process model and Winne and Hadwin's (1998) self-regulated learning framework, promoting goal setting, tactical execution, and ongoing monitoring. Finally, the postwriting phase centres on revision and refinement. Students use metacognitive strategies such as self-correction, peer review, and instructor feedback to enhance content quality, grammar, and mechanics. Hacker et al. (2009) highlight the importance of goal-directed monitoring and control, ensuring alignment between writing objectives and textual output (see Figure 1).

Figure 1
Diagram of the Implemented Framework



2.4. Previous research on metacognitive instruction in EFL writing

A number of recent studies have been conducted globally, including six in the Saudi context over five years.

Xu and Zhu's (2025) study explored metacognitive regulation in writing among 502 Chinese learners, comprising 129 males and 373 females, who were EFL learners at Anhui Agricultural University and the Hong Kong Polytechnic University. The researchers employed two instruments: the Writing Metacognitive Strategy Questionnaire and an argumentative writing task. The findings showed a consistent factor structure across L1 and L2 contexts, supporting the trait aspect. At the same time, the greater use of metacognitive strategies in L1 compared to L2 writing highlighted the state aspect. These results emphasise the role of contextual factors in shaping the use of metacognitive strategies across different linguistic settings.

Hosayny et al. (2025) conducted a quantitative study at Chouaib Doukkali University in Morocco to investigate the relationship between awareness of metacognitive writing strategy (MCWS) and performance in argumentative writing. The study, which included a sample of 82 English degree students (56 females and 26 males), also assessed the role of gender in moderating this relationship. Two instruments were used to collect data: an argumentative essay and a questionnaire that measured students' awareness of planning, monitoring, and evaluation strategies. The students demonstrated a moderate level of awareness regarding MCWS, with a particular strength in evaluating strategies. However, the correlation between their awareness of MCWS and writing performance was found to be weak. Furthermore, the gender analysis revealed that female students slightly outperformed their male counterparts in metacognitive awareness and writing performance, although these differences were not statistically significant.

Han's (2024) mixed-methods study investigated the impact of metacognitive strategy-based instruction (SBI) on writing performance and motivation. The study was conducted at a language institute affiliated with a public university in Zhengzhou, China, and included 50 Chinese EFL learners (21 males, 29 females). Four instruments were used to collect data sequentially: the Oxford Placement Test (OPT) used by Allan (2004), timed writing tasks decided on and implemented by the researcher, the Second Language Writing Motivation Scale (SLWMS) developed by Waller and Papi (2017), and Jacobs et al.'s (1981) analytical scoring scale. The findings revealed that the experimental group outperformed the control group in writing performance and motivation, emphasising the effectiveness of innovative instructional methods over traditional approaches. Furthermore, qualitative data demonstrated significantly better interest, positive attitudes, and greater self-confidence in writing among the experimental group, providing essential insights for EFL educators and researchers.

Qian et al. (2024) employed a mixed-method study to explore the role of metacognitive knowledge, strategies, and experiences in academic writing among 143 third-year undergraduate students, consisting of 32 males and 111 females, at Wuhan University in China. The researchers used the Metacognitive Academic Writing Strategies Questionnaire (MAWSQ) by Teng et al. (2022) alongside semi-structured interviews. The findings showed a five-factor model encompassing metacognitive strategies and metacognitive experiences that influence students' use of strategies during the academic writing process.

Khosravi et al.'s (2023) quantitative study explored the impact of metacognitive strategy-based writing instruction through flipped classrooms on Iranian EFL learners' writing performance, anxiety, and self-efficacy. The study was conducted at an English institute in Tehran, Iran, and involved 45 intermediate-level male and female learners split into an experimental group (23 learners) and a control group (22 learners). Using a quasi-experimental design, the study assessed participants through four instruments: the proficiency test (PET), the Preliminary English Test, Jacobs et al.'s (1981) analytical writing scale, Yavuz-Erkan's (2004) Self-efficacy Writing Scale (SWS), and Cheng's (2004) Second Language Writing Anxiety Inventory (SLWAI). The findings showed that flipped classroom instruction significantly improved writing performance, enhanced self-efficacy, and reduced anxiety in the experimental group, emphasising the effectiveness of metacognitive strategies in fostering positive outcomes in L2 writing education.

Esfahani et al. (2022) investigated the effects of cognitive and metacognitive strategies on the writing performance of 41 Iranian EFL learners at Islamic Azad University, South Tehran Branch, using a mixed-methods design. Participants were divided into two groups: one trained with cognitive assessment and the other with metacognitive strategies. Data were gathered quantitatively using various instruments, including the Preliminary English Test (2016), Metacognitive Awareness Writing Questionnaire (MAWQ) by Farahian (2017), and writing rubrics, as well as qualitatively through semi-structured interviews. The study revealed that the metacognitive approach significantly improved assessment performance, with self-regulation being crucial for enhancing writing evaluation skills, indicating that fostering metacognitive strategies could benefit EFL learners in academic and professional contexts.

Sun et al. (2021) aimed to investigate students' metacognitive experiences and provide insights from the newly developed EFL Learners' Writing Metacognitive Experiences Questionnaire (EFLLWMEQ) from a national university in China. The participants included 880 students. The questionnaire was used to assess metacognitive experiences across four domains: metacognitive estimates, metacognitive feelings, online task-specific metacognitive knowledge, and online task-specific metacognitive strategies. Participants completed a writing task based on a modified College English Test – Band 4 (CET-4), with their compositions scored for performance. The results revealed positive correlations between metacognitive experiences and writing scores, confirming the validity and reliability of the EFLLWMEQ for this purpose.

In the Saudi context, only seven studies have tackled metacognitive writing over the past 5 years. Kalapala et al. (2024) investigated the metacognitive strategies employed by 85 female EFL learners at Samtah University College, Jazan University, when writing research proposals and assessing their attitudes towards these strategies. The researchers used a quantitative approach, employing the adapted metacognition inventory by Farahian (2015) and the attitude scale by Rhema and Miliszewska (2014) to measure students' writing strategies. The findings showed that 94% of students learned better when interested in a topic, and 88% were aware of their strengths and weaknesses. Planning and evaluation were the most commonly used strategies, while comprehension monitoring and debugging were less frequent. Although some students felt confident using metacognitive strategies, others were uncertain. The study emphasised the need for training in metacognitive strategies to improve students' autonomy and writing skills, highlighting the role of monitoring strategies in learning.

Nasim et al.'s (2024) quantitative study explored metacognitive awareness levels among college students of two specialisations (68 information technology students and 45 human resources students). The students were studying an English for Specific Purposes (ESP) writing skills course with a particular focus on gender differences and academic subjects. Of the 113 participants, 58 were female and 55 male. The Metacognitive Awareness of Writing Questionnaire (MAWQ), developed by the authors, served as a tool for data collection. The findings indicated that participants exhibited moderate metacognitive awareness levels, with female students demonstrating stronger cognitive regulation than their male counterparts. However, no significant differences were found among academic subjects. This study emphasises the importance of enhancing metacognitive skills to improve ESP writing strategies among college students.

Basaffar and Bukhari (2023) examined EFL learners' metacognitive abilities and their impact on writing performance at the English Language Institute, University of Jeddah. Using a quantitative research design, the researchers collected data from 190 first-year female students through a modified version of the Metacognitive Components of Planning Writing Self-Inventory (MCPW-I) by Escorcia and Gimenes (2020). The findings revealed a significant positive correlation between metacognitive conditional knowledge and writing performance, suggesting that students who have strong awareness of metacognitive strategies demonstrate better writing skills. Conversely, environmental self-regulation showed a negative correlation with writing performance, indicating that external factors may hinder students' ability to regulate their writing process effectively. Additionally, while the number of years studying English significantly influenced metacognitive abilities, the learners' educational background did not have a notable impact. These findings

highlight the importance of fostering metacognitive awareness and strategy use to enhance students' writing proficiency in EFL contexts.

Mohamed and Shaaban's (2023) quantitative study examined the impact of metacognitive strategies on the writing proficiency of students from Northern Border University's applied college who are specialised in Information Technology and Supply Chain Management and enrolled in the English for Specific Purposes (ESP) course. The researchers employed the Metacognitive Awareness Writing Questionnaire (MAWQ), which they modified to assess 90 students (49 females, 41 males). The results revealed that female students exhibited higher metacognitive awareness than male students. Additionally, students in Information Technology demonstrated greater proficiency in knowledge and regulation of cognition than those in Supply Chain Management. Overall, the participants demonstrated a moderate level of knowledge about cognition and a relatively high level of cognitive regulation in their writing skills. These results highlight the importance of gender and academic discipline in influencing metacognitive awareness and writing performance.

Alsmari (2022) investigated the effects of computer-aided argument mapping (CAAM) on Saudi EFL learners' argumentative writing performance and self-regulated learning skills at Prince Sattam Bin Abdulaziz University in Saudi Arabia. Using a mixed-methods approach with a one-group pre- and post-test design, the researchers recruited 40 second-year university-level EFL learners and used instruments such as pre- and postwriting tests conducted by the author, the Self-Regulated Learning Scale (SRLS) devised by Toering (2011), and semi-structured interviews also conducted by the author. The findings demonstrated significant improvements in argumentative writing, particularly in content development and coherence, with strong correlations between writing performance and self-regulation mechanisms such as planning, monitoring, and self-evaluation. Qualitative insights indicated that learners positively embraced CAAM as a tool for enhancing both their writing skills and self-regulation processes. The study recommended integrating digital mapping to optimise EFL learning environments and promote more effective writing instruction.

Agili and Prabhashini's (2021) study aimed to explore the implementation of writing strategies in Saudi EFL classrooms, focusing on discourse tools and metacognitive strategies used in teaching writing skills. The study was conducted in Saudi Arabia at the University College of Farasan, Jazan University, where the researchers gathered data quantitatively using a questionnaire by Gorzelsky et al. (2016) and collected responses from 36 English language educators. They examined the use of various writing instruction strategies, highlighting that planning (93%) and controlling (88%) were the most frequently applied methods, while monitoring (48%) was the least used. The findings suggest that educators emphasise planning and control strategies but need to improve monitoring to enhance students' writing proficiency. The study highlights the importance of integrating metacognitive awareness into writing instruction, and the authors recommend a greater emphasis on monitoring strategies to support effective learning.

From this review of individual studies, it has become clear that research on metacognitive instruction in EFL writing consistently underscores its potential to improve learners' writing performance, motivation, and self-efficacy. Across various contexts, studies such as Sun et al. (2021) and Qian et al. (2024) have used quantitative and mixed-methods approaches to investigate

these effects, showing generally positive results. However, the extent of the impact varies: while Han (2024) and Khosravi et al. (2023) report significant gains in motivation and self-efficacy, Hosayny et al. (2025) found only weak links between metacognitive awareness and writing performance. These inconsistencies suggest that contextual and demographic factors may influence the effectiveness of metacognitive strategies.

In the Saudi context, research has primarily focused on descriptive or correlational studies, often emphasising gender differences and disciplinary backgrounds. For instance, Kalapala et al. (2024) and Nasim et al. (2024) highlight stronger metacognitive awareness among female students, while Basaffar and Bukhari (2023) link conditional knowledge to improved writing outcomes. However, monitoring strategies remain underdeveloped (Agili and Prabhashini, 2021), and experimental interventions are rare. Moreover, few studies have targeted female English-degree students – a group that may exhibit unique metacognitive profiles due to their academic specialisation and sociocultural context.

This study addresses these gaps by employing a quasi-experimental mixed-methods design to examine the impact of metacognitive strategy instruction on Saudi female university students studying English. By integrating performance data with learners' reflective experiences, the research aims to provide a more nuanced understanding of how metacognitive instruction influences writing development in this underexplored population.

3. Methodology

3.1. Design

The study employed a quasi-experimental mixed-methods design to investigate the impact of metacognitive writing strategy instruction on the academic writing performance of second-year female EFL students. The design combined both quantitative and qualitative data collection methods to offer a comprehensive understanding of the instructional intervention's effectiveness and the learners' experiences. The quantitative aspect focused on assessing changes in writing performance and metacognitive awareness, while the qualitative aspect explored students' perceptions and reflections on the learning process.

3.2. Participants

The participants were 34 second-year female students majoring in EFL at a Saudi university. Their ages ranged from 19 to 23 years, and all were native Arabic speakers. These students were enrolled in the Essay Writing course, the second in a sequence of academic writing courses in the English language bachelor's programme. The course textbook, assigned by the programme planning committee, was designed for intermediate-level learners, and participants' English proficiency corresponded to the B2 level of the Common European Framework of Reference for Languages (CEFR).

In their first year, participants completed Composition (ENG 115), an introductory writing course focused on paragraph development through descriptive writing. This course emphasised constructing topic sentences, organising ideas, and composing short texts (2–4 paragraphs). Its primary objectives included composing paragraphs with clear topic sentences and controlling ideas; applying techniques related to paragraph structure; writing descriptive, exemplification, opinion-based, and process paragraphs; and developing structured outlines.

Although the Essay Writing course addressed broader academic writing skills, it represented the participants' first formal exposure to extended academic writing. All participants voluntarily agreed to take part in the study and provided background information on their language-learning experiences. To ensure objectivity, the researcher had previous teaching experience with the participants. The study was conducted during regular class hours with the support of the university's English department and adhered to ethical research standards, including obtaining informed consent, maintaining confidentiality, and respecting the participants' right to withdraw at any time. Ethical approval was granted by the university's research ethics committee (KFU-REC-2024-MAY-ETHICS2335). I also served as the course instructor, integrating metacognitive strategy instruction into the curriculum. This approach aligns with the understanding that effective writing requires not only domain knowledge, but also metacognitive awareness, including personal, task, and strategy knowledge.

3.3. Data collection

3.3.1. Instruments

The data were collected in phases through a series of assessments, including pretests, posttests, and a scale. To establish a baseline of students' writing proficiency prior to the intervention, a pretest was administered using a modified version of a writing prompt proposed by Sun et al. (2021). The original prompt asked students to reflect on the general importance of writing ability: "Our writing ability is very important to all of us, but different people have different views on its importance. Do you think writing ability is important? Give your reasons to support your argument." To better align the task with the instructional context and to encourage more authentic responses, the prompt was adapted as follows: "Write about your thoughts on the writing challenges discussed in class. Your essay should be 100–160 words long and include at least two supporting reasons for your opinion." This modification aimed to make the task more relevant to students' recent classroom experiences and to promote deeper engagement with the topic.

After the intervention, the same writing prompt was used in a posttest, now accompanied by a mind mapping diagram and an outline. These scaffolding tools were designed to support students in planning and organising their ideas and to encourage the application of metacognitive strategies introduced during the instructional phase. Specifically, the diagram and outline corresponded to the core phases of the metacognitive framework – planning, monitoring, and evaluation – and served as instruments to assess the strategies students employed during the writing process. This structure also enabled the measurement of any changes or improvements in students' writing performance and strategic awareness resulting from the intervention.

The marking for the pre- and postwriting assessments used a rubric based on six traits of writing: ideas, organisation, voice, word choice, sentence fluency, and conventions. This rubric is grounded in the 6+1 Trait Writing Model, a research-based framework widely used to evaluate student writing across educational contexts. Studies have demonstrated its effectiveness in improving writing performance and strategic awareness (Coe et al., 2011; Qoura and Zahran, 2018; Kalsum, 2020). The ideas component assesses the clarity of the main theme; organisation ensures logical flow; voice reflects the writer's personality; word choice enhances imagery; sentence fluency contributes to rhythm; and conventions cover grammar and punctuation appropriate to the level. EFLLWMEQ was developed by Sun et al. (2021). To ensure the clarity and accuracy of responses, the questionnaire was provided in both Arabic and English. It consisted of 16 items, each of which was evaluated through 6-pointLikert-scale items ranging from *strongly disagree* to *strongly agree*, measuring four key factors: (a) metacognitive estimates of EFL writing (MEEFLW) – five items, (b) metacognitive feelings of EFL writing (MFEFLW) – four items, (c) online metacognitive knowledge of EFL writing (OMKEFLW) – three items, and (d) online metacognitive strategies of EFL writing (OMSEFLW) – four items.

Furthermore, the questionnaire included one open-ended question to gain deeper insights into participants' experiences and perceptions of the metacognitive strategy instruction: "Do you have any suggestions or recommendations after experiencing writing using three stages: brainstorming, outlining, and finalising?" By employing these various assessment tools, the study aimed to understand how students learn and develop throughout the entire process.

3.3.2. Intervention procedure

The semester lasted 15 weeks; however, the intervention was carried out over 12 weeks, as two weeks were excluded due to public holidays and examination sessions. During this period, participants attended two 75-minute sessions of explicit instruction in metacognitive writing strategies each week as part of their regular Essay Writing course. The instruction focused on three metacognitive components: planning, monitoring, and evaluating. Lessons included guided practice, strategy modelling, and writing tasks. All teaching materials were aligned with the course's learning objectives and the prescribed textbook. The first session introduced the concept of metacognition and its importance in academic writing, establishing a foundation for the subsequent strategy-focused instruction. Following sessions systematically integrated the planning, monitoring, and evaluation phases, enabling students to internalise and apply metacognitive strategies throughout the writing process. Table 1 provides a week-by-week breakdown of the intervention (see Table 1).

Table 1. 12-Week Instructional Plan With Metacognitive Writing Tasks

Week	Focus area	Activities	Metacognitive writing task
1	Introduction to academic writing	Course overview, diagnostic writing	Reflective task: Identify strengths and challenges in writing. (Planning)
2	Paragraph structure	Topic sentences, unity, coherence	Think-aloud: Describe your thought process while writing a paragraph. (Monitoring***) Pretest administration***
3	From paragraph to essay	Essay structure, transitions	Process log: How did you expand your paragraph into an essay? (Planning and monitoring)
4	Grammar focus	Sentence types, avoiding run-ons	Error reflection: What grammar mistakes do you often make and why? (Evaluation)
5	Descriptive essays	Sensory details, similes	Descriptive self-check: How did you choose details to engage the reader? (Planning and monitoring)
6	Writing descriptive essay	Drafting and revising	Revision memo: What changes did you make and why? (Monitoring and valuation)
7	Narrative essays	Sequence, time expressions	Timeline reflection: How did organising events help your writing? (Planning)
8	Writing narrative essay	Drafting and revising	Revision memo: What changes did you make and why? (Monitoring and evaluation)
9	Grammar focus	Past tenses, clauses	Grammar strategy log: What strategies help you use past tenses correctly? (Monitoring)
10	Comparison-contrast essays	Structure, connectors	Compare your process: How is writing this essay different from the narrative one? (Planning and evaluation)
11	Writing comparison essay	Drafting and editing	Editing checklist reflection: What did you catch during editing? (Monitoring and evaluation)
12	Review and integration	Mixed practice, mini essays	Learning reflection: Which writing skills have improved the most? (Evaluation) ***Posttest administration***

4. Data analysis

The study employed an explanatory sequential mixed-methods design, beginning with quantitative research to gather data, followed by qualitative exploration for deeper insights. This approach facilitated the triangulation of evidence concerning the effects of metacognitive strategy instruction on students' writing performance and metacognitive awareness.

Quantitative data were collected through the first writing test, used as both pre-and posttests, and analysed via paired-samples *t* tests to identify statistically significant differences in metacognitive awareness and writing proficiency. Effect sizes were calculated to gauge the magnitude of changes, and the reliability of the questionnaire was confirmed using Cronbach's alpha. Qualitative data were derived from the 12 responses (from a sample of 34) to the open-ended question "Do you have any suggestions or recommendations after experiencing writing using three stages: brainstorming, outlining and finalising?" A thematic analysis is conducted using the four-factor model of EFLLWMEQ as themes, following Braun and Clarke's (2006) six-phase thematic analysis framework, which includes familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.

4.1. Results

4.1.1. Pretest and posttest findings

4.1.1.1. Normality test

A Shapiro–Wilk test was conducted to assess the normality of the difference scores. The results indicated that the data were normally distributed, with a *W* value of .955 and a *p* value of .174 (see Table 2).

Table 2. Shapiro–Wilk Test

Differences	Appearance		
	N	*W*	*p*
	34	.995	.174

4.1.1.2. Descriptive statistics

The descriptive statistics – including measures of central tendency, the mean (*M*), median (*Mdn*), and standard deviation (*SD*) – are presented below to summarise the central tendency, highlight the standard error (*SE*) and variability within the group, and support further statistical analysis. Table 3 shows the descriptive statistics for the pretest and posttest scores. For the pretest, the group ($N = 34$) had ($M =$ of 5.76), ($SD =$2.05), and a standard error ($SE = 0.35$), indicating moderate variability in performance. In contrast, the posttest scores showed a higher mean ($M = 8.62$), a lower standard deviation ($SD = 0.99$), and a minor standard error ($SE = 0.17$), suggesting improved performance with greater consistency among participants. Additionally, the median scores increased from ($Mdn = 6.00$) in the pretest to ($Mdn = 9.00$) in the posttest. The median, which indicates the midpoint of the data, is especially useful when the distribution is skewed or contains outliers. The increase in both mean and median values provides consistent evidence of a positive change in scores following the intervention. These results provide preliminary evidence of an increase in scores following the intervention.

1 **Table 3.** Descriptive Statistics for Pretest and Posttest Scores

Measure	*N*	*M*	*Mdn*	*SD*	*SE*
Pretest	34	5.76	6.00	2.05	0.35
Posttest	34	8.62	9.00	0.99	0.17

4.1.1.3. Paired samples t-Test

To evaluate the effectiveness of the intervention, a paired-samples *t-test* was conducted to compare participants' scores before and after the intervention. This statistical test is suitable for a within-subjects design, where the same group of participants ($N = 34$) completed both the pretest and the posttest. The analysis assesses whether the mean difference between the pretest ($M = 5.76$, $SD = 2.05$) and posttest ($M = 8.62$, $SD = 0.99$) scores is statistically significant. As shown in Table 4, the results indicate that the t value is -9.84, and the p value is less than .001, demonstrating a significant difference between the pretest and posttest scores. The mean difference of -2.85 signifies a substantial improvement in performance following the intervention. Additionally, the effect size, represented by Cohen's $d = -1.69$, is very large, indicating that the intervention had a strong and meaningful impact on participants' outcomes. A significant result would confirm that the observed improvement in scores supports the effectiveness of the intervention.

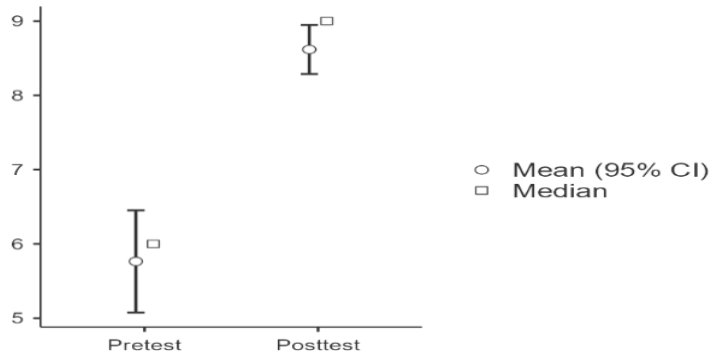
Table 4. Paired-Samples *t* Test Results

Comparison	*t*	*df*	*p*	Mean difference	*SE* difference	Cohen's *d*
Pretest vs Posttest	-9.84	33	< .001	-2.85	0.29	-1.69

Furthermore, Figure 2 shows a comparison between pretest and posttest scores. The 95% confidence interval (CI) indicates a range within which can 95% certain that the true population mean resides. For instance, the pretest mean was approximately 6.0 with a CI of 5.5–6.5, implying that if the study were repeated multiple times, 95% of the calculated intervals would contain the actual mean score. Likewise, the posttest mean of around 8.0 with a CI of 7.8–8.2 demonstrates a high level of accuracy in the estimate. It supports the conclusion that the score increase is statistically significant. The median, which is the middle value in a set, is helpful because it is not affected by extremely high or low scores. In this study, median scores increased from approximately 6.2 in the pretest to 8.1 in the posttest, indicating a significant improvement. The upward trend in both the mean and median suggests that the intervention had a positive impact. Using different markers – circles for means and squares for medians – along with labelled axes and a legend, makes the chart easier to interpret and compare (see Figure 2).

Figure 2

Distribution of Pretest and Post-test Scores



4.1.2. Analysis of the questionnaire

First, the internal consistency of the scale was evaluated using Cronbach's alpha. The analysis yielded a Cronbach's alpha of .86, indicating good reliability (α > .80). According to Tavakol and Dennick (2011), this suggests that the items on the scale are measuring a consistent underlying construct, because the closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale (see Table 5).

Table 5. Scale Reliability Statistics

Statistic	Value
Cronbach's α	.862

Second, Table 6 presents the descriptive statistics of the four key components of the EFL Learners' Writing Metacognitive Experiences Questionnaire (EFLLWMEQ) by Sun et al. (2021): metacognitive estimates of EFL writing (MEEFLW), metacognitive feelings of EFL writing (MFEFLW), online metacognitive knowledge of EFL writing (OMKEFLW), and online metacognitive strategies of EFL writing (OMSEFLW). The interpretation is based on a 6-point Likert scale, which was developed by dividing the total scale range (from 1 to 6) into six equal intervals. Since the total span is five units, each interval covers approximately 0.83 units. This method ensures that each response category – ranging from *strongly disagree* to *strongly agree* – is represented by an equal portion of the scale. By assigning these intervals to specific ranges of mean scores, one can consistently interpret the average responses from survey participants.

A mean score ranging from 1.00 to 1.83 is classified as very low, while a score between 1.84 and 2.66 is considered low; scores from 2.67 to 3.49 are categorised as fair, and those from 3.50 to 4.32 are deemed moderate; and a score between 4.33 and 5.15 is labelled high, while a score from 5.16 to 6.00 is classified as very high. These labels help to clarify the level of agreement or disagreement respondents have with a statement.

The first factor, MFEFLW, M = 4.83, SD = 0.673, indicates a high level of agreement or performance on this measure. The relatively low standard deviation suggests consistency in responses across participants. The second factor, OMSEFLW, M = 5.17, SD = 0.785, has a slightly higher average score than MFEFLW. The standard deviation indicates moderate variation among the participants. Next, OMKEFLW recorded the highest mean, M = 5.35, SD = 0.641, indicating generally strong performance or agreement on this measure. The low standard deviation suggests that responses were relatively consistent. Finally, the results for MEFLW, M = 5.09, SD = 0.717, indicate a high average score. The standard deviation shows a moderate level of variability among the participants.

Table 6. Descriptive Statistics

Variable	*N*	*M*	*SD*	Level	Interpretation
MFEFLW	34	4.83	0.673	4	High
OMSEFLW	34	5.17	0.785	2	Very high
OMKEFLW	34	5.35	0.641	1	Very high
MEFLW	34	5.09	0.717	3	High

Third, the open-ended question ("Do you have any suggestions or recommendations after experiencing writing using three stages: brainstorming, outlining, and finalising?") was optional, which explains why only 12 of the 34 participants chose to respond. The other entries were marked with dashes or expressed appreciation. This form of nonresponse is common in qualitative research. It may result from factors such as discomfort with open-ended formats, time constraints, or uncertainty about how to articulate thoughts. Nevertheless, the number of qualitative responses was adequate for analysis. Boddy (2016) suggests that meaningful themes and data saturation can often be achieved with as few as 12 responses. These responses were analysed qualitatively using Braun and Clarke's (2006) six-phase thematic analysis framework.

Table 7 provides an overview of the thematic analysis, featuring various elements, including quotations from participants presented exactly as they were written. It is generally advised to preserve grammatical errors and informal language in the original data. The table also shows the stage of writing to which the quotation was connected, along with the metacognitive strategy employed during the writing process, the MEEFLW factor associated with it, and a detailed description that provides context and insight for each entry. This structured approach not only highlights the importance of metacognitive writing at the surface level by addressing semantic coding but also emphasises the interpretative level (latent coding). I focused on elements such as strategic awareness, which shows how learners approach their writing tasks; emotional engagement, which reflects their feelings towards the writing experience; strategy use, which reflects how they make use of various resources; time management strategies they employ to allocate their writing time effectively; and instructor support by highlighting insights into how educators assist students throughout the writing process. Ultimately, this analysis provides valuable insights into learners' metacognitive experiences, deepening the understanding of how they reflect on and manage their writing journeys. (see Table 7).

2 **Table 7**. Thematic Analysis

Quotation	Writing stage	Metacognitive strategy	MEEFLW factor	Interpretation
1."The brainstorming technique in this course should be used in every other course."	Brainstorming	Planning	OMKEFLW	Valuing brainstorming reflects strategic awareness.
2."Added brainstorming being more easier for me"	Brainstorming	Planning	OMKEFLW	Valuing brainstorming shows its role in the improvement of writing.
3. "Use mapping to make that esier"	Brainstorming	Planning	OMSEFLW	Mapping is a facilitator of the learning process.
4. "The outlining has helped me to organising my ideas."	Outlining	Monitoring	OMKEFLW	Appreciating strategic awareness and its role in supporting writing.
5. "Finalising is what I like."	Finalising	Evaluation	MFEFLW	Positive emotion showing enjoyment.
6. "Diversity of topics is expressed more freely."	All stages	Monitoring	OMKEFLW	Openness to ideas shows increasement in curiosity.
7. "Everything was good, I arranged my thoughts and my level of writing improved, that was very interesting and beneficial."	All stages	Evaluation	MEEFLW	Positive emotional response by which growth in writing is recognised in all stages.
8. "I have noticed a great improvement from me, every thing is perfect in your teaching method."	All stages	Evaluation	MEEFLW	Positive emotional progress in writing due to strategy instruction.
9. "No suggestions,but words can not be enoughe for you Dr.hanan you such a sweet heart thank you so much my writing skill have never been better."	All stages	Evaluation	MEEFLW	Positive emotion of gratitude; highlighting the course's influence in enhancing academic performance.
10. "It was a beautiful and enjoyable experience in teaching writing in a beautiful and simple way."	All stages	Evaluation	MFEFLW	Positive emotional response to learning, including enjoyment and satisfaction.
11. "I just want to say thank you for your efforts. It's really helpful,I have noticed a great improvement from me , every thing is perfect in your teaching method."	All stages	Evaluation	MEEFLW	Positive emotion shows the impact of instruction on the progress, enhancing self-efficacy, growth, and satisfaction.
12. "No, That was great."	All stages	Evaluation	MFEFLW	Overall satisfaction with the course experience.

5. Discussion

The primary aim of this study was to enhance the academic writing skills of Saudi EFL students through instructor-led metacognitive writing tasks, guided by the metacognitive writing (MCW) framework. This section interprets the findings in relation to the research questions, the MCW framework, and the literature.

RQ1: To what extent does the MCW framework improve Saudi EFL students' academic writing performance?

The intervention led to significant improvements in students' writing performance, as evidenced by posttest scores and qualitative reflections. These gains are closely tied to the activation of key MCW components. For example, improvements in organisation and coherence reflect enhanced planning skills, while better time management and language development suggest more effective monitoring during the writing process. The students' ability to revise and reflect on their work indicates growth in evaluative thinking. These findings confirm that structured metacognitive instruction can foster deeper engagement and more strategic writing behaviours. This outcome aligns with previous research (Han, 2024; Khosravi et al., 2023), which emphasises the role of metacognitive strategies in improving writing outcomes and learner autonomy. This study extends this evidence to the Saudi context, where experimental applications of metacognitive instruction remain limited.

RQ2: How does metacognitive instruction influence students' beliefs and attitudes towards academic writing?

Students reported increased confidence and awareness of their writing processes, which reflects the internalisation of the MCW framework. They began to see writing as a strategic activity and engage in planning, monitoring, and evaluating their work. This shift towards self-regulated learning is a core goal of the MCW framework and was evident in students' reflections on their growth and mindset. These findings are consistent with literature highlighting the motivational and attitudinal benefits of metacognitive instruction (Sun et al., 2021; Qian et al., 2024). In the Saudi context, where previous studies have emphasised planning and evaluation but noted gaps in monitoring (Kalapala et al., 2024; Agili and Prabhashini, 2021), the present study demonstrates how targeted instruction can address these gaps and promote holistic metacognitive development.

The findings affirm the effectiveness of the MCW framework in enhancing both academic writing performance and metacognitive awareness among Saudi female EFL students. Structured engagement in planning, monitoring, and evaluating strategies resulted in noticeable improvements in learner autonomy, strategic thinking, and motivation. These outcomes substantiate the theoretical foundations of the framework and offer practical ways to advance EFL writing pedagogy, particularly in contexts where metacognitive instruction is not yet widely adopted.

6. Limitations

This study has three main limitations. First, there is a limited body of research within higher education institutions in Saudi Arabia focused on metacognitive writing instruction. This restricts the ability to compare findings across different educational contexts and highlights the need for more localised studies. Second, the sample consisted of a single group of female students. This was due to the study being conducted in a female-only institution, in accordance with the gender-segregated structure of the Saudi educational system. This naturally limited the participant pool and, as noted, affects the generalisability of the findings to mixed-gender or male populations. Third, the study was conducted over a relatively short period (12 weeks), which may not have been sufficient to observe long-term changes in students' metacognitive development. Future research should consider extended durations to better capture sustained effects and deeper learning outcomes.

7. Conclusions

Integrating metacognitive strategies into writing instruction is essential for teachers, as these methods empower students to take control of their learning. Educators are encouraged to design tasks that foster metacognitive engagement by incorporating planning, monitoring, and reflection opportunities. This can be facilitated through structured study sessions, scenario-based activities, and tasks that evaluate and enhance students' understanding of their learning processes. Wu (2022) highlighted that metacognition not only improves individual L2 learning but also plays broader social and moral roles. University instructors should therefore address emotional, interpersonal, and societal aspects of metacognitive growth, helping students see their role within a larger community. In EFL writing education, metacognitive skills help students leverage past experiences, set goals, choose effective strategies, and reflect on their progress. Factors such as motivation, self-efficacy, mindset, and emotional awareness greatly influence these strategies, contributing to resilience in learning. Furthermore, beliefs about knowledge and learning affect how both teachers and students approach metacognition and self-regulation. As Rimun and Yumarnamto (2024) state, raising metacognitive awareness is crucial for fostering self-regulation and reflective thinking. Teng (2021) also points out that better metacognitive knowledge and regulation are strong indicators of improved EFL writing performance. These results highlight the importance of ongoing research into how metacognitive strategies affect writing development and how to implement them in various educational contexts. Overall, the evidence confirms that this intervention notably enhanced students' L2 writing skills, laying the foundation for their ongoing growth and success.

References

Agili, E., & Prabhashini, C. B. (2021). A study on classroom discourse in enhancing metacognition to develop writing skills in Saudi EFL students. *Arab World English Journal, 12*(4), 123–135. https://doi.org/10.2139/ssrn.3952968

Alsmari, N. A. (2022). Integrating computer-aided argument mapping into EFL learners' argumentative writing: Evidence from Saudi Arabia. *International Journal of Advanced Computer Science and Applications, 13*(10). https://doi.org/10.14569/ijacsa.2022.0131013

Basaffar, F. M., & Bukhari, S. S. F. (2023). Saudi university learners' metacognitive abilities and writing performance. *Scholars International Journal of Linguistics and Literature, 6*(2), 120–129. https://saudijournals.com/articles/8770/

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal, 19*(4), 426–432. https://doi.org/10.1108/QMR-06-2016-0053

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cer, E. (2019). The instruction of writing strategies: The effect of the metacognitive strategy on the writing skills of pupils in secondary education. *SAGE Open, 9*(2). https://doi.org/10.1177/2158244019842681

Chong, S. W. (2020). *Metacognitive mindscapes: Understanding secondary EFL writing students' systems of knowledge.* Routledge.

Deane, P., Odendahl, N., Quinlan, T., Fowles, M., Welsh, C., & Bivens-Tatum, J. (2008). Cognitive models of writing: Writing proficiency as a complex integrated skill. *ETS Research Report Series, 2008*(2), i–36. https://doi.org/10.1002/j.2333-8504.2008.tb02141.x

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Graham, S., & Harris, K. R. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist, 35*(1), 3–12. https://doi.org/10.1207/S15326985EP3501_2

Hacker, D. J., Keener, M. C., & Kircher, J. C. (2009). Writing is applied metacognition. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 154–172). Routledge.

Han, L. (2024). Metacognitive writing strategy instruction in the EFL context: Focus on writing performance and motivation. *SAGE Open, 14*(2). https://doi.org/10.1177/21582440241257081

Hayes, J. R. (1996). A new framework for understanding cognition and affect in writing. In R. Indrisano & J. R. Squire (Eds.), *Perspectives on writing: Research, theory, and practice* (pp. 1–27). Routledge.

Hosayny, O. E., Razkane, H., & Yeou, M. (2025). Metacognition in academic writing: Analyzing strategies and gender differences among Moroccan university EFL learners. *Jurnal Arbitrer, 12*(1), 14–26. https://doi.org/10.25077/ar.12.1.14-26.2025

Kalapala, K. K., Panduranga, S. N., & Juma, M. B. A. (2024). Metacognitive strategies in writing. *International Journal of Language, Linguistics, Literature and Culture, 3*(3), 33–70. https://doi.org/10.59009/ijlllc.2024.0072

Khosravi, R., Dastgoshadeh, A., & Jalilzadeh, K. (2023). Writing metacognitive strategy-based instruction through flipped classroom: An investigation of writing performance, anxiety, and self-efficacy. *Smart Learning Environments, 10*(1), 48. https://doi.org/10.1186/s40561-023-00264-8

Kouhpayehzadeh Esfahani, M., Rashtchi, M., Rostami Abousaidi, A. A., & Mowlaie, B. (2022). Promoting metacognitive awareness in writing assessment tasks through planning, monitoring, and evaluation: Achievements and perceptions. *Iranian Journal of English for Academic Purposes, 11*(3), 50–68.

Lughmani, D. S., & Foung, D. (2021). Metacognitive strategy-focused instruction in a writing across the curriculum programme in a Hong Kong university: The impact on writing performance. In B. L. Reynolds & M. F. Teng (Eds.), *Innovative approaches in teaching English writing to Chinese speakers* (pp. 145–178). De Gruyter Mouton.

Mohamed, A., & Shaaban, T. (2023). Investigating college students' metacognitive awareness in enhancing ESP writing proficiency. *Journal of Teaching English for Specific and Academic Purposes, 11*(2), 387–401. https://doi.org/10.22190/JTESAP230420029M

Nasim, S. M., Mohamed, A. M., Mujeeba, S., & Shaaban, T. S. (2024). Examining gender and major differences in college students' metacognitive awareness of ESP writing skills. *Language Teaching Research Quarterly, 42*, 278–294. https://doi.org/10.32038/ltrq.2024.42.16

Nelson, T. O. (1990). Metamemory: A theoretical framework and new findings. *Psychology of learning and motivation*, 125–173. https://doi.org/10.1016/S0079-7421(08)60053-5

Qian, J., Li, C., & Li, D. (2024). Exploring Chinese multilingual students' metacognitive knowledge, strategies, and experiences in academic writing. *Language Awareness, 34*(1), 77–99. https://doi.org/10.1080/09658416.2024.2375629

Quigley, A., Muijs, D., & Stringer, E. (2018). *Metacognition and self-regulated learning: Guidance report.* Education Endowment Foundation.

Rimun, J. C., & Yumarnamto, M. (2024). Metacognition in ELT writing: Teacher's facilitation and students' strategies. *Englisia: Journal of Language, Education, and Humanities, 11*(2), 91–110. https://doi.org/10.22373/ej.v11i2.20563

Sun, Q., Zhang, L. J., & Carter, S. (2021). Investigating students' metacognitive experiences: Insights from the English as a foreign language learners' writing metacognitive experiences questionnaire (EFLLWMEQ). *Frontiers in Psychology, 12*, 744842. https://doi.org/10.3389/fpsyg.2021.744842

Tanner, K. D. (2012). Promoting student metacognition. *CBE—Life Sciences Education, 11*(2), 113–120. https://doi.org/10.1187/cbe.12-03-0033

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53–55. https://pmc.ncbi.nlm.nih.gov/articles/PMC4205511/

Teng, M. F. (2021). Effects of individual and group metacognitive prompts on tertiary-level students' metacognitive awareness and writing outcomes. *The Asia-Pacific Education Researcher, 31*(5), 601–612. https://doi.org/10.1007/s40299-021-00611-8

Winne, P. H., & Hadwin, A. F. (1998). Studying as self-regulated learning. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 277–304). Routledge.

Wu, M. M. F. (2022). The social nature of second language metacognition. *The Asia-Pacific Education Researcher, 31*(5), 499–506. https://doi.org/10.1007/s40299-021-00596-4

Xu, W., & Zhu, X. (2025). A cross-linguistic approach to investigating metacognitive regulation in writing among Chinese EFL learners: Insights for its trait/state distinction. *International Journal of Applied Linguistics, 35*(1), 274–290. https://doi.org/10.1111/ijal.12615

Biographical Statement

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معلومات عن الباحث

د. حنان السلطان، أستاذ اللغويات التطبيقية المساعد في قسم اللغة الإنجليزية، بكلية الآداب، في جامعة الملك فيصل، المملكة العربية السعودية حاصلة على درجة الدكتوراه في اللغويات التطبيقية من جامعة الإمام محمد بن سعود الإسلامية عام 2020.تدور اهتماماتها البحثية حول قضايا فلسفة تعليم اللغة وعلاقتها بالتخصصات البينية كالعلوم الحاسوبية والنفسية والعصبية والقياس والتقويم.

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