Investigating the Influence of Metacognitive Strategies on all Strategies in Academic Writing

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ABSTRACT

This study investigates the influence of metacognitive strategies on other writing strategies (effort regulation, cognitive, social, and affective strategies) in academic writing among undergraduates. Rooted in Social Cognitive Theory (SCT), the study aims to explore learners' perceptions of their strategic use during the writing process. A quantitative survey design was adopted, with 105 undergraduate students responding to a 28-item instrument adapted from Raoofi et al. (2017). The survey was administered online using a 5-point Likert scale and achieved high reliability ($\alpha = .935$). Findings revealed that learners moderately used all strategies, with the highest mean scores observed for affective and cognitive strategies. Correlation analysis showed a strong positive relationship between metacognitive strategies and cognitive ($r = .692$, $p < .01$), effort regulation ($r = .635$, $p < .01$), and affective strategies ($r = .587$, $p < .01$), while a moderate correlation was found with social strategies ($r = .342$, $p < .01$). These results suggest that metacognitive awareness significantly supports the use of various strategies in academic writing. The findings offer pedagogical implications for fostering strategic thinking and learner autonomy in writing instruction.

Keywords: Social Cognitive Theory, metacognitive strategies, affective strategies, cognitive strategies, academic writing, learner autonomy

INTRODUCTION

Background of Study

Academic writing is a complex cognitive activity that demands not only language proficiency but also the strategic application of multiple skills, including planning, organising, monitoring, and revising. For learners of English as a Second Language (ESL), mastering academic writing is often challenging due to the need to integrate linguistic accuracy with higher-order thinking and metacognitive control (Rahmat, 2020). Writing, therefore, is more than a linguistic exercise; it is a thinking process that demands decision-making at every stage of composition.

To address these challenges, learners employ a range of writing strategies. These include metacognitive strategies (planning and evaluating), cognitive strategies (using grammar and vocabulary), effort regulation (maintaining focus and perseverance), affective strategies (managing anxiety and motivation), and social strategies (seeking feedback and collaboration) (Raoofi et al., 2017; Yanti & Hidayati, 2021). Among these, metacognitive strategies are often considered foundational, as they influence how and when other strategies are activated during the writing process (Raoofi et al., 2017; Karlen & Compagnoni, 2017).

Social Cognitive Theory (SCT), proposed by Bandura (2001), provides a relevant framework for understanding how these strategies function in the learning process. According to SCT, learners are active agents in their own

development, capable of self-reflection, self-regulation, and interacting meaningfully with their environment. This aligns closely with the strategic behaviours observed in academic writing, where learners draw upon self-efficacy beliefs, emotional control, and social learning mechanisms to improve their performance (Bandura, 2001; Bagheri Nevisi & Adibrad, 2024).

Recent studies have emphasised the importance of metacognitive awareness in enhancing writing performance. Learners who are more aware of their writing processes tend to produce more coherent and well-structured texts, demonstrate greater autonomy, and show resilience when faced with writing difficulties (Huang & Rawian, 2025; Chen, 2022; Riwayatiningsih et al., 2025). However, there remains a need to examine how metacognitive strategies relate to other forms of strategy use, particularly among ESL undergraduates with varied proficiency levels. Understanding these relationships can provide valuable insights into how to support learners in becoming more strategic, confident, and effective academic writers.

Statement of Problem

ESL learners at higher institutions continue to view academic writing as one of the most challenging skills. This is because in order for the learners to be able to produce quality academic writing, they are required to master multifaceted competencies (Rosdiana et al., 2023). Despite students' awareness of writing standards, many continue to struggle with organising ideas, ensuring coherence, modifying drafts, and regulating their emotional responses throughout writing activities. (Rahmat, 2020). Not only are these challenges naturally linguistic, but they are also strategic, demanding the application of a blend of metacognitive, cognitive, emotional, social, and effort management strategies (Raoofi et al., 2017).

Effective management of the writing process depends on metacognitive techniques, which are deemed essential. These encompass strategy, supervising progress, and result evaluation. Prior research indicates that learners with heightened metacognitive awareness tend to exhibit superior writing efficacy and greater adaptability in challenging writing endeavours (Karlen & Compagnoni, 2017; Riwayatiningsih et al., 2025). Nonetheless, studies indicate that numerous learners employ these strategies inconsistently or prioritise surface-level techniques, like as grammar and spelling checks, over more profound planning and reflection (Raoofi et al., 2014; Rahmat, 2020).

According to Bandura (2001), Social Cognitive Theory, learning practices, including writing, are greatly shaped by self-efficacy and self-regulation. Though this theoretical link is increasingly acknowledged, there is little empirical data looking at how metacognitive strategies interact with other kinds of strategy use in scholarly writing. Although studies like those by Bagheri Nevisi and Adibrad (2024) and Huang and Rawian (2025) confirm the favourable impact of metacognitive awareness on writing performance, few have investigated its larger influence on cognitive, social, affective, and effort-regulating strategies in a single integrated framework.

Rosdiana et al. (2023) emphasise the significance of metacognitive strategies in developing academic writing skills in higher education; however, there is an absence of research that comprehensively investigates the relation between metacognitive awareness and the simultaneous enhancement of various strategy types. This creates a substantial void in comprehending the impact of metacognitive tactics on the entirety of academic writing techniques. Therefore, this study seeks to address this gap by investigating how undergraduate ESL learners perceive their use of metacognitive strategies and how these relate to their use of other writing strategies. Understanding these relationships is crucial for developing targeted instructional practices that can help learners become more strategic, confident, and autonomous writers.

Objective of the Study and Research Questions

This study was done to explore the perception of learners on their use of strategies in writing. Specifically, this study is done to answer the following questions:

What are undergraduate learners’ perceptions regarding their application of metacognitive strategies in academic writing?

What are undergraduate learners' perceptions regarding their application of effort regulation strategies in academic writing?

What are undergraduate learners' perceptions regarding their application of cognitive strategies in academic writing?

What are undergraduate learners' perceptions regarding their application of social strategies in academic writing?

What are undergraduate learners' perceptions regarding their application of affective strategies in academic writing?

Is there any significant relationship between all the writing strategies (metacognitive, effort regulation, cognitive, social, and affective)?

LITERATURE REVIEW

Theoretical Framework

Social Cognitive Theory (SCT) of Writing and How It Relates to Writing Strategies

Social Cognitive Theory (SCT), as proposed by Bandura (2001), emphasises the role of human agency in behaviour, emphasising the idea that individuals are not merely products of their environment but are proactive, self-reflective, and self-regulating agents. According to SCT, behaviour is shaped by a dynamic interplay between personal factors (such as beliefs and emotions), behavioural patterns, and environmental influences, or what Bandura calls triadic reciprocal causation. Central to this theory is the concept of self-efficacy, which refers to an individual's belief in their capacity to execute behaviours necessary to produce specific outcomes. This belief influences how people set goals, how much effort they invest, how they persevere through difficulties, and how they regulate their learning and behaviour (Bandura, 2001).

Meanwhile, Raoofi et al. (2017) explore a range of writing strategies employed by English as a Foreign Language (EFL) learners, namely, metacognitive, cognitive, social, affective, and effort regulation strategies, in the context of academic writing. These strategies can be directly mapped to the mechanisms described in SCT. For instance, metacognitive strategies, such as planning, monitoring, and evaluating one's writing process, are aligned with Bandura's notion of forethought and self-reactiveness. Learners who engage in these strategies are enacting their agency by setting goals and managing their performance, processes that are underpinned by a strong sense of self-efficacy (Bandura, 2001; Raoofi et al., 2017).

Similarly, cognitive strategies, which involve organising ideas, using grammar rules, and generating content, reflect Bandura's emphasis on the internal cognitive processes that interact with environmental cues to shape behaviour. The use of these strategies suggests that learners are actively constructing knowledge, rather than passively absorbing information; a perspective central to SCT's view of learners as self-organising individuals (Bandura, 2001). Cognitive strategy use is also positively correlated with metacognitive strategies, reinforcing the idea that learners who believe in their ability to succeed are more likely to engage in effective learning behaviours (Raoofi et al., 2017).

Effort regulation strategies, such as maintaining concentration, managing time, and pushing through difficulties, are manifestations of SCT's concept of self-regulation. These strategies involve deliberate control over one's behaviour and motivation, particularly in the face of obstacles. Bandura (2001) asserts that self-efficacy influences resilience, and learners with higher self-efficacy are more likely to persevere and sustain effort, even when tasks become challenging. The strong correlation between metacognitive strategies and effort regulation in Raoofi et al.'s (2017) findings supports this theoretical link.

The use of affective strategies, which include managing emotions like anxiety or building confidence, is directly tied to SCT's component of self-reflectiveness. Learners must be aware of their emotional states and regulate them to remain productive, particularly in high-stakes or stressful academic environments. Bandura (2001)

emphasises that emotional self-regulation is an essential part of agency, influencing both motivation and the ability to persist. Raoofi et al. (2017) found that affective strategies were among the most commonly used strategies, suggesting that learners are aware of and actively manage their emotional responses in line with SCT's framework.

Lastly, social strategies, such as seeking feedback or collaborating with peers, reflect SCT's emphasis on observational learning and the role of the social environment in shaping behaviour. Bandura (2001) argues that individuals learn not only through direct experience but also by observing and interacting with others. In writing contexts, learners benefit from social engagement by modelling effective behaviours and receiving constructive feedback, thus enhancing their learning and self-efficacy. Although social strategies were used less frequently according to Raoofi et al. (2017), their moderate correlation with metacognitive strategy use still aligns with the SCT perspective on the value of social interaction in learning.

In conclusion, Social Cognitive Theory provides a powerful perspective for understanding the writing strategies employed by EFL learners. Bandura's emphasis on self-efficacy, self-regulation, and social interaction helps explain why and how learners use various strategies in academic writing. The findings by Raoofi et al. (2017) strongly support SCT's claim that learners are capable of exercising agency in their learning processes and that fostering metacognitive awareness can enhance the effective use of other writing strategies.

Table 1: Social Cognitive Theory and ESL Writing Strategies

	Writing Strategy	Related SCT Components	Description
1	Metacognitive Strategies	Forethought, Self-Reflectiveness, Self-Efficacy	Planning, monitoring, and evaluating writing tasks
2	Cognitive Strategies	Self-Efficacy, Forethought	Using grammar, organizing ideas, synthesizing content
3	Effort Regulation Strategies	Self-Regulation, Self-Efficacy	Maintaining motivation, focus, and persistence during writing
4	Affective Strategies	Self-Reflectiveness, Self-Efficacy	Managing emotions such as anxiety and encouraging oneself
5	Social Strategies	Observational Learning, Self-Efficacy	Seeking feedback and collaborating with peers or instructors

Strategies for Academic Writers

Metacognitive strategies are widely recognised as central to effective second language (L2) writing instruction. These strategies include planning, organising, monitoring, evaluating, and revising, all of which contribute to learners' ability to regulate their writing processes. Studies have consistently shown that the use of metacognitive strategies correlates positively with writing performance (Huang & Rawian, 2025; Riwayatiningsih et al., 2025; Karlen & Compagnoni, 2017). For instance, learners who demonstrate greater procedural knowledge and engage in self-monitoring tend to produce more coherent and well-organised texts (Huang & Rawian, 2025). Similarly, metacognitive strategies such as planning and evaluation have been shown to enhance specific aspects of writing, including coherence and argumentation quality (Riwayatiningsih et al., 2025). The development of metacognitive awareness not only facilitates better textual output but also fosters learner autonomy and self-regulation (Karlen & Compagnoni, 2017; Rahmat, 2020; Bagheri Nevisi & Adibrad, 2024). High-proficiency writers frequently employ metacognitive strategies to manage the recursive nature of writing, such as outlining before drafting, reflecting on content alignment, and systematically revising their work (Chen, 2022; Raoofi et al., 2014). Collectively, these findings underscore the foundational role of metacognitive strategies in shaping strategic and autonomous L2 writers.

Cognitive strategies, though often less explicitly emphasised than metacognitive ones, play a critical role in managing the linguistic and structural demands of writing. These strategies encompass skills such as retrieving and applying vocabulary, using correct grammar, synthesising information, and organising ideas at the sentence level. In particular, cognitive strategies have been linked to successful language production in contexts where learners must translate abstract ideas into structured written form (Apridayani & Waluyo; Rahmat, 2020).

Learners frequently report using memorised phrases, generating content based on reading inputs, and applying grammar knowledge to refine accuracy (Raoofi et al., 2017; Raoofi et al., 2014). Such strategies are instrumental in helping writers convert conceptual knowledge into written text, particularly when managing the complexity of academic or argumentative genres.

Effort regulation strategies refer to learners' capacity to sustain concentration, persist through challenges, and manage motivation during writing tasks. These strategies are crucial for maintaining engagement over extended periods of cognitive demand, especially in academic writing. Raoofi et al. (2017) categorise effort regulation as a distinct strategic domain and link it to learners' perseverance and ability to complete complex writing assignments. Qualitative evidence from other studies reveals that proficient writers are more likely to exert conscious effort to expand their essays, revise multiple drafts, and engage deeply with their work despite fatigue or frustration (Rahmat, 2020; Raoofi et al., 2014). Such persistence reflects not only personal discipline but also a metastrategic awareness of writing as a demanding, recursive process.

Affective strategies are employed by learners to regulate emotional responses such as anxiety, frustration, or lack of confidence, which often impede writing fluency and task completion. Several studies highlight the use of self-encouragement, positive self-talk, and anxiety reduction techniques among L2 writers (Rahmat, 2020; Raoofi et al., 2017; Yanti & Hidayati, 2021). For instance, learners who perceive writing as high-stakes often benefit from developing emotional resilience strategies that allow them to take feedback constructively and continue improving. Yanti and Hidayati (2021) specifically point out that teaching metacognitive strategies can indirectly reduce writing-related anxiety by increasing students' sense of control and preparedness. These strategies are especially relevant in contexts where learners must perform under pressure or face repeated evaluation.

Finally, social strategies refer to learners' use of interpersonal resources such as peers, instructors, or digital communities to improve writing. Learners frequently seek feedback, ask for clarification, and collaborate on brainstorming or revision tasks (Raoofi et al., 2017; Raoofi et al., 2014). These strategies serve both instrumental and affective functions, allowing learners to validate their writing approaches and receive targeted input. In particular, low- to mid-proficiency learners often depend on more skilled peers or mentors to scaffold their learning. Social engagement in writing tasks also supports the development of critical thinking through dialogue and negotiation of meaning.

Past Studies on Writing Strategies

Writing strategies for ESL/EFL learners

Research on writing strategies among ESL/EFL learners has shown that students employ a range of cognitive and metacognitive techniques when composing in a second language. A study by Raoofi (2017) investigated the relationship between the use of writing strategies and the writing proficiency of L2 university students. A total of 312 ESL undergraduate students participated in the study by completing a writing proficiency test and a writing strategy questionnaire. According to the results, the participants utilised ESL writing methods comparatively frequently. The most commonly used categories were effort regulation strategy and metacognitive strategies, while the least commonly used category was social strategy. Significantly, it was found that students with higher writing ability reported using more metacognitive, cognitive, affective, and effort regulation strategies than those with intermediate or lower proficiency levels. In contrast, a study by Junianti et al. (2020) explored the strategies of learning writing used by EFL learners at higher education. The sample consists of 35 EFL Indonesian students at a higher education institution. The data was collected through a questionnaire survey on strategies in learning writing skills, and six of the students were chosen to be interviewed about the problems during the learning process. In this study, three strategies were employed by the EFL students through planning, execution, and revision. The results revealed the average use of each strategy, with social strategies being the most frequently used (91%), followed by metacognitive strategies (79%) and cognitive strategies (74%). This shows that students value interaction and self-regulation more than mechanical text production.

In addition to that, Fajrina et al. (2021) investigated the writing strategies used by Indonesian EFL students. The sample consisted of 135 Indonesian EFL students. The data was collected through a questionnaire survey, where

it analysed the participants' use of strategies was analyzed in three writing stages: pre-writing, drafting, and revising. Besides, the participants also participated in writing an essay in English, and it was assessed using the ESL Composition Profile of Jacob et al. (1981). The results show that no difference was found in the choice of strategies used between high-proficiency and low-proficiency students. Further evidence is found in a study by Yang (2023) examining the level of writing strategies and writing proficiency of students at a vocational college in China. The sample consists of 308 students at a private vocational college in China, and the relationship between writing strategies and writing proficiency was explored by SPSS. The findings revealed that there is no difference in the use of writing strategies between the proficient learners and the less proficient learners. Meanwhile, a difference in cognitive strategy is found between them, where proficient learners applied more cognitive strategies in writing.

In conclusion, the past studies revealed that ESL/EFL learners use a range of strategies, including cognitive, metacognitive, social, and affective ones, to promote their writing development. The importance of metacognitive and social strategies in improving writing performance is highlighted by a number of research studies, including Raoofi et al. (2017) and Junianti et al. (2020). However, these studies also imply that learners' preferences for different methods may vary depending on their educational environments and skill levels. Therefore, it is important for ESL/EFL learners to be exposed to the use of effective cognitive and metacognitive strategies to help bridge the gap between low- and high-proficiency writers.

Conceptual Framework

Writing in academic essays requires the writer to use a variety of strategies. Writing begins with the writer thinking about what he/she wants to include in the essay. According to Rahmat (2020), writing is considered thinking because the whole process of academic writing requires the writer to make a variety of decisions using different strategies. These strategies are used together during the writing process to facilitate writing. This study examines writers' use of metacognitive, effort regulation, cognitive, social, and affective strategies (Raoofi et al., 2017). The writing begins with thought processes; hence, Raoofi et al. (2017) state that the thinking task is portrayed in the use of metacognitive strategies. The conceptual framework of this study is presented in Figure 1 below. This study explores whether there is a relationship between metacognitive strategies with all other writing strategies.

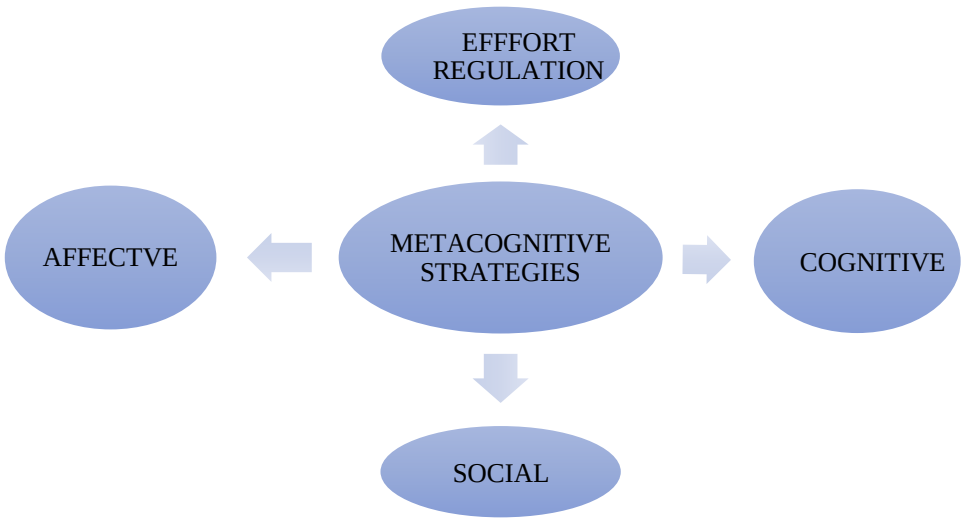

Figure 1- Conceptual Framework of the Study-

The Influence of Metacognitive Strategies on All Strategies in Writing.

METHODOLOGY

This quantitative study is conducted to explore the motivational factors for learning among undergraduates. A purposive sample of 105 participants responded to the survey. Data is collected online via Google Forms. The

instrument used is a 5 Likert-scale survey. The scales (Table 1) used are never, rarely, sometimes, often, and always.

Table 1- Likert Scale used

1	Never
2	rarely
3	Sometimes
4	Often
5	Always

The design of the instrument is rooted in the concept of writing difficulties and writing strategies by Raoofi et al. (2017) to reveal the variables in Table 2 below. The survey has 4 sections. Section A has items on the demographic profile. Section B has 10 items on a Person's Thoughts. Section C has 11 items on Behaviour. Section D has 7 items on Environment.

Table 2- Distribution of Items in the Survey

SECTION	WRITING STRATEGY	NO OF ITEMS	Cronbach Alpha
B	Metacognitive	10	.880
C	Effort Regulation	5	.775
D	Cognitive	6	.881
E	Social	4	.813
F	Affective	3	.811
		28	.935

Table 2 also displays the reliability of the survey. The analysis shows a Cronbach alpha of .880 for metacognitive strategy, .775 for effort regulation strategy, .881 for cognitive strategy, .813 for social t strategy, and .811 for affective strategy. The overall Cronbach alpha for all 28 items is .93, thus revealing a good reliability of the instrument chosen/used. Further descriptive analysis using SPSS is done to present findings to answer the research questions for this study.

FINDINGS

Findings for Demographic Profile

In this study, the participant demographics are important in interpreting research findings and assessing their generalisability, while the writing proficiency distribution also offers an understanding of the communication skills of the participants in written assessments. This section presents the demographic profile of the participants along with their respective levels of writing ability.

Table 3- Percentage for Demographic Profile

Question	Demographic Profile	Categories	Percentage (%)
1	Gender	Male	44%
		Female	56%
2	Level of Writing Proficiency	Low	87%
		Intermediate	9%
		High	4%

In this study, the majority of the participants were female (56%), and 44% were male. Additionally, referring to Table 3, the participants' writing proficiency was predominantly low (87%), with only 9% with intermediate proficiency and 4% with high proficiency, emphasising the need to consider skill level in evaluating the results of the study. These results indicate that many of the participants may struggle with writing, which could have an impact on how they approach and engage in academic writing tasks.

Findings for Metacognitive Strategies

Section 4.2 presents data to answer Research Question 1: How do learners perceive their use of metacognitive strategies in academic writing? As presented in the analysed data below. Learners who are overtly taught metacognitive strategies often show greater awareness and more intentional use of planning, monitoring, and evaluating when engaged in writing activities (Teng, 2020). Ten items were used to measure the learners' perceptions of metacognitive strategies in academic writing.

Table 4- Mean for METACOGNITIVE (MWS)

ITEM	MEAN	SD
MWSQ1 I organise my ideas prior to writing.	3.5	0.69496
MWSQ2 I revise my writing to make sure that it includes everything I want to discuss in my writing.	3.5	0.73155
MWSQ3 I check my spelling.	3.9	0.76292
MWSQ4 I check my writing to make sure it is grammatically correct.	3.6	0.81448
MWSQ5 I evaluate and re-evaluate the ideas in my essay.	3.5	0.76040
MWSQ6 I monitor and evaluate my progress in writing.	3.4	0.80770
MWSQ7 I revise and edit an essay two or more times before I hand it in to my teacher.	3.5	0.87810
MWSQ8 I go through the planning stages in my writing.	3.4	0.78353
MWSQ9 I go through the drafting stages in my writing.	3.4	0.83502
MWSQ10 I go through the revising and editing stages in my writing.	3.4	0.72210

Table 4 presents the mean and standard deviation (SD) scores for ten items related to metacognitive writing strategies (MWS), reflecting the learners' self-assessments of their engagement in various aspects of the writing process. The mean scores range from 3.4 to 3.9 on a Likert-type scale, indicating generally high levels of metacognitive awareness in writing. The highest mean score (3.9) is for checking spelling (MWSQ3), suggesting that students are most confident or consistent in applying this strategy. Several items, including planning, monitoring progress, and revising, have slightly lower mean scores (3.4–3.5), implying these strategies are used slightly less frequently or with less certainty. The standard deviations range from .69 to .88, indicating moderate variability in responses. Overall, the findings suggest that learners often employ a variety of metacognitive strategies in writing, though the extent and consistency of use vary across specific behaviours.

Findings for Effort Regulation Strategies

In section 4.3, the data are presented to provide the answers to Research Question 2. The items underline the learners' perceptions of using effort regulation strategies when writing in an academic setting.

Table 5- Mean for EFFORT REGULATION (ERS)

ITEM	MEAN	SD
ERSQ1 I write a lot to develop my writing skills.	3.1	0.77601
ERSQ2 I often work hard to do well in my writing, even if I don't like English writing tasks.	3.6	0.77365
ERSQ3 Even if the writing activities are difficult, I don't give up but try to engage in them.	3.8	0.79294
ERSQ4 I concentrate as hard as I can when doing a writing task.	3.7	0.82353
ERSQ5 I spend a lot of time and energy on writing good English assignments.	3.5	0.82153

Table 5 above illustrates the mean scores for the strategies of effort regulation (ERS) based on the learners' insights into their involvement in academic writing. The most frequently chosen strategy was the ability to persist and remain engaged when dealing with high difficulty levels of English writing activities (mean=3.8, SD=.79294). This approach was followed by staying highly focused (mean=3.7, SD=.82353) as the strategy to complete the academic tasks. The next strategy preferred by the learners was to put in hard work to perform better in writing, despite not liking the English writing tasks (mean=3.6, SD=.77365). The learners reported dedicating a significant amount of their time and energy (mean=3.5, SD=.82153) to complete high-quality

English assignments. However, the study revealed that the learners did not favour regular writing as a strategy to enhance their writing skills (mean=3.1, SD=.77601). The results reveal that although learners are often motivated to make an effort in writing tasks, a smaller number consistently practise to enhance their writing proficiency.

Findings for Cognitive Strategies

The Research Question 3: What are undergraduate learners' perceptions regarding their application of cognitive strategies in academic writing? is further elaborated in this section. The data provides answers as to how learners perceive their use of cognitive strategies in academic writing.

Table 6- Mean for COGNITIVE (CWS)

ITEM	MEAN	SD
CWSQ1 I use memorised grammatical elements such as singular and plural forms, verb tenses, prefixes and suffixes, etc, in my writing	3.5	0.73417
CWSQ2 I put the newly memorised vocabulary in my sentences.	3.5	0.80974
CWSQ3 In order to generate ideas for my writing, I usually engage myself in brainstorming.	3.6	0.85142
CWSQ4 I use different words that have the same meaning.	3.4	0.81784
CWSQ5 I use my experiences and knowledge in my writing.	3.8	0.76532
CWSQ6 I try to use effective linking words to ensure a clear and logical relationship between sentences or paragraphs	3.6	0.76831

Table 6 summarises the learners' use of cognitive strategies in their writing processes. The most frequently used strategy was drawing upon personal experiences and prior knowledge to support their writing (M = 3.8, SD = .76532). This was followed by brainstorming to generate ideas (M = 3.6, SD = .85142) and using appropriate linking words to create coherence between sentences or paragraphs (M = 3.6, SD = .76831). Learners also reported using grammatical rules and applying newly learned vocabulary in their writing, both with a mean score of 3.5. The least reported strategy was substituting words with similar meanings, which received a slightly lower mean of 3.4 (SD = .81784). These findings suggest that while learners make use of several cognitive strategies, particularly those related to idea development and coherence, there may be less emphasis on lexical variety and paraphrasing skills.

Findings for Social Strategies

In this section, the data is presented to provide the answers to Research Question 2, where the items underline the learners' perception of the social strategies in academic writing.

Table 7- Mean for SOCIAL (SWS)

ITEM	MEAN	SD
SWSQ1 In order to generate ideas for my writing, I usually discuss the writing topic with a friend or classmate.	3.5	0.78563
SWSQ2 After revising and editing my essay thoroughly, I ask a friend or my classmate to read and comment on it.	3.4	0.88465
SWSQ3 I try to identify friends or classmates whom I can ask for help with my writing.	3.6	0.83896
SWSQ4 When I have trouble writing my essay, I try to do it with my classmates or friends.	3.6	0.87024

Table 7 presents the mean scores for the social strategies employed by learners in their writing practices. The highest mean scores were found in learners' tendency to seek help from classmates or friends when facing difficulties with writing and in their efforts to identify peers who could assist them (both M = 3.6). It is also reported that learners often discuss writing topics with peers to generate ideas (M = 3.5, SD = .78563). However, the least used strategy involved asking peers to read and provide feedback after revising their work (M = 3.4,

SD = .88465). These findings indicate that learners are generally open to collaborative writing processes and peer support, particularly when dealing with challenges or planning their writing, though they are slightly less likely to involve peers in the post-editing stage.

Findings for Affective Strategies

To address Research Question 5, this section explores learners' perceptions regarding their use of affective strategies in academic writing, highlighting key patterns and insights derived from the data collected.

Table 8- Mean for AFFECTIVE (AWS)

ITEM	MEAN	SD
AWSQ1 I try to write an essay in class with confidence and ease.	3.5	0.72147
AWSQ2 I try to relax whenever I feel afraid of writing.	3.7	0.75738
AWSQ3 I encourage myself to write even when I am afraid of making mistakes	3.8	0.73902

Table 8 illustrates the learners' reported use of affective strategies in managing their emotions while writing academically. The most commonly employed strategy was encouraging themselves to continue writing despite the fear of making mistakes (M=3.8, SD=0.739). This indicates a proactive approach to overcoming self-doubt among learners in writing academically. Besides, learners also reported regularly trying to remain calm when experiencing anxiety related to writing tasks (M=3.7, SD=0.757), indicating awareness of emotional self-regulation. On the other hand, the lowest mean score (M=3.5, SD=0.721) is associated with the strategy of writing with confidence and ease in class, pointing to a relatively low self-assurance in classroom-based writing contexts among the learners. These findings denote that although the learners demonstrate awareness and application of affective strategies in managing anxiety, targeted support to enhance their writing confidence is still needed, especially in time-constrained or assessment contexts.

Findings for the Relationship between all strategies in writing

This section provides findings to address Research Question 6, aiming to ascertain whether a significant link exists in the mean scores across all writing techniques. The analysis is conducted using SPSS to evaluate correlations. The results are delineated individually in Tables 9, 10, 11, and 12 below.

Table 9- Correlation between Metacognitive and Effort Regulation Strategies

		METACOGNITIVE STRATEGIES	EFFORT REGULATION
METACOGNITIVE STRATEGIES	Pearson (Correlation	1	.635**
	Sig (2-tailed)		.000
	N	105	105
EFFORT REGULATION	Pearson (Correlation	.635**	1
	Sig (2-tailed)	.000	
	N	105	105

**Correlation is significant at the level 0.01(2-tailed)

Referring to the data projected in Table 9, an association between metacognitive and effort regulation strategies can be identified. Correlation analysis shows that there is a highly significant association between metacognitive and effort regulation strategies (r=.635**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level, and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. Thus, this leads to the idea that there is also a strong positive relationship between metacognitive and effort regulation strategies.

Table 10- Correlation between Metacognitive and Cognitive Strategies

		METACOGNITIVE STRATEGIES	COGNITIVE
METACOGNITIVE STRATEGIES	Pearson (Correlation	1	.692**
	Sig (2-tailed)		.000
	N	105	105
COGNITIVE	Pearson (Correlation	.692**	1
	Sig (2-tailed)	.000	
	N	105	105

**Correlation is significant at the level 0.01(2-tailed)

An association between metacognitive and cognitive strategies is illustrated in Table 10. The correlation analysis done shows that there is a highly significant association between metacognitive and cognitive strategies (r=.692**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level, and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. In summary, a strong positive relationship between metacognitive and cognitive strategies is found in the findings.

Table 11- Correlation between Metacognitive and Social Strategies

		METACOGNITIVE STRATEGIES	SOCIAL
METACOGNITIVE STRATEGIES	Pearson (Correlation	1	.342**
	Sig (2-tailed)		.000
	N	105	105
SOCIAL	Pearson (Correlation	.342**	1
	Sig (2-tailed)	.000	
	N	105	105

**Correlation is significant at the level 0.01(2-tailed)

Based on the analysis made in Table 11, it is shown that there is an association between metacognitive and social strategies. The correlation analysis leads to the finding that there is a moderately significant association between metacognitive and social strategies (r=.342**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level, and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a moderate positive relationship between metacognitive and social strategies.

Table 12- Correlation between Metacognitive and Affective Strategies

		METACOGNITIVE STRATEGIES	AFFECTIVE
METACOGNITIVE STRATEGIES	Pearson (Correlation	1	.587**
	Sig (2-tailed)		.000
	N	105	105
AFFECTIVE	Pearson (Correlation	.587**	1
	Sig (2-tailed)	.000	
	N	105	105

**Correlation is significant at the level 0.01(2-tailed)

Whereas Table 12 shows there is an association between metacognitive and affective strategies. Correlation analysis shows that there is a highly significant association between metacognitive and affective strategies

(r=.587**) and (p=.000). The coefficient is significant at the .05 level, and positive correlation is measured on a 0.1 to 1.0 scale (Jackson, 2015). Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. The findings indicate that there is a strong positive relationship between metacognitive and affective strategies.

CONCLUSION

Summary of Findings and Discussions

This section summarises and discusses the findings according to the six research questions.

RQ1: What are undergraduate learners' perceptions regarding their application of metacognitive strategies in academic writing?

The findings reveal that learners moderately use metacognitive strategies. The most frequently reported behaviour was checking spelling, followed by checking grammar, while deeper strategies such as planning, drafting, and multiple-stage revising were used less often. This suggests a greater focus on surface-level correction over process-oriented control.

This aligns with Rahmat (2020), who emphasised that writing involves recursive thinking, and learners often underutilise reflective strategies. Raoofi et al. (2017) also noted that metacognitive strategies are foundational but not consistently applied unless explicitly taught. Similarly, Karlen and Compagnoni (2017) found that learners with stronger beliefs about writing ability tend to apply metacognitive strategies more deliberately.

RQ2: What are undergraduate learners' perceptions regarding their application of effort regulation strategies in academic writing?

Students generally perceived themselves as willing to persist through difficult writing tasks and concentrate during tasks, though regular writing practice was the least reported behaviour. This indicates that while learners are motivated to complete assignments, they may lack long-term strategic discipline to build writing proficiency.

These results support Raoofi et al. (2014), who observed that students often show task-level persistence but do not engage in regular strategy reinforcement. Rahmat (2020) also emphasised that consistent self-regulation is essential in developing writing expertise, yet it is often overlooked in writing instruction.

RQ3: What are undergraduate learners' perceptions regarding their application of cognitive strategies in academic writing?

Learners showed moderate use of cognitive strategies, especially using prior knowledge, brainstorming, and linking words. However, strategies involving paraphrasing or using synonyms were less frequent. This suggests that learners are more confident in idea generation and sentence-level cohesion than in lexical flexibility.

This is consistent with Apridayani and Waluyo (2025) and Raoofi et al. (2014), who found that cognitive strategies are more likely to be used for content generation than for advanced rewriting or language variety. Rahmat (2020) also noted that learners tend to fall back on known language forms unless explicitly encouraged to manipulate vocabulary and grammar more creatively.

RQ4: What are undergraduate learners' perceptions regarding their application of social strategies in academic writing?

Findings show that learners moderately use social strategies, especially when generating ideas or seeking help during difficulties. However, peer feedback during revision stages was used less often. This indicates that social collaboration is more common during idea generation than during post-writing stages.

These trends corroborate Raoofi et al. (2017), who reported limited use of social strategies for editing and revision despite their value in improving writing. SCT (Bandura, 2001) also highlights the importance of social

learning in performance growth, suggesting that learners may benefit from more structured peer collaboration during all writing stages.

RQ5: What are undergraduate learners' perceptions regarding their application of affective strategies in academic writing?

Students actively used affective strategies to manage anxiety and self-motivate. Encouraging oneself to write despite fear of making mistakes and trying to relax when anxious were the most practised. Writing confidently in class was rated slightly lower, suggesting lingering performance-related anxiety.

These findings align with Yanti and Hidayati (2021), who highlighted the value of affective strategies in reducing writing-related anxiety. Rahmat (2020) and Raoofi et al. (2017) also emphasised the role of emotional regulation in academic writing, especially for students facing pressure to perform.

RQ6: Is there any significant relationship between all the writing strategies (metacognitive, effort regulation, cognitive, social, and affective)?

Correlation analyses revealed strong positive relationships between metacognitive strategies and cognitive, effort regulation, and affective strategies, and a moderate correlation with social strategies. These results confirm that metacognitive awareness is strongly associated with the use of other strategies.

This supports Bandura's (2001) Social Cognitive Theory, which emphasises self-regulation and self-efficacy as central to behavioural control. Huang and Rawian (2025) and Bagheri Nevisi and Adibrad (2024) also found that metacognitive development enhances learners' ability to engage other strategies, thus leading to greater writing autonomy and success.

IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Theoretical and Conceptual Implications

The findings of this study reinforce the relevance of Social Cognitive Theory (SCT) in understanding the role of writing strategies among ESL learners. Bandura's (2001) emphasis on the triadic relationship between personal factors, behaviours, and environmental influences is reflected in students' use of metacognitive, cognitive, affective, social, and effort regulation strategies. Learners who demonstrated higher metacognitive awareness were also more likely to apply cognitive and affective strategies effectively, supporting the SCT notion of self-efficacy and self-regulation as drivers of academic performance.

The strong correlations between metacognitive strategies and other strategy types offer theoretical validation of SCT's view that learners are agentic individuals capable of monitoring, controlling, and adapting their behaviours based on internal beliefs and external feedback. As shown in this study, students with greater self-monitoring tendencies also reported higher emotional control, goal persistence, and strategic flexibility, which are traits associated with Bandura's concept of proactive agency.

From a conceptual standpoint, this study expands the framework proposed by Raoofi et al. (2017) by empirically testing the relationship of five different strategy types. While prior research had established the categories and their theoretical framework, this study provides quantitative evidence of how these strategies occur together and interact, particularly through metacognitive strategies. These findings also support claims by Huang and Rawian (2025) and Bagheri Nevisi and Adibrad (2024) that metacognitive development enhances learners' capacity to use a wider range of academic strategies and become more independent in writing.

Additionally, the results add understanding of writing as a thinking process (Rahmat, 2020). The positive relationships between metacognitive and effort regulation strategies suggest that learners who are reflective about their thinking also tend to persist in their tasks and manage cognitive load more efficiently. This supports the conceptual claim that writing strategy use is not isolated but connected and repeated throughout the writing process.

Pedagogical Implications

The results of this study provide several important implications for the teaching and learning of academic writing in ESL contexts, particularly at the tertiary level. The moderate use of metacognitive strategies among learners, especially those related to deeper-level processes such as planning and revising, highlights the need for explicit strategy instruction in writing classrooms. Teachers should demonstrate and guide the use of these strategies, such as setting writing goals, monitoring progress, and engaging in multiple drafts, to encourage learners to develop reflective writing habits.

Given the strong correlations between metacognitive strategies and other strategy types, writing instructors should include training that combines all types of strategies. For example, learners can be taught how to manage writing anxiety (affective strategy) through structured planning (metacognitive strategy), or how to refine their ideas (cognitive strategy) through peer feedback (social strategy). These approaches align with Bandura's (2001) emphasis on self-efficacy and active learning, where learners gain control over their progress through interaction, reflection, and self-belief.

The finding that learners often neglect regular writing practice (as seen in low mean scores for effort regulation) suggests a need to design writing tasks that promote persistence and engagement. Assignments should be spaced over time, include opportunities for feedback and revision, and emphasise process over product. These methods encourage learners to view writing as a developmental skill rather than a one-time performance, supporting long-term strategy use as stated by Raoofi et al. (2014) and Rahmat (2020).

Furthermore, learners' underuse of social strategies in the revision stage implies that writing programs should create more structured peer-review sessions, writing workshops, or collaborative writing projects. This would strengthen the social learning component of SCT (Bandura, 2001), where learners benefit from observing, imitating, and receiving feedback from their peers.

Lastly, affective strategy use, such as managing writing-related anxiety, was reported at relatively high levels. Although this is a positive sign, it also calls for instructors to create low-anxiety writing environments, where errors are treated as part of the learning process. Teachers should offer constructive, formative feedback and teach students how to stay motivated about their writing, aligning with the findings of Yanti and Hidayati (2021) and Chen (2022), who highlighted the impact of emotional support on writing confidence.

Suggestions for Future Research

This study offers useful insights into the relationship between metacognitive strategies and other writing strategies among ESL undergraduates. However, there are several directions that future research could explore.

Firstly, while this study provides learners' strategy use at one point in time, a longitudinal study would help track how learners' use of writing strategies evolves over a semester or academic year. This could show whether strategy use improves naturally with practice or whether it needs sustained instructional support, as suggested by Chen (2022) and Bagheri Nevisi and Adibrad (2024).

Secondly, since the data in this study relied on self-reported perceptions, it would be beneficial for future studies to include classroom-based observations, writing samples, or even think-aloud protocols to compare what students say they do with what they do when writing. Studies like those by Raoofi et al. (2014) show that combining survey data with qualitative methods can offer a deeper understanding of how strategies are used in real writing situations.

Finally, future studies could look into how cultural or emotional factors influence strategy use. Since this study found that students used affective strategies like self-encouragement and anxiety control quite often, it would be interesting to explore how these emotional aspects interact with writing behaviours over time, as mentioned by Yanti & Hidayati (2021) and Rahmat (2020).

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