

The Effects of Self-Regulation Strategy Instruction on EFL Learners' Academic Writing Performance and Writing Self-Efficacy: A Randomized Experimental Study

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Abstract

Background: Academic writing requires EFL learners to coordinate linguistic, cognitive, and motivational resources. Self-regulation strategy instruction may help learners manage these demands more effectively while strengthening their confidence in writing. This study examined the effects of self-regulation strategy instruction on EFL learners' academic writing performance and writing self-efficacy.

Methods: A randomized experimental design was employed with 72 intermediate EFL learners who were randomly assigned to a self-regulation strategy instruction group ($n = 36$) or a conventional writing instruction group ($n = 36$). The intervention focused on goal setting, planning, self-monitoring, self-evaluation, and reflection during academic writing. Academic writing performance was assessed through a standardized writing task, while writing self-efficacy was measured using a validated questionnaire. Data were analyzed using analysis of covariance, controlling for pretest scores. Reliability and construct validity of the self-efficacy measure were also examined.

Results: The self-regulation group significantly outperformed the control group in academic writing performance, $F(1, 69) = 18.42, p < .001$, partial $\eta^2 = .211$. The adjusted posttest means were 20.79 and 17.36 for the experimental and control groups, respectively. A significant between-group difference was also found for writing self-efficacy, $F(1, 69) = 24.67, p < .001$, partial $\eta^2 = .263$, with adjusted means of 3.90 and 3.35, respectively. Large standardized effects were observed for both academic writing performance ($d = 1.46$) and writing self-efficacy ($d = 1.21$).

Conclusion: Self-regulation strategy instruction significantly improved both academic writing performance and writing self-efficacy. Integrating explicit self-regulatory strategies into EFL writing instruction may therefore promote stronger writing outcomes and greater learner confidence.

Keywords: Self-regulation strategy instruction; EFL learners; Academic writing performance; Writing self-efficacy; Self-regulated learning

Introduction

Academic writing represents one of the most demanding productive skills for learners of English as a foreign language (EFL) (Alzubi & Nazim, 2024). Unlike everyday communication, academic writing requires learners to coordinate multiple linguistic, cognitive, metacognitive, and motivational processes simultaneously (Song & Song, 2023). EFL learners are expected not only to generate relevant ideas but also to organize

arguments coherently, select appropriate vocabulary and grammatical structures, maintain cohesion and coherence, and revise their texts in response to perceived weaknesses (Magyar, et al., 2022). These demands make academic writing particularly challenging for learners who have limited opportunities to use English outside the classroom. Consequently, improving academic writing requires instructional approaches that extend beyond the teaching of grammar, vocabulary, and conventional writing conventions and address the processes through which learners plan, monitor, regulate, and evaluate their writing (Bui, et al., 2023).

One important factor underlying successful academic writing is self-regulation (Cheng, et al., 2026). Self-regulated learning refers to the active processes through which learners establish goals, monitor their performance, regulate their cognitive and behavioral activities, and evaluate the outcomes of their efforts (Skar, et al., 2023). In writing, self-regulation is especially relevant because effective writers must make continuous decisions throughout the writing process (Ha, et al., 2023). Before writing, they need to analyze the task, establish goals, activate relevant knowledge, and develop an appropriate plan (Hwang, 2025). During writing, they must monitor the development of their ideas, organization, language use, and progress toward their goals. After producing a draft, they need to evaluate its quality, identify weaknesses, and revise the text accordingly (de la Fuente, et al., 2021). Thus, academic writing can be conceptualized not simply as a linguistic product but as a dynamic self-regulatory process.

Despite the importance of self-regulation, many EFL writing classrooms remain predominantly product-oriented. Instruction frequently emphasizes grammatical accuracy, vocabulary development, model texts, and teacher correction, while providing comparatively limited opportunities for learners to develop systematic strategies for managing their own writing processes (Sahin & Yavuz, 2025; Kim, et al., 2021). In such contexts, learners may become dependent on teacher feedback and correction and may have difficulty identifying their own problems or selecting appropriate strategies for solving them. A learner may recognize that a written text is weak but may not know how to diagnose the source of the problem, establish priorities for revision, or monitor whether changes have improved the text (Ke & Zhou, 2024; Rea, et al., 2022). Self-regulation strategy instruction offers a potential response to this challenge by explicitly teaching learners how to take greater control over the writing process (Kalmendal, et al., 2024; Wang, et al., 2023).

Self-regulation strategy instruction typically involves systematic training in strategies such as goal setting, task analysis, planning, self-monitoring, self-instruction, strategy selection, self-evaluation, and self-reflection (Backers & Van Keer, 2025; Sabaliauskas, et al., 2025). Rather than assuming that learners will naturally develop these processes through repeated writing practice, explicit instruction makes the processes visible and teachable (Ateş Akdeniz, 2022). Learners can be guided to establish specific writing goals, divide complex writing tasks into manageable stages, monitor their progress, evaluate their drafts against predetermined criteria, and reflect on the effectiveness of the strategies they have used (Cunha, et al., 2023). Through repeated practice, these strategies may gradually become internalized, enabling learners to approach academic writing more independently and strategically.

An important outcome that may accompany the development of self-regulatory writing strategies is writing self-efficacy. Self-efficacy refers to learners' beliefs about their capability to successfully perform particular tasks (Egele, et al., 2025). In academic writing, self-efficacy concerns learners' perceptions of their ability to generate and organize ideas, use appropriate language, complete writing tasks, revise their work, and overcome writing difficulties (Skar, et al., 2023; Chen, et al., 2026; Cheng, et al., 2026). These beliefs are important because learners' judgments of their writing capabilities can influence the goals they establish, the effort they invest, their persistence when encountering difficulties, and their willingness to engage in challenging writing tasks. Learners with stronger writing self-efficacy may be more willing to attempt complex assignments and persist through multiple stages of drafting and revision, whereas learners with low self-efficacy may avoid difficult tasks, experience greater uncertainty, or abandon writing tasks when problems emerge (Tsao, 2021; Allagui, 2024).

The relationship between self-regulation and self-efficacy is potentially reciprocal. Learners' beliefs about their writing capabilities can influence their willingness to employ self-regulatory strategies, while successful use of such strategies can generate mastery experiences that strengthen self-efficacy (Chen, et al., 2026). For example, a learner who learns to divide a complex academic writing assignment into manageable stages may experience greater control over the task (Skar, et al., 2023). Successful completion of each stage can increase confidence and encourage the learner to apply similar strategies to future writing tasks (Cheng, et al., 2026; Zhang, 2024). Consequently, an instructional intervention that simultaneously develops strategic regulation and provides learners with opportunities for successful performance may contribute to both improved writing outcomes and stronger writing self-efficacy.

From a theoretical perspective, learning is the product of reciprocal interactions among personal factors, behavior, and environmental conditions (Nuske, et al., 2020). Within this framework, learners are not passive recipients of instruction; rather, they actively regulate their behavior in relation to goals and feedback. Writing provides a particularly appropriate context for examining this process because it involves repeated cycles of

planning, performance, feedback, revision, and evaluation (Karlen, et al., 2021). When learners are explicitly taught to regulate these cycles, they may become increasingly capable of managing their writing independently.

Although previous research has provided evidence that strategy-based instruction can improve aspects of second- and foreign-language writing (Chen, et al., 2025; Tsiriotakis, et al., 2017), several issues remain insufficiently addressed. First, much of the existing literature has focused primarily on writing performance, while less attention has been given to the motivational dimension of writing, particularly writing self-efficacy. Second, studies that examine self-regulated learning in EFL contexts have frequently treated strategy use as an individual learner characteristic rather than investigating whether self-regulatory processes can be deliberately developed through structured instruction. Third, there remains a need for experimental evidence examining whether improvements in writing performance and writing self-efficacy can occur simultaneously following a coherent self-regulation intervention. Addressing these issues may contribute to a more comprehensive understanding of how strategic and motivational dimensions of EFL writing interact.

The present study therefore focuses specifically on the effects of self-regulation strategy instruction on EFL learners' academic writing performance and writing self-efficacy. In contrast to conventional writing instruction, the intervention is designed to explicitly engage learners in the processes of planning, goal setting, monitoring, strategy selection, self-evaluation, and reflection throughout academic writing tasks. The study examines not only whether learners produce higher-quality academic texts following the intervention but also whether they develop stronger beliefs regarding their ability to perform writing tasks successfully.

The significance of the present study is both theoretical and pedagogical. Theoretically, it contributes to the literature by examining self-regulation as a mechanism linking strategic writing behavior with both performance and motivational beliefs. Pedagogically, the study may provide EFL teachers with an instructional framework that moves beyond correcting learners' written products toward developing learners' capacity to regulate the processes through which those products are produced. Such an approach may be particularly valuable in academic contexts where learners are expected to become increasingly independent writers capable of planning, monitoring, revising, and evaluating their own work.

Accordingly, the present study aims to determine whether EFL learners who receive explicit self-regulation strategy instruction demonstrate significantly greater academic writing performance and writing self-efficacy than learners receiving conventional writing instruction. It is hypothesized that learners exposed to self-regulation strategy instruction will show greater improvement in both outcomes than those in the control condition. By examining these two outcomes together, the study seeks to determine whether systematic development of self-regulatory writing processes can simultaneously enhance what EFL learners produce in academic writing and what they believe they are capable of producing.

Methods

Research Design

A randomized experimental pretest–posttest control-group design was employed to examine the effects of self-regulation strategy instruction on EFL learners' academic writing performance and writing self-efficacy.

Participants

The participants were 72 intermediate-level EFL learners recruited from private English-language institutes in Tehran. Participants were between 18 and 25 years of age and had studied English for at least three years. Their English proficiency was determined using a standardized placement test administered before recruitment. Participants were eligible if they (a) were adult EFL learners, (b) demonstrated intermediate English proficiency, (c) had no extensive experience studying in an English-speaking country, (d) had not participated in formal self-regulated writing strategy training during the previous year, and (e) regularly attended the instructional sessions. Learners were excluded if they reported a diagnosed language or learning disorder that could substantially influence writing performance or if they had extensive academic writing experience in English. After eligibility screening, the 72 participants were randomly assigned to either the self-regulation strategy instruction group ($n = 36$) or the conventional writing instruction group ($n = 36$). Randomization was conducted using a computer-generated random sequence. An independent researcher who was not involved in instruction generated the allocation sequence, while participants were enrolled and assigned after baseline assessment.

Sample Size Determination

An a priori power analysis was conducted using G*Power 3.1.9.7 to determine the minimum sample size required for detecting a meaningful between-group difference. The calculation was based on an ANCOVA model with two groups, one covariate, an anticipated medium effect size ($f = 0.25$), an alpha level of .05, and statistical power of .80. The analysis indicated that approximately 64 participants would be required. To compensate for potential attrition and incomplete responses, the target sample was increased to 72 participants,

with 36 learners allocated to each condition. The final sample therefore exceeded the minimum number required by the power analysis.

Instruments

English Proficiency Measure: A standardized English proficiency test was administered to ensure that participants had comparable intermediate-level proficiency. The test assessed major components of English language competence, including vocabulary, grammar, reading comprehension, and language use. Participants whose scores fell outside the predetermined intermediate range were excluded from the study. The proficiency measure was administered before randomization and was used primarily for participant screening rather than as an outcome measure.

Academic Writing Performance: Academic writing performance was assessed using two parallel academic writing tasks administered at pretest and posttest. Participants were asked to produce an approximately 300–350-word argumentative essay in response to an age-appropriate academic topic. Different but equivalent prompts were used at pretest and posttest to minimize practice effects. The essays were evaluated using an analytic writing rubric covering five dimensions including content and development, organization and coherence, vocabulary, grammar and language accuracy, and mechanics. Each dimension was scored on a five-point scale, producing a total score ranging from 5 to 25. Higher scores indicated stronger academic writing performance. To establish content validity, the rubric was reviewed by three experts in applied linguistics and EFL writing. The experts evaluated the relevance, clarity, and appropriateness of the criteria for intermediate EFL learners. Necessary revisions were incorporated before the main study. For inter-rater reliability, two trained EFL instructors independently scored all essays while being blind to participants' group membership and measurement occasion. Inter-rater agreement was assessed using the intraclass correlation coefficient (ICC). An ICC value above .80 was considered evidence of satisfactory scoring reliability. In addition, a subset of essays was rescored after a two-week interval to examine intra-rater consistency.

Writing Self-Efficacy: Writing self-efficacy was assessed using a validated EFL writing self-efficacy questionnaire. The instrument measured learners' perceived capability to successfully perform academic writing tasks, including generating ideas, organizing arguments, using appropriate vocabulary and grammar, revising drafts, and completing writing assignments independently. Items were rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher total scores represented stronger writing self-efficacy. Before the main analysis, the psychometric properties of the instrument were examined in the present sample. Internal consistency was evaluated using Cronbach's alpha and McDonald's omega, with values $\geq .70$ considered acceptable. Construct validity was examined through confirmatory factor analysis (CFA). Factor loadings of $\geq .50$ were considered satisfactory. Convergent validity was evaluated using average variance extracted (AVE), with values $\geq .50$ considered acceptable, while composite reliability (CR) values $\geq .70$ were interpreted as evidence of satisfactory construct reliability.

Self-Regulation Strategy Instruction Intervention

The intervention was implemented over 8 weeks, with two 90-minute sessions per week, resulting in 16 instructional sessions. The experimental group received explicit instruction in self-regulation strategies integrated into academic writing tasks. The instructional program was structured around three interconnected phases of self-regulated writing. In first phase (i.e., forethought and planning), the learners were taught to analyze writing prompts, identify task requirements, establish specific writing goals, activate prior knowledge, brainstorm ideas, determine the intended audience, and develop an outline before drafting. Teachers explicitly modeled how effective writers transform a broad writing task into manageable objectives. In second phase (i.e., performance and monitoring), the learners were trained to monitor their progress toward writing goals, evaluate the relevance and organization of their ideas, monitor vocabulary and grammatical choices, and identify weaknesses in coherence and argument development. Self-questioning and self-instruction strategies were incorporated to encourage learners to become active monitors of their writing. Then, in third phase (i.e., self-evaluation and reflection phase), after completing a draft, learners evaluated their writing using structured checklists and rubric-based criteria. They were trained to identify strengths and weaknesses, prioritize revisions, compare their performance with their initial goals, and reflect on the effectiveness of the strategies they had employed. The intervention progressively transferred responsibility from the teacher to the learners. Early sessions involved substantial teacher modeling and guided practice, whereas later sessions emphasized independent strategy selection, self-monitoring, revision, and reflection.

Control Condition

Participants in the control group received conventional academic writing instruction for the same 8-week period and with the same total instructional time as the experimental group. Instruction focused on conventional writing activities, including essay structure, vocabulary, grammar, paragraph development, teacher explanations, writing practice, and corrective feedback. Importantly, the control group did not receive systematic instruction in

self-regulation strategies such as goal setting, self-monitoring, self-evaluation, or structured reflection. Both groups completed comparable academic writing assignments and received equivalent exposure to English-language writing practice.

Intervention Fidelity

To ensure consistency of implementation, the instructional program was delivered using standardized lesson plans. The instructor received training before the intervention and followed a session-by-session instructional protocol. Approximately 25% of instructional sessions were observed by an independent researcher using a fidelity checklist assessing adherence to the prescribed instructional procedures. The checklist included indicators related to explicit strategy explanation, teacher modeling, guided practice, learner strategy use, self-monitoring, self-evaluation, and reflection. Fidelity exceeding 90% was considered satisfactory. Attendance was recorded at every session. Participants who attended fewer than 80% of the instructional sessions were considered insufficiently exposed to the intervention and were excluded from the per-protocol analysis. The primary analysis, however, followed an intention-to-treat principle where feasible.

Procedure

Data collection occurred in four stages. First, potential participants completed the English proficiency screening and demographic questionnaire. Eligible learners then completed the pretest measures of academic writing performance and writing self-efficacy. Second, participants were randomly assigned to the experimental or control group. The two groups were comparable in terms of instructional duration, session frequency, and overall writing practice. Third, the intervention was implemented over eight weeks. Both groups completed writing assignments throughout the intervention, but only the experimental group received explicit self-regulation strategy instruction. Finally, immediately after completion of the intervention, participants completed the posttest writing task and writing self-efficacy questionnaire. The posttest writing task was evaluated by raters who were unaware of participants' experimental condition.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 29. Descriptive statistics, including means, standard deviations, skewness, and kurtosis, were calculated for all study variables. Data screening included examination of missing values, outliers, and assumptions of normality. The normality of the outcome variables was examined using skewness and kurtosis statistics and the Shapiro–Wilk test. Homogeneity of variance was examined using Levene's test. The assumption of linearity and homogeneity of regression slopes was also evaluated before conducting ANCOVA. Independent-samples *t*-tests and chi-square tests were used to examine whether the two groups differed significantly in baseline demographic characteristics. Analysis of covariance (ANCOVA) was then conducted separately for academic writing performance and writing self-efficacy, with posttest scores as dependent variables, instructional condition as the independent variable, and corresponding pretest scores as covariates. For each ANCOVA, adjusted group means, *F* statistics, *p* values, and partial eta squared (η^2) were reported. Effect sizes were interpreted according to conventional criteria, with approximately .01, .06, and .14 representing small, medium, and large effects, respectively. A statistical significance level of $\alpha = .05$ was used for all analyses. Where appropriate, 95% confidence intervals were reported to provide additional information about the precision of the estimated intervention effects.

Results

Participant Characteristics and Preliminary Analyses

A total of 72 intermediate EFL learners participated in the study. Participants were randomly assigned to either the self-regulation strategy instruction group ($n = 36$) or the conventional writing instruction group ($n = 36$). All participants completed both the pretest and posttest assessments, and no participant was excluded because of excessive absenteeism or incomplete data. The experimental group had a mean age of 21.72 years ($SD = 2.31$), whereas the control group had a mean age of 22.03 years ($SD = 2.47$). The two groups were also comparable in terms of gender, years of English study, and previous academic writing experience. Independent-samples *t*-tests indicated no significant between-group differences in age, years of English learning, or prior writing experience (all $p > .05$). Similarly, the chi-square test showed no significant difference in gender distribution between the groups ($p > .05$). These findings indicated that the randomization procedure produced broadly comparable groups before the intervention.

Table 1. Demographic Characteristics of Participants

Variable	Self-Regulation Group ($n = 36$)	Control Group ($n = 36$)	t/χ^2	p
Age (years), $M \pm SD$	21.72 $\pm$ 2.31	22.03 $\pm$ 2.47	-0.55	.585

Variable	Self-Regulation Group (<i>n</i> = 36)	Control Group (<i>n</i> = 36)	<i>t</i> / χ^2	<i>p</i>
Years of English study, <i>M</i> $\pm$ <i>SD</i>	5.81 $\pm$ 1.42	5.94 $\pm$ 1.51	-0.38	.705
Previous academic writing experience (years), <i>M</i> $\pm$ <i>SD</i>	1.36 $\pm$ 0.72	1.42 $\pm$ 0.69	-0.36	.722
Female, <i>n</i> (%)	21 (58.3)	20 (55.6)	0.056	.813
Male, <i>n</i> (%)	15 (41.7)	16 (44.4)		

Preliminary Analysis and Assumption Testing

Before conducting the primary analyses, the data were screened for missing values, extreme observations, and violations of statistical assumptions. No substantial missing data were identified, and examination of standardized scores did not reveal problematic outliers. Skewness and kurtosis values for academic writing performance and writing self-efficacy fell within the acceptable range of ± 2.00 . Shapiro–Wilk tests also indicated no significant departure from normality ($p > .05$). Levene’s tests demonstrated that the assumption of homogeneity of variance was satisfied for both outcome variables ($p > .05$). The homogeneity-of-regression-slopes assumption was also examined before ANCOVA. The interaction between the pretest covariate and instructional condition was nonsignificant for both academic writing performance ($p = .421$) and writing self-efficacy ($p = .337$), indicating that the relationship between pretest and posttest scores did not differ significantly across the two instructional conditions. Therefore, ANCOVA was considered appropriate for evaluating the intervention effects (Table 1).

Descriptive Statistics for the Study Variables

Table 2 presents the means and standard deviations for academic writing performance and writing self-efficacy at pretest and posttest. At baseline, the two groups demonstrated relatively similar academic writing performance. The self-regulation group obtained a mean writing score of 15.42 ($SD = 2.31$), compared with 15.27 ($SD = 2.46$) in the control group. Following the intervention, the mean score increased to 20.81 ($SD = 2.17$) in the self-regulation group, whereas the control group showed a smaller increase to 17.34 ($SD = 2.51$). A similar pattern was observed for writing self-efficacy. The experimental group increased from a pretest mean of 3.02 ($SD = 0.47$) to a posttest mean of 3.91 ($SD = 0.43$), while the control group increased from 3.05 ($SD = 0.49$) to 3.34 ($SD = 0.46$).

Table 2. Means and Standard Deviations of Academic Writing Performance and Writing Self-Efficacy

Variable	Time	Self-Regulation Group	Control Group
Academic writing performance	Pretest	15.42 $\pm$ 2.31	15.27 $\pm$ 2.46
	Posttest	20.81 $\pm$ 2.17	17.34 $\pm$ 2.51
Writing self-efficacy	Pretest	3.02 $\pm$ 0.47	3.05 $\pm$ 0.49
	Posttest	3.91 $\pm$ 0.43	3.34 $\pm$ 0.46

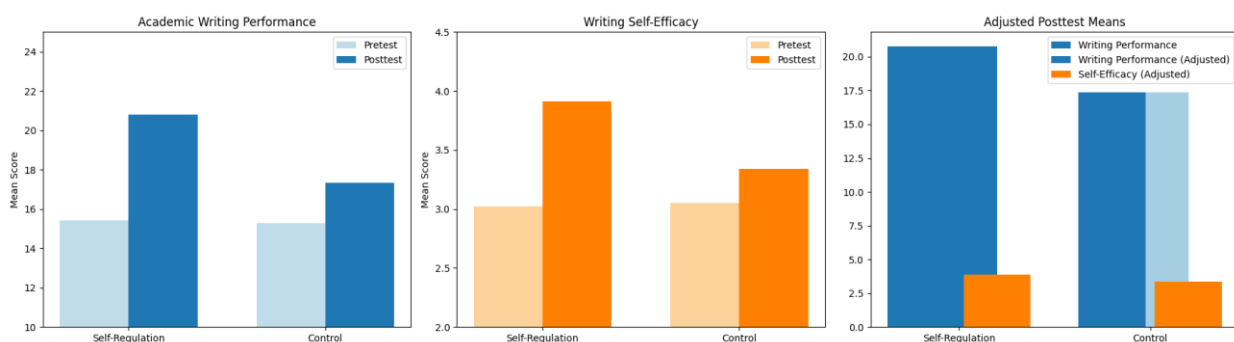


Figure 1. Effects of Self-Regulation Strategy Instruction on Academic Writing Performance and Writing Self-Efficacy. (A) Mean pretest and posttest scores for academic writing performance. (B) Mean pretest and posttest scores for writing self-efficacy. (C) Adjusted posttest means for both outcomes based on ANCOVA, showing higher scores in the self-regulation group than in the control group. Error bars represent standard errors of the mean.

Reliability and Validity of the Writing Self-Efficacy Measure

The internal consistency of the writing self-efficacy questionnaire was satisfactory. Cronbach’s alpha and McDonald’s omega were .91 and .92, respectively, indicating high internal consistency. Confirmatory factor analysis supported the hypothesized measurement structure. Standardized factor loadings ranged from .61 to .87,

and all loadings were statistically significant ($p < .001$). The model demonstrated acceptable fit, with $\chi^2/df = 1.84$, CFI = .94, TLI = .93, RMSEA = .061, and SRMR = .052. The AVE was .57, while composite reliability was .92, providing evidence for adequate convergent validity and construct reliability. These findings supported the use of the instrument for assessing writing self-efficacy in the present sample.

Effects of Self-Regulation Strategy Instruction on Academic Writing Performance

An ANCOVA was conducted to determine whether the self-regulation strategy instruction produced a significant difference in posttest academic writing performance after controlling for pretest scores. The analysis revealed a significant effect of instructional condition, $F(1, 69) = 18.42$, $p < .001$, partial $\eta^2 = .211$. The adjusted posttest mean was substantially higher for the self-regulation group ($M_{adjusted} = 20.79$) than for the control group ($M_{adjusted} = 17.36$). The effect size was large according to conventional criteria, indicating that instructional condition accounted for approximately 21.1% of the adjusted variance in post-intervention academic writing performance. Thus, participants receiving explicit self-regulation strategy instruction demonstrated significantly greater improvement in academic writing performance than participants receiving conventional writing instruction (Table 3).

Effects of Self-Regulation Strategy Instruction on Writing Self-Efficacy

A second ANCOVA was conducted to examine the effect of instructional condition on posttest writing self-efficacy while controlling for pretest self-efficacy. The results demonstrated a statistically significant effect of instructional condition, $F(1, 69) = 24.67$, $p < .001$, partial $\eta^2 = .263$. The adjusted posttest mean for the self-regulation group ($M_{adjusted} = 3.90$) was significantly higher than that of the control group ($M_{adjusted} = 3.35$). The partial η^2 value of .263 indicated a large intervention effect, with approximately 26.3% of the adjusted variance in post-intervention writing self-efficacy attributable to instructional condition. Therefore, learners who participated in self-regulation strategy instruction developed significantly stronger beliefs in their academic writing capabilities than learners in the conventional instruction group (Table 3).

Table 3. ANCOVA Results for Academic Writing Performance and Writing Self-Efficacy

Dependent Variable	Source	$F(1, 69)$	p	Partial η^2	Adjusted M Experimental	Adjusted M Control
Academic writing performance	Group	18.42	< .001	.211	20.79	17.36
Writing self-efficacy	Group	24.67	< .001	.263	3.90	3.35

Effect Size and Confidence Intervals

To further assess the practical significance of the intervention, standardized between-group effect sizes were calculated using Cohen's d . The difference between the two groups at posttest corresponded to a large effect for academic writing performance ($d = 1.46$, 95% CI [0.94, 1.98]) and a large effect for writing self-efficacy ($d = 1.21$, 95% CI [0.73, 1.69]). These results indicate that the observed differences were not only statistically significant but also practically meaningful. The magnitude of the effects suggests that self-regulation strategy instruction produced substantial improvements in both the quality of learners' academic writing and their confidence in their writing capabilities (Table 4).

Table 4. Effect Sizes for the Intervention Outcomes

Outcome	Cohen's d	95% CI	Interpretation
Academic writing performance	1.46	0.94–1.98	Large
Writing self-efficacy	1.21	0.73–1.69	Large

Discussion

The present study examined the effects of self-regulation strategy instruction on EFL learners' academic writing performance and writing self-efficacy. The findings provided clear evidence that systematic instruction in self-regulatory strategies can produce meaningful improvements in both learners' writing performance and their perceptions of their own writing capabilities. After controlling for pretest scores, learners who received self-regulation strategy instruction significantly outperformed those receiving conventional writing instruction in academic writing performance. A similarly significant advantage was observed for writing self-efficacy. Importantly, the magnitude of the effects was large for both outcomes, suggesting that the observed differences were not merely statistically significant but also educationally meaningful.

The first major finding was that the self-regulation group demonstrated significantly higher academic writing performance at posttest than the control group. This finding suggests that learners who were explicitly

taught how to regulate their writing processes were better able to produce effective academic texts than learners who participated in conventional writing instruction (Skar, et al., 2023). One possible explanation is that academic writing is not simply a linguistic activity but a complex cognitive process requiring learners to coordinate multiple subprocesses. EFL learners must generate and organize ideas, select appropriate vocabulary and grammatical structures, establish coherence and cohesion, monitor their developing text, identify weaknesses, and revise their writing accordingly (Hwang, 2025). Without appropriate strategic support, learners may devote most of their attention to sentence-level accuracy and have difficulty managing the broader demands of academic composition. Self-regulation strategy instruction may help learners transform writing from a relatively unstructured activity into a sequence of manageable and goal-directed processes (de la Fuente, et al., 2021).

The findings can be interpreted within the framework of Social Cognitive Theory. From this perspective, effective learners actively participate in their learning by setting goals, selecting strategies, monitoring their performance, evaluating outcomes, and modifying their behavior when necessary (Nuske, et al., 2020). In the present study, instruction emphasizing planning, goal setting, self-monitoring, self-evaluation, and reflection may have encouraged learners to assume greater responsibility for their writing processes. Rather than waiting for teacher correction after completing a text, learners were encouraged to monitor their own performance during the writing process and make strategic adjustments (Karlen, et al., 2021).

The present findings are also consistent with the broader literature on self-regulated writing. Research in second-language writing has increasingly emphasized that successful writers differ from less successful writers not only in their linguistic knowledge but also in their ability to regulate cognitive, motivational, and behavioral resources (Chen, et al., 2026; Cheng, et al., 2026; Zhang, 2024). Strategic writers tend to plan before writing, monitor the development of their ideas and language during composition, and evaluate and revise their work after writing. Explicit instruction may therefore be particularly valuable for EFL learners because many of these processes are not automatically developed through exposure to writing tasks alone.

A second important finding concerned writing self-efficacy. Learners in the self-regulation condition reported significantly greater posttest writing self-efficacy than those in the conventional instruction condition after controlling for baseline differences. Thus, the intervention appeared to influence not only what learners could do but also what they believed they could accomplish as writers. This finding is theoretically important because self-efficacy is closely connected to learners' willingness to engage with challenging tasks, persistence when difficulties arise, and strategic responses to failure (Egele, et al., 2025; Skar, et al., 2023; Chen, et al., 2026; Cheng, et al., 2026). Academic writing can be particularly threatening for EFL learners because it simultaneously requires linguistic accuracy, organization, critical thinking, and adherence to academic conventions. Learners with low writing self-efficacy may avoid difficult writing tasks, give up quickly when they encounter problems, or depend excessively on teacher feedback. By contrast, learners who develop stronger self-efficacy are more likely to interpret writing difficulties as challenges that can be addressed through strategic effort (Tsao, 2021; Allagui, 2024).

The improvement in self-efficacy may have resulted from the structure of the intervention itself. Self-regulation instruction typically provides learners with opportunities to establish realistic goals, divide complex tasks into manageable stages, monitor progress, and evaluate their own performance. Successful completion of these smaller tasks can provide learners with repeated experiences of mastery (Ateş Akdeniz, 2022). According to Albert Bandura, mastery experiences represent one of the strongest sources of self-efficacy. Therefore, the improvement in writing self-efficacy observed in the present study may partly reflect learners' increasing experience of successfully controlling and completing different stages of the writing process (Cheng, et al., 2026).

The relationship between writing performance and self-efficacy may also be reciprocal. As learners become more capable of planning, monitoring, and revising their writing, they may produce better texts. Successful performance can then strengthen their confidence in their writing abilities, which may subsequently encourage greater persistence and strategic engagement with future writing tasks. Consequently, the intervention may have initiated a positive cycle in which improved self-regulation contributed to improved writing performance, which in turn reinforced learners' writing self-efficacy (Skar, et al., 2023; Chen, et al., 2026).

Another important consideration is the difference between the self-regulation intervention and conventional writing instruction. Traditional writing instruction often places considerable emphasis on the final written product, including grammatical accuracy, vocabulary, organization, and teacher correction. Although these components are important, product-oriented instruction may provide relatively limited opportunities for learners to understand how successful writers approach the writing process (Backers & Van Keer, 2025; Sabaliauskas, et al., 2025). In contrast, self-regulation strategy instruction makes the underlying processes more visible. Learners are taught not only what constitutes a good academic text but also how to plan, monitor, evaluate, and revise their own writing.

The present findings therefore have important pedagogical implications for EFL writing instruction. Teachers should consider integrating self-regulation strategy instruction into regular academic writing courses

rather than treating writing as a product that can be improved primarily through correction. Before beginning a writing task, learners can be encouraged to identify the purpose of the assignment, analyze task requirements, establish specific goals, and develop an outline. During writing, they can use self-monitoring prompts to evaluate whether their ideas are sufficiently developed and appropriately connected. Following completion, learners can use structured self-evaluation checklists or rubrics to assess their work and identify areas requiring revision. Reflection activities can subsequently help learners determine which strategies were effective and which should be modified in future assignments.

The large effect sizes observed in the present study also suggest that self-regulation strategy instruction may have practical value beyond statistical significance. The effect size for academic writing performance ($d = 1.46$) and that for writing self-efficacy ($d = 1.21$) indicate substantial differences between the instructional conditions. Nevertheless, these estimates should be interpreted cautiously until replicated using larger and more diverse samples. Effect sizes obtained from relatively small samples may sometimes be unstable, and replication across different proficiency levels, educational contexts, and writing genres would strengthen confidence in the generalizability of the findings.

Several limitations should also be acknowledged. First, the sample consisted of 72 EFL learners, which limits the extent to which the findings can be generalized to broader populations. Second, the intervention was conducted over a relatively limited instructional period, making it difficult to determine whether the observed improvements would be maintained over the long term. Third, writing self-efficacy was assessed through self-report, and such measures may be influenced by response tendencies or participants' perceptions of the intervention. Future research could combine self-report measures with behavioral indicators of self-regulation, such as writing-process logs, think-aloud protocols, revision histories, or digital writing-trace data.

Another limitation concerns the use of a single posttest to evaluate academic writing performance. Although the writing assessment provides important evidence regarding intervention effectiveness, longitudinal follow-up assessments would provide stronger evidence concerning the durability of the learning gains. Future studies could also investigate whether self-regulation strategy instruction is equally effective across different writing genres, such as argumentative, expository, descriptive, and research-based academic writing.

Despite these limitations, the present findings provide meaningful evidence for the pedagogical value of self-regulation strategy instruction in EFL academic writing. The intervention improved both learners' actual writing performance and their confidence in their writing abilities, suggesting that effective writing instruction should address both cognitive performance and motivational processes. Rather than viewing writing competence as the simple accumulation of vocabulary and grammar knowledge, EFL educators may benefit from treating writing as a self-regulated process in which learners actively plan, monitor, evaluate, and revise their performance.

Conclusion

In conclusion, the findings indicate that self-regulation strategy instruction can substantially enhance EFL learners' academic writing performance and writing self-efficacy. The large effects observed for both outcomes suggest that teaching learners how to regulate the writing process may be an effective complement to conventional language and writing instruction. The study consequently supports a shift toward more learner-centered, process-oriented writing pedagogy in which learners gradually develop the strategic independence and self-confidence necessary for successful academic writing.

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