Gist Education and Learning Research Journal. ISSN 1692-5777.
No. 30 (January - June, 2025). pp. 121-155.

Enhancing Students' Writing Performance through Self-Regulated Learning Strategies

Mejorar el rendimiento de escritura de los estudiantes mediante estrategias de aprendizaje autorregulado

Zelalem Ayalew Abate[1]

Abiy Yigzaw[2]

Yinager Teklesellassie[3]

Bahir Dar University, Ethiopia

Received: February 11, 2025 / Accepted: June 24, 2025

[1] zelalema2009@gmail.com
[2] abiyyigzaw@yahoo.com
[3] yinagertekle61@gmail.com

Abstract

The fundamental goal of education is to teach students to become self-regulated learners who actively and efficiently manage their learning processes by deploying self-regulated learning strategies. Based on this stance, the present study investigated whether these strategies predicted the writing performance of English major students. Eleven students enrolled in the Advanced Writing Skills I course at Bahir Dar University in the 2024/2025 academic year participated in this study. An interrupted time-series within-group design, by which a single group is measured multiple times both before and after the intervention, was employed. Repeated measures of ANOVA, narration, and textual analysis were used to analyze the data obtained from argumentative writing tests, diary entries, and essay excerpts, respectively. A univariate ANOVA results ($F(2.295, 50) = 73.657$, $p < .05$, $\eta p^2 = .880$) revealed a significant effect of self-regulated learning strategies on writing performance. Moreover, diary entries indicated that the implementation of these strategies in EFL writing was effective in enhancing students' writing skills. These included organization (introduction, body, conclusion, formulation of thesis sentence), mechanics, grammar, and cohesion. Regarding their progress across time, significant improvements in writing skills were observed in the first diary compared to the baseline data. Significant progress was also reported in the second diary, surpassing previous records. Additionally, textual analysis of the essays supported the finding that students made significant progress in their writing performance after the intervention. The students indeed believed that the instruction on self-regulated learning strategies was motivating, encouraging, commendable, and loving. Thus, the instructional process needs to incorporate these strategies along with the micro-analytic protocols.

Keywords: English major students, instruction, micro-analytic protocols, self-regulated learning strategies, writing performance

Resumen

El objetivo fundamental de la educación es enseñar a los estudiantes a convertirse en aprendices autorregulados que gestionen activa y eficientemente sus procesos de aprendizaje mediante el uso de estrategias de autorregulación. Con base en esta perspectiva, el presente estudio investigó si dichas estrategias predecían el desempeño en escritura de estudiantes de la carrera de inglés. Participaron once estudiantes matriculados en el curso Advanced Writing Skills I de la Universidad de Bahir Dar en el año académico 2024/2025. Se empleó un diseño de series temporales interrumpidas dentro de un solo grupo, en el que se realizaron mediciones múltiples antes y después de la intervención. Se usaron medidas repetidas de ANOVA, narración y análisis textual para analizar los datos obtenidos a partir de pruebas de escritura argumentativa, entradas de diario y fragmentos de ensayos, respectivamente. Los resultados del ANOVA univariado ($F(2.295, 50) = 73.657$, $p < .05$, $\eta p^2 = .880$) revelaron un efecto significativo de las estrategias de aprendizaje autorregulado sobre el rendimiento en escritura. Además, las entradas de diario indicaron que la implementación de estas estrategias en la escritura en inglés como lengua extranjera fue eficaz para mejorar las habilidades de escritura, incluyendo organización (introducción, desarrollo, conclusión, formulación de la tesis), mecánica, gramática y cohesión. En cuanto a su progreso en el tiempo, se observaron mejoras significativas en el primer diario

frente a los datos de referencia, y un progreso adicional en el segundo diario. El análisis textual de los ensayos también confirmó que los estudiantes mejoraron significativamente su desempeño en escritura después de la intervención. Los estudiantes consideraron que la enseñanza de estrategias de aprendizaje autorregulado fue motivadora, alentadora, encomiable y afectuosa. Por lo tanto, el proceso de enseñanza debe incorporar estas estrategias junto con los protocolos microanalíticos.

Palabras clave: estudiantes de inglés, enseñanza, protocolos microanalíticos, estrategias de autorregulación del aprendizaje, rendimiento en escritura.

Resumo

O objetivo fundamental da educação é ensinar os estudantes a se tornarem aprendizes autorregulados, que gerenciem de forma ativa e eficiente seus processos de aprendizagem por meio do uso de estratégias de autorregulação. Com base nessa perspectiva, o presente estudo investigou se essas estratégias prediziam o desempenho em escrita de estudantes do curso de Letras com habilitação em Inglês. Participaram do estudo onze estudantes matriculados na disciplina Advanced Writing Skills I da Universidade de Bahir Dar no ano letivo de 2024/2025. Foi utilizado um delineamento de séries temporais interrompidas com um único grupo, no qual os participantes foram avaliados várias vezes antes e depois da intervenção. Para analisar os dados obtidos por meio de testes de escrita argumentativa, entradas de diário e trechos de redações, foram utilizadas medidas repetidas de ANOVA, narração e análise textual, respectivamente. Os resultados da ANOVA univariada ($F(2.295, 50) = 73.657$, $p < .05$, $\eta p^2 = .880$) revelaram um efeito significativo das estratégias de aprendizagem autorregulada sobre o desempenho em escrita. Além disso, as entradas de diário indicaram que a implementação dessas estratégias na escrita em inglês como língua estrangeira foi eficaz para melhorar habilidades de escrita, incluindo organização (introdução, desenvolvimento, conclusão, formulação da tese), mecânica, gramática e coesão. Quanto ao progresso ao longo do tempo, foram observadas melhorias significativas no primeiro diário em comparação com os dados de linha de base, e avanços adicionais no segundo diário. A análise textual das redações também confirmou que os estudantes apresentaram progressos significativos no desempenho em escrita após a intervenção. Os estudantes consideraram que o ensino de estratégias de aprendizagem autorregulada foi motivador, encorajador, louvável e afetuoso. Portanto, o processo de ensino deve incorporar essas estratégias juntamente com os protocolos microanalíticos.

Palavras-chave: estudantes de licenciatura em inglês, ensino de escrita, protocolos microanalíticos, estratégias de aprendizagem autorregulada, desempenho na produção escrita.

Introduction

Education enables individuals to take responsibility and independence in their learning. It aims to teach students to become self-regulated learners who actively and efficiently manage their learning processes by deploying various self-regulated learning (SRL) strategies (Bandura, 1997; Essa, 2022; Zimmerman, 2002). This is because learning is "not something that can be done for students, rather it is something that is done by them" (Zimmerman et al., 1996, p. 22). This explanation underscores the importance of SRL, a self-regulatory process that enables learners to transform their mental capabilities into academic skills (Zimmerman, 2002), which is crucial for their lifelong learning pursuits (Bandura, 1997; DiBenedetto, 2018; Seli, 2019; Zimmerman et al., 1996).

SRL is an active, cyclical process by which learners set and plan learning goals and monitor, control, and regulate their cognitive, behavioral, and affective or motivational processes toward the attainment of these goals (Pintrich, 2000; Zimmerman, 1990; Zimmerman et al., 1996). A plethora of research indicated that the existence of SRL is realized through strategies (Goetz et al., 2013; Mahmoodi, 2014; Sirazieva et al., 2017; Su et al., 2018; Tomak, 2017; Weinstein et al., 2000; Yu, 2015; Zimmerman, 1986, 1989, 1990; Zumbrunn et al., 2011). Self-regulatory strategies refer to the actions or techniques students employ to manage and regulate their own cognitive, meta-cognitive, and motivational processes during writing (Zimmerman & Risemberg, 1997). Such strategies include self-evaluation, goal setting, planning, self-monitoring, time management, environmental structuring, and causal attribution, among others, which can be categorized into cognitive, meta-cognitive, social-behavioral, and motivational strategies (Yang et al., 2022).

The SRL strategies are linked with students' EFL/ESL writing. This is because writing depends on high levels of self-regulation (Graham & Harris, 2000; Harris & Graham, 2009; Harris et al., 2011, 2013; Naibaho, 2021; Santangelo et al., 2008). Describing its connection with SRL/strategies, Zimmerman and Risemberg (1997, p. 73) stated that becoming an "adept writer involves more than knowledge of vocabulary and grammar; it depends on high levels of personal regulation because writing activities are usually self-planned, self-initiated, and self-sustained." Harris et al. (2013) added that writing requires a flexible, goal-directed, and problem-solving process of self-regulation. It has also been contended that no writing takes place unless writing processes are orchestrated with the writers' personal, environmental, and behavioral self-regulatory processes (Graham & Harris, 1997, 2000). These explanations showed that EFL/ESL writing and SRL strategies are interconnected. Thus, the more students employ self-regulatory strategies, the more significant their writing progress will become (Kha & Yen, 2022).

In this regard, the instruction of these strategies highly benefits EFL/ESL learners in promoting their overall learning, particularly in writing. One of the benefits is that it allows learners to minimize writing challenges and increase their academic performance (Dembo & Eaton, 2000; Greene, 2018). The strategies also enable learners to engage in more independent learning efficiently (Cleary & Zimmerman, 2004; Dembo & Eaton, 2000; Zimmerman, 2002). Most significantly, these strategies are believed to achieve the desired academic goals students set at universities (Alegre, 2014; Rochmah, 2021). Sirazieva et al. (2017) emphasized the importance of SRL, as it is significant, particularly in the context of higher education. Therefore, accessing and utilizing a repertoire of self-regulatory strategies is essential (Dembo & Eaton, 2000) for effective writing.

Though the instruction of SRL strategies is essential to EFL/ESL writing, studies revealed that insufficient attention has been given to it (Ayele, 2017; Nodoushan, 2012; Ping & Hong, 2021; Sirazieva et al., 2017; Teng, 2022; Zimmerman, 2002; Zimmerman et al., 1996; Zimmerman & Risemberg, 1997). Ayele (2017), for example, stated that a very diminutive devotion has been given to SRL behaviors. Teng (2022) also noted that there has been a limited explicit application of self-regulatory strategies to develop specific skills, such as writing.

Research has also evidenced that most students were not aware of SRL, its processes, and its strategies (Matric, 2018; Zimmerman & Risemberg, 1997). This proposition has also been supported by Cleary and Zimmerman (2004), who found that students had limited background knowledge about effective strategies and a poor understanding of how to select, evaluate, and adapt them for use accordingly. They have also exhibited poor writing behavioral practices (Pajares & Schunk, 2002; Yulianawati, 2016) and a lack of preemptive planning, as well as low motivation in writing (Hammad, 2014).

Moreover, the findings of several studies at various levels, including tertiary and secondary classes, revealed that students had encountered difficulties while writing (Adugna, 2019; Assegdew, 2013; Dang et al., 2020; Hammad, 2014; Pajares & Schunk, 2002; Wale, 2021; Yulianawati, 2016; Zeleke, 2022). Adugna (2019) noted that English teachers either neglected writing lessons or employed a lecture method, resulting in students being unable to write grammatically meaningful sentences. Dang et al. (2020), and Wale (2021) also highlighted the issue that students at the tertiary level struggle with writing difficulties, including their inability to craft clear thesis statements, present convincing evidence, make clear claims, develop coherent ideas, offer strong refutations, write lexically rich, and grammatically accurate essays. Dang et al. (2020) noted that students often write essays without fully understanding their intended audiences. As for Assegdew (2013), students were unable to provide stronger refutations for their arguments, even after being exposed to genre-based instruction, and they found writing insuperable. As EFL/ESL professionals, we have observed students encountering difficulties in writing across various levels. They often

felt anxious and disliked writing activities. To this end, the student's performance in writing might have been attributed to self-regulatory processes.

From the explanations above, it is possible to demonstrate that there was a dearth of studies, yet at the same time, the need to apply SRL strategies in the writing context is evident. Much has been done beyond writing, particularly to know the extent of the strategies used and identify the most and the least widely used strategies across various disciplines (e.g., Aregu, 2013; Malpique et al., 2017; Mutmainnah, 2022; Tran, 2021; Yigzaw & Fentie, 2013; Zarei & Hatami, 2012). Such studies, however, were not conducted to predict the effects of SRL strategies on EFL/ESL writing.

Regarding the predictive effect of SRL strategies on promoting students' writing skills or performance, Alanazi (2020), and Teng and Huang (2019) noted that there have been a limited number of studies. Yet, within the field of L2, a reliable and comprehensive method of writing strategy instruction that bolsters such thoughtful selection and personalization of strategies has not existed (Hammad, 2014). The literature has shown that the majority of research on L2 writing strategies has been observational in nature. At the same time, insufficient attention has been given to examining the effects of strategy-based writing instruction with solid theoretical grounds (Teng, 2022).

As stated, a limited number of studies (Alanazi, 2020; Almazloum, 2018; Galbraith, 2014; Kizilcec et al., 2016; Rochmah, 2021; Sun & Wang, 2020; Teng & Huang, 2019) have been undertaken to see the predictive effects of SRL strategies on writing performance. Most of these studies (e.g., Sun & Wang, 2020; Teng & Huang, 2019) revealed that the strategies significantly predicted the writing proficiency of students. Specifically, Almazloum (2018) conducted a quasi-experimental study to investigate the impact of SRL on L2 writing and strategy use, finding that students who received SRL instruction significantly outperformed those who received regular instruction. This study aligns with the present study in terms of its design and grade level, where it was deployed; however, its purpose remains different.

While the findings for most of the studies above were promising, some studies (e.g., Galbraith, 2014; Kizilcec et al., 2016; Pelt, 2008, as cited in Emagnaw, 2019) showed that SRL strategies did not consistently predict students' writing performance positively. For example, Galbraith (2014) conducted a study to show how self-regulation writing strategies might improve secondary students' argumentative writing. Consequently, no significant difference was found in post-test scores between the treatment and comparison groups. Kizilcec et al. (2016) also reported that although most learners evaluated SRL strategies as very helpful, the intervention did not improve learning attainment in Massive Open Online Courses (MOOC). Additionally, Pelt (2008), as cited in Emagnaw (2019), acknowledged that there was no significant relationship between SRL and school performance.

Regardless of their findings, the above studies deviate from the present study in some ways. First, the strategies employed in these studies differ significantly from those in the current study. Second, most of these studies employed cross-cultural, cross-sectional, correlational designs (e.g., Rochmah, 2021), observational methods, and quantitative approaches. Third, many of these studies were not specifically on the L2 writing performance of university students. Fourth, it was also needed to replicate conflicting findings. After all, the methods and settings through which most of these studies were conducted varied from the intended method (i.e., mixed and quasi-experimental) and the setting of the present study.

Most importantly, although researchers have mentioned various SRL strategies, this study has employed the five-step self-regulatory cyclical micro-analytic framework adapted from Cleary et al. (2012). Although SRL is debated as to whether it is domain-specific, general, or both general and domain-specific (Aydan, 2025), the present study adopted the assumption of domain-specificity and employed selected SRL strategies. The framework was derived from Zimmerman's (2000) cyclical model, which is grounded in social-cognitive theory. This model centers SRL as a domain-specific trait, allowing learners to apply specific techniques, including goal-setting, strategic planning, self-monitoring, self-evaluation, and adaptive inference. Being informed that no further research has been conducted in this manner (Aydan, 2025), especially in the context of writing, the present study employed the aforementioned five SRL strategies to enhance students' writing performance.

In conclusion, despite researchers' attempts to enhance writing through various approaches other than SRL strategies, students continue to struggle with writing difficulties in both global and local contexts. Furthermore, no additional studies were conducted to investigate the impact of SRL strategies on students' writing performance. Such gaps call for a need to have explicit SRL strategies instruction. Accordingly, the present study attempted to examine whether instruction on self-regulatory strategies boosts students' argumentative essay writing skills and performance. This is because argumentative writing is one of the most important and demanding genres, especially at the university level (Dang et al., 2020). Aiming to address the gaps, this study tried to answer the following questions:

1. Does instruction in self-regulated learning strategies significantly affect the writing performance of English major students?

2. Do students demonstrate daily progress in writing a series of essays? If so, what are the major aspects of the improvement over time?

3. What are the students' perceptions regarding the impact and effectiveness of self-regulated learning strategies instruction on their writing development?

Literature Review

The Concept of SR/SRL

SRL is a multifaceted and intricate concept to define as it emerges from several theoretical perspectives. It involves processes that vary across researchers' theoretical backgrounds. For instance, cognitivists and constructivists define SRL based on covert and overt processes, respectively (Zimmerman, 1989, 1990).

SRL is the process of attaining learning goals through self-regulated thoughts and behaviors (Zimmerman et al., 1996; Schunk, 1989) and managing, regulating, and guiding students' cognition, motivation, and behavior (Seli, 2019; Macklem, 2015; Pintrich, 2000; Ramírez-Velásquez et al., 2025). According to Paris and Paris (2001), SRL, which is the integration of knowledge and willpower, enhances learning autonomy by controlling, monitoring, and regulating actions towards goals. As Zimmerman and Risemberg (1997) suggest, learning occurs when learners are meta-cognitively, motivationally, and behaviorally active agents who control personal, behavioral, and environmental factors during the learning process.

The Interplay: How SRL Affects EFL/ESL Writing?

Writing is "a socio-cognitive activity which involves skills in planning and drafting as well as knowledge of language, contexts, and audiences" (Hyland, 2002, p. 23). Describing the multifaceted nature of writing, Zimmerman and Risemberg (1997, p. 73) stated that becoming an "adept writer involves more than knowledge of vocabulary and grammar; it depends on high levels of personal regulation because writing activities are usually self-planned, self-initiated, and self-sustained." It is a complex skill that requires a flexible, goal-directed, and problem-solving process of self-regulation (Harris et al., 2013). These explanations indicated that SRL is crucial in helping learners stay planned, initiated, and sustained in writing activities.

Self-regulatory strategies in writing encompass the roles of social, motivational, behavioral, and cognitive processes, as writing is more than a literary expression of cognitive skills. It is a social cognitive process wherein writers must communicate with their readers. Communicating with readers, in turn, requires multiple processes, such as drafting, transcribing, and revising. A writer may not address such concerns to their readers due to poor writing environments, ineffective writing behavioral practices, low self-efficacy perceptions, and limited engagement in writing development activities. Hence, to achieve writing processes and outcomes, SRL plays a vital role in reducing the writing complexities mentioned so far (Zimmerman & Risemberg, 1997).

These authors also suggested that self-regulatory processes interact reciprocally during writing via an iterative feedback loop, which is used to monitor the effectiveness

of their self-regulatory strategies. In the SRL process, feedback is a key strategy to enhance writers' writing output. It is a bridge between writing and self-regulation.

In conclusion, it has been argued that writing occurs only when writing processes are coordinated with the writers' personal, environmental, and behavioral self-regulatory processes (Graham & Harris, 1997, 2000).

Theoretical Framework of the Study

As highlighted in the introduction, this study was guided by social-cognitive theory for some reasons. First, the social cognitive accounts of self-regulatory strategies and self-beliefs can be used as a vehicle to lessen the challenges of such multifaceted writing self-regulatory processes. Second, this theory is well suited for explaining the self-regulation of writing because it emphasizes reciprocal relations between triadic sources of self-regulatory influence (Zimmerman & Risemberg, 1997).

SRL, from a social-cognitive perspective, is defined as the attainment of personal writing goals through the planning and adaptation of self-generated thoughts and actions in a cyclical manner (Zimmerman, 2000). Zimmerman's (2000) cyclical SRL model guided this study particularly. The model comprises three interconnected phases: forethought and planning, performance and doing, and self-reflection (Panadero, 2017; Zimmerman, 2002).

The forethought and planning phase refers to the processes and beliefs that occur before efforts to learn. It is a stage where thinking about upcoming academic tasks, activities, or assignments and planning how to deal with them is involved (Wigfield et al., 2011; Zimmerman, 2000). It includes task analysis (goal setting and strategic planning) and self-motivation beliefs (e.g., intrinsic interest). The performance phase, which includes self-regulation (e.g., time management) and self-monitoring strategies (e.g., meta-cognitive monitoring), is a stage for monitoring how students are progressing and utilizing several self-regulation strategies to maintain cognitive engagement and motivation to complete the task (Panadero, 2017; Zimmerman, 2000). In the self-reflection phase, students assess how they have performed the task and make attributions about their success or failure (Panadero, 2017). It involves self-judgment (self-evaluation and causal attribution) and self-reaction (self-satisfaction and adaptive defense). (Zimmerman, 2000).

The SRL Strategies Vis-à-vis the Present Study

SRL strategies have been interchangeably used with SRL processes (e.g., Bembenutty et al., 2015), skills (e.g., Gunes, 2023), behaviors (e.g., Ayele, 2017), methods, actions, techniques (Zimmerman et al., 2015) as well as components, and activities. However,

these strategies are commonly defined as self-initiated methods or techniques that students use to self-control, self-manage, and self-regulate their own cognitive, meta-cognitive, and motivational processes, as well as environmental, behavioral, and personal factors during writing (Zimmerman & Risemberg, 1997).

To better understand SRL strategies, it is beneficial to ask the following questions: (1) "How cognitive, metacognitive, behavioral, and motivational processes of learning are regulated?" and (2) "How environmental, behavioral, and personal factors in learning are controlled?" It is through SRL strategies.

While the five-step SRL micro-analytic framework (i.e., goal-setting, planning, self-monitoring, self-evaluation, and adaptive inference) was adapted from Cleary et al. (2012), the self-regulatory micro-analytic protocols were adapted from Nilson (2023). These protocols are prompts or questions asked in each SRL strategy or phase regarding a specific task, such as writing performance in this case. Hence, under each strategy, specific questions are asked. (See the intervention).

When it comes to the concept of each strategy, goal setting is a personal or covert specification of the learning result (Zimmerman & Risemberg, 1997) and establishing a standard to serve as the aim of one's actions (Schunk, 2001). As for Bembenutty et al. (2015), strategic planning involves specifying a strategy for fulfilling a specific task, such as outlining while writing. Self-monitoring, often equated with self-observation or self-recording of various forms of written output, is a method for understanding when one is performing well or not (Bembenutty et al., 2015). Self-evaluation is not far from self-monitoring, but it differs from self-monitoring since exterior standards are used during evaluation (Harris et al., 2011). When evaluation takes place, students may revise through some processes, such as addition, deletion, substitution, and re-arrangement, so revision depends on self-evaluation (Harris et al., 2011; Bembenutty et al., 2015). Adaptive inference involves adapting or modifying strategies through feedback gained from the self-reflection phase to be used in the next phase (Bembenutty et al., 2015).

Conceptual Foundation

If students learn writing through SRL strategies, they will improve their planning, drafting, transcribing, and revising skills. When students set goals to write argumentative essays, they specify their learning outcomes and pursue selected strategies. Pursuing the strategies, they would self-monitor their writing progress. After self-monitoring, they would self-evaluate their performance. From their evaluation, they would adopt new learning options. Eventually, the students would attain their writing goals, which can be an indication of improved performance. Thus, the central conceptual assumption behind this study is that the five SRL strategies are highly intertwined with the writing process, aspects, and/or skills. Hence, the strategies are causal attributions of students' writing performance. Applying these strategies, students can be more focused and

endeavor to their optimal potential in order to reach the expected learning outcomes. In sum, the better students utilize these strategies, the better they will become in their writing performance and skills, including organization, development, accuracy, flow of ideas, word power, and mechanical aspects.

Research Methodology

The Research Method and Design

This study employed mixed methods research. While the quantitative method numerically determined the effect of SRL strategies on writing performance, the qualitative one explored students' writing progress over time and their perceptions regarding the impact and effectiveness of these strategies in instruction. Considering this method, an interrupted time-series within-group design, a type of quasi-experimental design, was employed. In this design, a single group is measured multiple times both before and after the intervention.

Participants of the Study

This study was conducted at Bahir Dar University. Third-year English language majoring undergraduate regular students were targeted for this study. The participants consisted of eleven students enrolled in the Advanced Writing Skills I course. This sample size accurately reflected the typical class sizes of English majors across universities in Ethiopia. Moreover, smaller sample sizes may be more appropriately examined using a time-series design, which allows for repeated measurement of the same participants and enables thorough analysis of individual progress over time. The institution and the class were purposely selected because it had a larger sample size compared to other universities around. While the individual participants for the writing test were comprehensively recorded and numbered (Student 1 through Student 11), the participants for the diary entry and essay excerpts were randomly assigned and pseudonymously identified.

Data Gathering Instruments

Essay Writing Tests

The writing test was one of the data-gathering tools used in this study. It was applied to examine the effect of SRL strategies instruction on students' argumentative writing performance. For this purpose, each student wrote six argumentative essays: three before and three after the intervention. The pre-intervention tests aimed to

assess the students' baseline essay writing performance, while the post-intervention tests sought to determine whether the implementation of SRL strategies brought significant improvements in students' writing performance. Both the pre-tests and post-tests were self-made and validated.

Regarding the validity of writing topics, a pilot study was conducted, and important lessons were taken. Additionally, two EFL instructors evaluated the face and content validity of the topics, thoroughly examining the difficulty level, contextual relevance, and structures or styles of the topics. Then, the topics were amended accordingly. These argumentative topics included issues such as murder, school uniforms, and online learning.

To score the pre-test and post-test results, an analytic writing-scoring rubric for academic essays, adopted from Fisne et al. (2022), was used. This scoring rubric involved seven criteria (i.e., organization, content, coherence, cohesion, grammar, vocabulary, and mechanics) and 16 sub-criteria that aim to measure essay writing skills and aspects. The sub-criteria included the title of the essay, introduction, body, conclusion, thesis statement, topic sentence, supporting sentence, appropriate length, topic relevance, idea development, coherence, linking, grammatical accuracy, syntactic complexity, word choice, lexical range, spelling, and punctuation. Fisne et al. (2022) noted that this tool is reliable and valid for measuring L2 academic writing performance. They indicated, for example, that it is reliable at $\omega = .97$.

The scoring rubric had four bands ranging from four to zero (4 to 0). Based on the criteria provided, an L2 instructor was given a brief orientation and marked the tests. When students, for example, showed substantial, adequate, partial, small, or poor writing performance regarding coherence, they were assigned scores of four, three, two, one, and zero, respectively. The exact process was applied to all scoring rubrics.

Diary Entry

This study employed diary entry as a second data collection method to triangulate the findings from argumentative writing tests and textual analysis. While all the students noted diary entries, only six students were considered for this purpose. Accordingly, two diary entries were collected from each participant: one a week after the SRL strategies intervention began and another a week before the intervention was completed. Guiding points were provided for diary entries, and the students were made to use the slogan, *"I could be the master of my L2 writing."*

Before the guiding points were employed, they were validated by the two EFL instructors, and a pilot study was conducted. After careful consideration of expert feedback and pilot results, the learners' insights into the effectiveness of the instruction, the writing aspects or skills they improved over time, the difficulties they faced, the

mechanisms they employed, and the feedback they received were suggestive of involvement.

While taking diary entries, the students were asked to compare their existing progress with the past. Hence, the student's previous progress in essay writing was compared with the results of the two diary entries. Specifically, their background served as a baseline for comparison with the results of the first diary entry. Again, the first diary entry results, including their previous experience, served as a baseline for comparison with the second diary entry results and their previous experience. Taking this into account, diary entries were collected from (S1), (S2), (S3), (S5), (S9), and (S11). These students were pseudonymously named.

Excerpts of Argumentative Writing

To triangulate the findings from essay tests and diary entries, two argumentative essay excerpts from each of the four students were kept for textual analysis. Each student's essay written before the intervention was comparatively analyzed and interpreted with their essay after the intervention.

For the analysis, rhetorical, linguistic, and related writing features were considered. Rhetorical features included structure (introduction, body paragraphs, and conclusion), topic sentences, supporting sentences, thesis sentences, hook, background information, transitions, mechanical issues, and relevance of the content. Similarly, linguistic aspects included grammatical accuracy, such as sentence structure, verb tenses, subject-verb agreement, and pronoun use, as well as vocabulary power, including vocabulary diversity, word choice, and the appropriateness of academic language. In other words, students' essays were evaluated with the seven publicly used rubrics discussed so far. Guided by these standards, argumentative essay excerpts from (S1), (S2), (S5), and (S9) were considered for textual analysis.

Data Gathering and Intervention Procedures

While data gathering and intervention procedures were ongoing concurrently, instruction on SRL strategies for argumentative essay writing continued specifically for five weeks, starting from the beginning of November, 2024 academic year. The three argumentative essay tests were administered over three weeks, with each test given a week apart. Then, the SRL strategies intervention was made. During the intervention, diary entries were noted. Following the intervention, the three argumentative essay post-tests were administered over a period of three weeks. Besides, the essay excerpts were collected. Eventually, all the data was organized for analysis.

For the intervention process, the five-step self-regulatory micro-analytic framework, adapted from Cleary et al. (2012), was employed. This framework included goal-setting, strategic planning, self-monitoring, self-evaluation, and adaptive inference. Each strategy was employed along with the micro-analytic regulatory prompts adapted from Nilson (2023). Guided by this, the whole intervention procedure is elaborated as follows.

First, in the forethought phase, the students were encouraged and abetted to set their own goals concerning their argumentative writing. Setting their writing goals, the students were made to probe some questions. These included: What kind of task is this? What is my goal, and how will I know I have reached it? How much time and how many resources will be necessary to write my essay? What do I already know about the topic?

Second, to pursue their goals, students were asked to select specific strategies, such as reviewing, outlining, and listening to tutors, as well as related techniques, to meet the demands of each writing task. They were also asked questions such as What strategies should I use to write better? What strengths can I bring to the task? How can I compensate for my weaknesses in writing? What might interfere with my writing, and how can I prevent this interference?

Third, during the performance phase, students were guided to monitor their essay writing through self-monitoring prompts. These prompts included, Am I sure I know what I am doing? Does my approach to the writing task make sense? Am I making good progress toward my writing goal? How focused am I? How well are my strategies working? What changes in approach or strategies should I make, if any? How does what I am learning relate to what I already know? How does it relate to my writing experience or my future? How is my thinking on the topic changing? How much words I use to write an essay on a particular issue? How much errors I make to write an essay?

Fourth, after monitoring, the students were enthused to self-evaluate and reflect on their performance in writing argumentative essays. This was performed in the self-reflection phase. During the self-evaluation process, students were requested to revise their essays by adding, deleting, substituting, or rearranging ideas. This evaluation process was made based on self-evaluation protocols. Such protocols included how well did I achieve my writing goal? What can I recall, and what do I need to review? What were the most important points I learned/improved? What am I still having trouble understanding? What questions do I have to ask my instructor? How has my thinking on the topic changed? Which approaches and strategies worked well for my writing? Which didn't?

Fifth, after the students had evaluated and reflected on their writing performance, they were motivated to inquire about teacher-researcher-led or peer-led written or oral feedback regarding their argumentative essay. The feedback, along with their

reflection, then led them to adaptive inference, one of the self-reflection strategies used to strengthen or preserve the subsequent task. Hence, successful strategies were continued, while unsuccessful ones were altered or avoided for the next phase of consideration. Accordingly, returning to the forethought phase, each student assessed their performance or underwent a task analysis, which required them to reset or set new goals and plan the task strategically. Adaptive inference was applied based on feedback from self-evaluation, and both processes (i.e., adaptive inference and feedback) were integrated throughout the entire process. This process continued cyclically until the students achieved their goal(s) in writing argumentative essays.

For instance, when the students were asked to write an argumentative introductory paragraph titled *"Is killing a murderer immoral,"* they specifically set goals, such as writing a clear hook and a thesis statement. Setting such goals, they planned specific strategies, such as practicing and asking peers. Having specified the strategies, they attempted to write, checking whether they focused on the intended task, writing hook and thesis sentences. Afterward, they self-evaluated and self-reflected whether they achieved their goals, writing clear hooks and thesis sentences. Feedback has been necessarily provided. This evaluation led them to either preserve or modify their approach and use the inference for the next task. Students have rigorously worked on each task they were provided in the material.

In sum, each strategy was supported by employing SRL micro-analytic prompts. Moreover, the cyclical feedback loop encompassed the entire process. Based on these assumptions, the intervention process is outlined in Fig 1 below:

Figure 1
Intervention procedure of the study

Note: Adapted from Cleary et al. (2012)

Analysis Methods

To analyze the quantitative data, both descriptive and inferential statistics were computed. Descriptive statistics were calculated to examine the score differences of students across the six writing essay tests over time. Particularly, mean and standard deviation were calculated for this purpose.

However, these statistics did not allow for drawing any general conclusions that would extend beyond the sample, as fundamental statistical concepts could not be accurately estimated in such statistics. Therefore, inferential statistics were sought. In this regard, a repeated measures ANOVA was calculated to determine whether the independent variable (SRL strategies instruction) resulted in a significant change in the dependent variable (writing performance) across multiple time points. In other words, the mean scores of the same samples were compared multiple times for each dependent variable, both before and after the application of the independent variable, SRL strategies.

Prior to the analysis and interpretations, preliminary checks were performed to assess some basic assumptions for repeated measures of ANOVA. Thus, univariate normality, sphericity, independence of observations, and outliers were checked. Indeed, all these assumptions were typically met approximately.

To arrive at more accurate and unbiased conclusions, the quantitative data results were triangulated with qualitative ones. These responses were obtained through diary entry reports or reflections and essay excerpts. The data obtained through diary entry reports was better analyzed using narration. Textual analysis was also performed to analyze students' argumentative essay excerpts.

Results and Analysis

Quantitative results: Descriptive and inferential statistics

Descriptive results

The following table shows the mean and standard deviation of students' writing scores across the six writing tests.

Table 1
Descriptive Statistics

	Mean	Std. Deviation	N
Writing performance Pre-test 1	36.0455	5.17675	11
Writing performance Pre-test 2	35.3818	3.74188	11
Writing performance Pre-test 3	36.0364	4.07192	11
Writing performance post-test 1	49.0364	6.77706	11
Writing performance post-test 2	50.0000	6.17770	11
Writing performance post-test 3	51.6091	6.24987	11

The descriptive statistics in Table 1 exhibit that the mean and standard deviation scores for the participants' argumentative writing performance varied over time. The mean and standard deviation of students' writing performance test results before the intervention of SRL strategies were (pre-test-1, M = 36.05, SD = 5.18; pre-test-2, M = 35.38, SD = 3.74, and pre-test-3, M = 36.04, SD = 4.07). Similarly, the mean and standard deviation of students' writing performance test results after the intervention were (post-test-1, M = 49.04, SD = 6.78; post-test-2, M = 50.00, SD = 6.18, and post-test-3, M = 51.61, SD = 6.25). These results showed substantial differences between the pre-intervention and post-intervention scores. Thus, the findings across time indicated that the students showed writing progress and improved performance due to the specific SRL strategies employed. These results, however, did not draw general conclusions. Thus, the following inferential statistics were required.

Inferential results

Two forms of statistics were calculated for this purpose: Univariate tests and pairwise comparisons of repeated measures ANOVA. Before these analyses, *Mauchly's Test of Sphericity* was checked.

Table 2
Mauchly's Test of Sphericity

Measure: WP							
					Epsilon		
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	Df	Sig.	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	.083	20.192	14	.139	.459	.603	.200

Mauchly's Test of Sphericity is an important assumption to determine the most essential information used in the *Univariate Test*. Suppose the p-value of Mauchly's test of sphericity is less than the significance value ($p < .05$). In that case, it is assumed that the sphericity assumption is violated so that adjustment should be made through either Greenhouse-Geisser or Huynh-Feldt tests. Otherwise, if Mauchly's test is greater than .05, the sphericity assumption is not violated, so the *Sphericity Assumed* row is regarded as the most important information. The following table is based on the information provided above.

Table 3
Univariate Test: Effects of SRL Strategies Instruction on Students' Writing Performance (WP)

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	3458.915	5	691.783	73.657	.000	.880
	Greenhouse-Geisser	3458.915	2.295	1507.305	73.657	.000	.880
	Huynh-Feldt	3458.915	3.016	1146.685	73.657	.000	.880
	Lower-bound	3458.915	1.000	3458.915	73.657	.000	.880
Error (Time)	Sphericity Assumed	469.599	50	9.392			
	Greenhouse-Geisser	469.599	22.948	20.464			
	Huynh-Feldt	469.599	30.164	15.568			
	Lower-bound	469.599	10.000	46.960			

Based on the *Sphericity Assumed* row in Table 3, the univariate tests of repeated measures ANOVA ($F(5, 50) = 73.657$, $p = .000$, $\eta p^2 = .880$) revealed a significant effect of SRL strategies on writing performance. The $\eta p^2 = .880$ also indicated a larger effect size. This means that 88% of the variance in writing performance was due to the strategies instruction. These findings suggest that instruction on these strategies, combined with micro-analytic prompts, significantly enhanced students' writing performance. Hence, the strategies, namely goal setting, planning, self-monitoring, self-evaluation, and adaptive inference, were found to be effective in the teaching of EFL/ESL writing. The findings align with or differ from those of some previous studies (see the discussion). The ANOVA results, nevertheless, did not reveal the score variances among all pairs of comparisons. As a result, post hoc analysis of pairwise comparisons of students' writing scores was computed as follows.

Table 4
Pairwise Comparisons of Students' Writing Performance (WP) Scores

Measure: WP						
				95% Confidence Interval for Difference		
(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.b	Lower Bound	Upper Bound
1	2	.664	1.062	.546	-1.702	3.030
	3	.009	.682	.990	-1.510	1.528
	4	-12.991*	1.461	.000	-16.245	-9.737
	5	-13.955*	1.222	.000	-16.678	-11.231
	6	-15.564*	1.384	.000	-18.648	-12.480
2	1	-.664	1.062	.546	-3.030	1.702
	3	-.655	.807	.436	-2.453	1.143
	4	-13.655*	1.783	.000	-17.627	-9.682
	5	-14.618*	1.696	.000	-18.397	-10.839
	6	-16.227*	1.544	.000	-19.668	-12.786
3	1	-.009	.682	.990	-1.528	1.510
	2	.655	.807	.436	-1.143	2.453
	4	-13.000*	1.615	.000	-16.597	-9.403
	5	-13.964*	1.402	.000	-17.088	-10.840
	6	-15.573*	1.386	.000	-18.660	-12.485
4	1	12.991*	1.461	.000	9.737	16.245
	2	13.655*	1.783	.000	9.682	17.627
	3	13.000*	1.615	.000	9.403	16.597
	5	-.964	.970	.344	-3.126	1.198
	6	-2.573*	.971	.024	-4.736	-.410
5	1	13.955*	1.222	.000	11.231	16.678
	2	14.618*	1.696	.000	10.839	18.397
	3	13.964*	1.402	.000	10.840	17.088
	4	.964	.970	.344	-1.198	3.126
	6	-1.609	1.006	.141	-3.850	.631
6	1	15.564*	1.384	.000	12.480	18.648
	2	16.227*	1.544	.000	12.786	19.668
	3	15.573*	1.386	.000	12.485	18.660
	4	2.573*	.971	.024	.410	4.736
	5	1.609	1.006	.141	-.631	3.850

Based on estimated marginal means

No. 30 - ISSN 1692-5777

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

As Table 4 shows, a post hoc analysis was conducted to determine the extent of significance between multiple pairs of writing scores across multiple time points. The results of pairwise comparisons between all possible pairs of the within-subjects factor (Time) for the dependent variable (writing performance) were presented. The higher negative mean differences presented in the pre-tests indicate that the post-test measures are higher than the pre-test ones. Moreover, when the *p*-value is less than 0.05, it indicates a statistically significant difference; if not, it suggests no significant difference between the two-time points.

In this regard, pairwise comparisons revealed that there were significant differences between Time level I and Time level J, $p < .05$. In other words, most pairs of comparisons showed that there were significant differences in Time 2 (after intervention) than in Time 1 (before intervention) ($p < .05$). However, the differences were variable in each pair both before and after the intervention.

Specifically, except for the following pairs of pre-tests and post-tests, there were significant differences between all possible pairs of scores: pre-test 1 and pre-test 3, pre-test 2 and pre-test 3, post-test 1 and post-test 2, post-test 1 and post-test 3, and post-test 2 and post-test 3. While the highest difference was between pre-test 2 and post-test 3, indicating that the mean difference was $p < .05$, with a mean difference of ($M = -16.227^{*}$), 95% CI (-19.668, -12.786), the least was between pre-test 1 and pre-test 3, indicating that the mean difference was $p > .05$, with a mean difference of ($M = .009$), 95% CI (-1.510, 1.528).

These findings indicate that the mean scores of students in pairs of different comparisons before and after intervention are closely related. Furthermore, the findings revealed that the students' results after the intervention were significantly higher than their pre-intervention results. Hence, it is possible to infer that the intervention of SRL strategies positively affected students' writing performance.

To arrive at more concrete and unbiased conclusions, the quantitative data results above were substantiated with qualitative results through diary entries and essay excerpts. The following section presents these results.

Qualitative Results: Diary entry and Textual Analysis

Results of students' diary entries

Diary entry results showed that SRL strategies instruction meaningfully enhanced students' argumentative writing skills, including organization, cohesion, grammatical accuracy, development, mechanics, and vocabulary knowledge. In the analysis, it was observed that the students possessed different progress across various writing aspects. For example, the one who was relatively better at producing syntactically correct sentences was observed as incapable of organizing and developing ideas to compose essays.

In this regard, the results of the first diary entries indicated that various writing skills had improved fairly due to the employment of SRL strategies. Based on the diary entries, students (S1, S2, and S3) recounted that their syntactical accuracy had improved better than before. The first student (S1) uniquely reported making good progress in organizing his ideas, using grammatically improved expressions, and maintaining the logical flow of ideas in writing argumentative essays. Likewise, student (S3) said that he could minimize mechanical and grammatical problems after he had received feedback on the first essay. Knowing little in the past, he significantly improved his writing in the last diary entry. Student (S2) reported improved grammar and vocabulary practice. Student (S1) noted that organization and coherence were his takeaways, so he was able to arrange huge ideas and put them in their logical order.

While writing aspects have been fairly enhanced in the first move (diary 1), the second diary data revealed a significant move in argumentative essay writing. Four of the students (S1, S2, S3, and S11) reported that while argumentative writing was difficult before, it was not becoming difficult at that time, and it has since shown significant improvement. Having provided evidence, student (S1) said, "Argumentative writing is not difficult for me … Compared with my previous experience, my performance in terms of argumentative writing has been advanced in many ways. The strategies are helpful for monitoring ourselves." Student (S5) added that had been "… difficult or tough to write argumentative essay before, it is not difficult to me now…. It is being improved a lot and very much." In his words, student (S2) also explained, "It is not difficult. Because of the training, it becomes much easier to write argumentative essay." Again, to show the progress he attained, student (S11) noted, "In my very first essays, it was difficult to write my essays. I have not been very careful when I write, but now with the help of the instructor, I can write well-organized essay. … definitely improved ..."

As can be seen from the above diary notes, most students improved in several aspects of writing. These included planning, organization (introduction, body, and conclusion), punctuation and capitalization, formulation of thesis sentence, grammar, and cohesion. However, a few students, like (S3), probed that some skills, such as vocabulary and grammar, were not still improving as expected. In short, the results implied that students' argumentative writing skills had improved significantly in the

first move (diary 1) compared to their previous performance. In contrast, substantial progress was made in the second move (diary 2) compared to their first diaries and previous experiences, due to instruction in SRL strategies.

In summary, students reported that the strategies helped monitor their learning. They specifically reflected that their writing skills improved due to clear, concise, and initiative-driven lessons, as well as feedback, which enabled students to identify their weaknesses and strengths in the writing process easily. In support of this, students reported that the interventional program was motivating, encouraging, commendable, and loving. To describe how the instruction of SRL strategies was essential, student (S9) remarkably reported, "The training, SRL strategies instruction, in my opinion, was like a magical guide to make me love writing of all kinds because it was provided clearly and motivationally."

Results of Textual Analysis

The results of the textual analysis indicated that the students made significant progress in their writing performance in the post-intervention essay writing compared to the essays they wrote before the intervention. Specifically, the students in the post-intervention phase have significantly improved their writing performance in terms of organization, including the style of the title, formulation of the hook, background information, thesis statement, structure, coherence, grammar, development, capitalization, and punctuation. However, some ideas or sentences were too long, syntactically incorrect, structurally nonequivalent, and mechanically weak. All in all, the findings of textual analysis are corroborated by the findings of both writing tests and diary entry records.

Discussion, Conclusion, and Implications

Discussion

This study examined the impact of SRL strategies on the writing performance of EFL English majors at a university from a social-cognitive perspective. Both the quantitative and qualitative results evidenced that the implementation of SRL strategies in EFL writing classes was effective in enhancing students' writing. Specifically, the quantitative results indicated that the strategies have significantly improved students' argumentative writing skills. Qualitatively, the results also revealed that students significantly improved their writing during the last diary entry. Besides, students believed that their writing progress got improved because of clear, concise, and initiating lessons as well as constructive feedback provided.

In this context, few studies have examined the effects of SRL strategies in general and the effects of goal setting, strategic planning, self-monitoring, self-evaluation, and adaptive inference, in particular, in the writing context. While the results of the present study were consistent with those of some previous studies, it was also found that the findings were contradictory to prior research.

The findings of this study are convergent with the results of some previous studies that examined the effects of SRL strategies instruction on students' writing and related contexts (Alanazi, 2020; Almazloum, 2018; Mercado, 2021; Moos & Ringdal, 2012; Rochmah, 2021; Sun & Wang, 2020; Teng & Huang, 2019; Wang, 2023). For example, Wang (2023) found that the use of SRL writing strategies contributed to the writing performance of EFL learners. Moos and Ringdal (2012) also found that goal-setting, strategic planning, self-monitoring, and adaptive inference all had positive effects on learning outcomes. Alanazi (2020) employed two specific strategies, namely text processing and course memory, to understand the effects of SRL strategies instruction on students' writing performance and found a promising prediction of these strategies on improving writing performance. Similarly, the results of Rochmah's (2021) correlational study at the college level asserted that SRL strategies were moderately correlated with academic writing performance.

Likewise, similar to the results of the present study, Teng and Huang (2019) revealed that goal-oriented monitoring and evaluation, motivational self-talk, text processing, planning, interest enhancement, course memory, and emotional control had significant predictive effects on writing proficiency while feedback handling and peer learning were not significant predictors for secondary school students. In addition, goal-oriented monitoring and evaluation have been demonstrated to be the most effective learning strategies in writing.

The findings of this study are also in agreement with a study conducted in the context of modular distance learning (Mercado, 2021). Mercado (2021) found that goal-setting, self-evaluation, and environmental structuring were essential for students' English success. These findings were consistent with the results obtained from the students' diary entries in the present study context, where the intervention was found to be motivating, encouraging, commendable, and loving, resulting in students being highly motivated, interested, satisfied, and enjoying the lessons and feedback provided, which showed a positive attitude towards SRL strategies-oriented lessons. Thus, Mercado's (2021) study was partially similar to this study in two strategies: goal-setting and self-evaluation learning strategies.

The findings of the present study exhibit not only convergence but also divergence from the findings of some previous research. For example, Arbabi (2013) reported that there was no significant relationship between self-regulation and writing (cited in Kamgar & Jadidi, 2016). Applying a different model, Abdollahzadeh (2020) also examined whether metacognitive awareness and SRL prompts had an impact on the

argumentative writing performance of Iranian graduate TEFL learners. The findings showed no significant effect on the learners' argumentative writing. The two strategies, metacognitive and SRL strategies, were applied as distinct features. However, the metacognitive strategies by themselves are part of Zimmerman's (2000) SRL cyclical model. Indeed, the strategies applied here differed from those employed in the present study, which involved goal-setting, strategic planning, self-monitoring, self-evaluation, and adaptive inference —all of which are metacognitive strategies in nature. Self-evaluation, for example, is one of the strategies of SRL; however, this author employed it idiosyncratically as a metacognitive strategy. This, in turn, signifies the overlapping and dynamic interaction that exists between the two constructs, metacognitive strategies and SRL strategies (Lajoie, 2008; Nilson, 2023).

Moreover, the findings of Zarei and Hatami (2012) in the reading context echo the above findings. Having applied four SRL strategies —namely, planning, self-checking, effort, and self-efficacy —they investigated the non-significant effect of the two strategies, planning and self-efficacy, on the intended dependent variables. Having used cognitive, meta-cognitive, and motivational strategies, Yigzaw and Fentie (2013) found no predictive effect of metacognitive strategies, including planning, monitoring, and evaluating on high school students' reading performance, though cognitive strategies were significant predictors.

The findings of the present study were also in contrast with those of a previous study examining how self-regulation writing strategies might improve secondary students' argumentative writing skills (Galbraith, 2014). The results revealed no significant difference in post-test scores between the treatment and comparison groups. In the same vein, Kizilcec et al. (2016) reported that although most learners evaluated SRL strategies as very helpful, the intervention did not improve learning attainment in Massive Open Online Courses (MOOC).

The findings, which were not significant in the above studies, are consistent with some of the diary entries and textual analysis results of the present study. The findings indicated that some students were observed constructing sentences that were too long, syntactically incorrect, structurally inequivalent, and mechanically poor. Dang et al. (2020) also substantiated that students encountered problems with grammar and vocabulary. The pairwise comparison findings also revealed that there were no significant score discrepancies among the post-test results, similar to the pre-test ones, although the increment among the post-test results was higher than the increment among the pre-test results. The differences among all studies may have occurred due to dissimilarities in their purposes, strategies, methods, designs, and settings.

The findings, after all, disclosed that the instruction of SRL strategies was effective, although this study was not without limitations. One of the limitations was the utilization of a shorter intervention period. This may be attributed to students' low

performance and progress in writing. Moreover, because a small sample size was considered, it may not be easy to generalize to broader contexts. To minimize such influences, expert validation and triangulation were employed, although they may not fully address concerns regarding reliability and generalizability. To address such issues, further studies with a larger sample size and extended intervention time are suggested to replicate the findings in various contexts. In addition, to see the predictive effect of the five SRL strategies, rigorous studies with more hands-on interventions could be conducted.

Conclusion

This study aimed to investigate the effect of SRL strategies on EFL/ESL writing. Because writing depends on a high level of self-regulation, it requires students to set goals, plan specific strategies, monitor their progress, evaluate their performance, and identify further ways to improve their learning. The assumption was to investigate whether these strategies improved students' writing skills, including aspects such as organization, grammar, vocabulary, coherence, mechanics, and content.

To examine this assumption, a time series design was employed. To gather data, tests, diary entries, and essay excerpts were used. Repeated measures of ANOVA, narration, and textual analysis were employed to analyze these data, respectively.

The analysis revealed a significant effect of the strategies on students' writing performance and progress. Specifically, univariate ANOVA results ($F(2.295, 50) = 73.657$, $p < .05$, $\eta p^2 = .880$) revealed a significant effect of these strategies on writing performance. The $\eta p^2 = .880$ also indicated a larger effect size. This means that 88% of the variance in writing performance was due to the strategies instruction. In support of this, a test of pairwise comparisons revealed that the scores after the intervention were higher than those before the intervention. Students' writing progress also increased over time. These all implied that the instruction of SRL strategies significantly affected students' writing performance. However, this test did not demonstrate that the specific writing aspects improved as a result of the intervention. These improvements were manifested in the qualitative analysis.

Accordingly, the diary entry findings revealed significant improvements in students' writing skills, particularly in terms of organization (introduction, body, conclusion, and formulation of thesis sentences), mechanics, grammar, and cohesion. The students also perceived that they benefited greatly from the instruction, as it was motivating, encouraging, commendable, and loving. Similarly, a textual analysis of students' essay excerpts supported the finding that students demonstrated significant progress in formulating a hook sentence, stating background information, writing a thesis statement, and structuring the whole essay. From the analysis of essay excerpts,

it was also observed that students had improved their skills in terms of arranging and developing ideas smoothly, constructing grammatically correct sentences, and using capitalization and punctuation correctly. Thus, it is possible that the intervention of SRL strategies had a positive impact on students' progress in argumentative writing.

In conclusion, the instruction of SRL strategies had a significant positive impact on students' writing performance and progress, and students gained a positive insight into the use of these strategies. Therefore, this study may shed new insight into EFL research by offering a clearer picture of the effects of SRL strategies on improving the argumentative writing performance of EFL students.

Implications

The findings of this study have several important implications for EFL/ESL pedagogy, research, and theory. From the pedagogical perspective, the present research was designed to supplement the overarching EFL students' writing skills and reinforce the integration of SRL strategies, namely goal-setting, strategic planning, self-monitoring, self-evaluation, and adaptive inference that come into practice after a well-defined task is identified to facilitate students' learning (Cleary et al., 2012). Based on the selected task, learning goals are set to encourage learners to work diligently toward achieving the desired outcomes. To successfully attain learning goals, specific strategies would immediately be pinpointed for a particular task. Once suitable strategies are identified, they will be applied, and performance will be monitored through regular monitoring prompts. Then, a self-evaluation of performance is conducted using established standards, and learners reflect on their learning and performance. Through evaluation and reflection, learning difficulties are identified, and this process provides learners with an opportunity to develop new strategies for upcoming tasks prospectively.

In addition, the intervention and findings of this research may be indicative of how language skills, including writing, are taught and assessed. Students' performance, based on the SRL process, is evaluated by assessing whether the predefined goals are achieved or not. Unless their goals are achieved, the students will not come up with the next task, or they will reset that task in the upcoming time. This is because SRL, by its very nature, is cyclical (Zimmerman, 2000). Additionally, based on feedback from their teachers and peers, learners may self-evaluate their performance and learning outcomes. The cyclical process, after all, can impact the whole pedagogy and students' overall language development. Hence, this study suggests the need to integrate such strategies into an EFL/ESL class.

Regarding language research, the results of the present study may offer insight into how domain-specific SRL strategies utilizing micro-analytic protocols emerge in practical settings. As stated earlier, obtaining a framework about how SRL strategies

are conceptualized, selected, sequenced, and applied in real-world and practical contexts looked mystifying. If this is the case, the methodological underpinnings of this research may necessitate that researchers replicate and extend such frameworks to their contexts. Thus, the findings of this research may have a paramount influence on the field of language research. As stated, this study contributes to the language literature about how SRL strategies are integrated and utilized. To this end, the study findings may not only provide insights into the language literature and theory but also call for further studies and replications across various EFL contexts.

To realize the above assumptions, teachers are suggested to incorporate these strategies into their instruction so that they can help their students set learning goals, plan specific strategies, monitor their progress, evaluate their performance, and adapt to better alternatives for their prospective learning. Curriculum designers and policymakers are also recommended to consider SRL strategies. Furthermore, authors are suggested to make further investigations.

References

Abdollahzadeh, E., Frsani, M., & Bekmohmadi, M. (2020). Self-regulated learning, metacognitive awareness, and argumentative writing: A structural equation modeling approach. *Writing and Pedagogy, 11*(2), 1–29. https://doi.org/10.1558/wap.37051.

Adugna, E. T. (2019). Theories vis-a-vis practices in English as foreign language writing classes in the Ethiopian context. *PASAA, 58*, 12-40. https://doi.org/10.58837/CHULA. PASAA.58.1.2.

Alanazi, M. H. (2020). The predictive effects of self-regulated writing strategies on writing performance of Saudi EFL university students. *Journal of Educational and Psychological Studies, 14*(4), 668–678. https://doi.org/10.53543/jeps.vol14iss4pp668-678.

Alegre, A. A. (2014). Academic self-efficacy, self-regulated learning and academic performance in first-year University students. *Journal of Educational Psychology-Propositos y Representaciones, 2*(1), 101-120. https://doi.org/10.20511/pyr2014.v2n1.54.

Almazloum, M. (2018). *A mixed methods study: The impact of self-regulated learning on L2 writing and strategy use* (Doctoral dissertation, the University of Western Ontario, Canada).

Aregu, B. B. (2013). A study of self-regulated learning strategies as predictors of critical reading. *Educational Research Reviews, 8*(21), 1961-1965.

Assegdew, D. A. (2011). Sources of efficacy, efficacy, gender and performance in the writing skills of government and private school students: A comparative study. *The Ethiopian Journal of Education, 31*(1), 1–31.

Aydan, S. (2025). Another brick in the wall to understand the complex process of self-regulated learning: General and domain-specific features of SRL. *Education Sciences, 15*(3), 293. https://doi.org/10.3390/educsci15030293.

Ayele, K. (2017). Relationship between Self-Regulated Learning Behaviors (SRLBs) and academic achievement of college students. *The Ethiopian Journal of Education, 37*(1), 35–68.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Bembenutty, H., White, M.C, & Vélez, M. R. (2015). *Developing self-regulation of learning and teaching skills among teacher candidates.* New York: Springer.

Cleary, T. J., Callan, G. L., & Zimmerman, B. J. (2012). An article assessing self-regulation as a cyclical, context-specific phenomenon: Overview and analysis of SRL microanalytic protocols. *Education Research International, 2012*(1), 1–19. https://doi.org/10.1155/2012/428639.

Cleary, T. J., & Zimmerman, B. J. (2004). Self-regulation empowerment program: A school-based program to enhance self-regulated and self-motivated cycles of student learning. *Psychology in the Schools, 41*(5), 537–550. https://doi.org/10.1002/pits.10177.

Dang, T. H., Chau, T. H., & Tra, T. Q. (2020). A study on the difficulties in writing argumentative essays of English-majored sophomores at Tay Do University, Vietnam. *European Journal of English Language Teaching*, *6*(1), 201–240. https://doi.org/10.46827/ejel.v6i1.3389.

Dembo, M. H., & Eaton, M. J. (2000). Self-regulation of academic learning in middle-level schools. *The Elementary School Journal, 100*(5), 473–490. https://doi.org/10.1086/499651.

DiBenedetto, M. K. (2018). *Connecting self-regulated learning and performance with instruction across high school content areas.* Switzerland: Springer Nature. https://doi.org/10.1007/978-3-319-90928-8.

Emagnaw, A. B. (2019). Self-regulated learning strategies and school performance in higher and lower students in secondary and preparatory school. *Journal on School Educational Technology, 14*(4), 37-48. https://doi.org/10.26634/jsch.14.4.15914.

Essa, E. K. (2022). Strategies for self-regulated learning and associated impact on academic achievement in an EFL context. *EduLine: Journal of Education and Learning Innovation, 2*(4), 533–540. https://doi.org/10.35877/454RI.eduline1451.

Fisne, F. N., Sata, M., & Karakaya, I. (2022). Standard setting in academic writing assessment through the objective standard setting method. *International Journal of Assessment Tools in Education, 9*(1), 80-97. https://doi.org/10.21449/ijate.1059304.

Galbraith, J. (2014). *The effect of self-regulation writing strategies and gender on writing self-efficacy and persuasive writing achievement for secondary students* (Doctoral dissertation, Western Connecticut State University).

Goetz, T., Nett, U. E., & Hall, N. C. (2013). Self-regulated learning. In N. C. Hall & T. Goetz (Eds.). Emotion, motivation, and self-regulation: *A handbook for teachers* (pp.123–166). Bradford: Emerald Group.

Graham, S., & Harris, K. R. (1997). Self-regulation and writing: Where do we go from here? *Contemporary Educational Psychology, 22*(1), 102–114. https://doi.org/10.1006/ceps.1997.0920.

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

Greene, J. A. (2018). *Self-regulation in education.* New York: Routledge. https://doi.org/10.4324/9781315537450.

Hammad, E. (2014). The effect of teacher direct written corrective feedback on AL Aqsa University female students' performance in an English essay. *An-Najah University Journal for Research-B (Humanities), 29*(6), 1183–1205. https://doi.org/10.35552/0247-029-006-007.

Harris, K. R., & Graham, S. (2009). Self-regulated strategy development in writing: Premises, evolution, and the future. *British Psychological Society, 2*(6), 113–135. https://doi.org/10.1348/978185409X422542.

Harris, K. R., Graham, S., Friedlander, B., & Laud, L. (2013). Bring powerful writing strategies into your classroom! Why and how? *The Reading Teacher, 66*(7), 538–542. https://doi.org/10.1002/TRTR.1156.

Harris, K.R., Graham, S., MacArthur, C.A., S., R., R. & Mason, L.H. (2011). Self-regulated learning processes and children's writing. In B. J. Zimmerman & Dale H. Schunk (Eds.). *Handbook of self-regulation of learning and performance* (pp. 187–202). Routledge.

Hyland, K. (2002). *Teaching and researching writing.* New York: Longman.

Kamgar, N., & Jadidi, E. (2016). Exploring the relationship of Iranian EFL learners' critical thinking and self-regulation with their reading comprehension ability. *Procedia-Social and Behavioral Sciences, 232,* 776-783. https://doi.org/10.1016/j.sbspro.2016.10.105.

Kha, N., & Yen, P.H. (2022). The interaction between self-regulated learning strategies and EFL teenager learners' postcard writing at an English center in Mekong Delta, Vietnam. *European Journal of English Language Teaching, 7*(5), 37–56. https://doi.org/10.46827/ejel.v7i5.4449.

Kizilcec, R. F., Pérez-Sanagustín, M., & Maldonado, J. J. (2016). "Recommending self-regulated learning strategies does not improve performance in a MOOC." In *Proceedings of the third (2016) ACM conference on learning@ scale* (pp. 101-104). https://doi.org/10.1145/2876034.2893378.

Lajoie, S. P. (2008). Metacognition, self-regulation, and self-regulated learning: A rose by any other name? *Educational Psychology Review, 20*(4), 469-475. https://doi.org/10.1007/s10648-008-9088-1.

Macklem, G. L. (2015). *Boredom in the classroom: Addressing student motivation, self-regulation, and engagement in learning.* Switzerland: Springer. https://doi.org/10.1007/978-3-319-13120-7.

Mahmoodi, M.H., Kalantari, B. & Ghaslani, R. (2014). Self-Regulated Learning (SRL), motivation and language achievement of Iranian EFL learners. *Procedia-Social and Behavioral Sciences, 98,* 1062–1068. https://doi.org/10.1016/j.sbspro.2014.03.517.

Malpique, A., Simao, A.M., & Frison, L.M. (2017). Self-regulated strategies for school writing tasks: a cross-cultural report. *Psychology of Language and Communication, 21*(1). https://doi.org/10.1515/plc-2017-0012.

Matric, M. (2018). Self-regulatory systems: Self-regulation and learning. *(JPMNT) Journal of Process Management-New Technologies, International, 6*(4), 79–84. https://doi.org/10.5937/jouproman6-19338.

Mercado, M. M. (2021). The relationship of self-regulated learning, academic performance and self-efficacy of grade 12 students in English modular distance learning in Kapayapaan integrated school. *IOER International Multidisciplinary Research Journal, 3*(3), 250-260. https://doi.org/10.54476/iimrj256.

Moos, D. C., & Ringdal, A. (2012). self-regulated learning in the classroom: A literature review on the teacher's role. *Education Research International*, *2012*(1), 1–16. https://doi.org/10.1155/2012/423284.

Mutmainnah, L. (2022). *A survey of self-regulated writing strategies among Indonesian EFL students in higher education* (Doctoral dissertation, Universitas Islam Indonesia).

Naibaho, L. (2021). The effectiveness of self-regulated strategy development on improving students' narrative text writing achievement. *TESOL International Journal 16*(7), 62–73.

Nilson, L. B. (2023). *Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills*. Taylor & Francis.

Nodoushan, M. A.S. (2012). Self-Regulated Learning (SRL): Emergence of the RSRLM model. *International Journal of Language Studies (IJLS), 6*(3), 1-16.

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology, 8*(422). https://doi.org/10.3389/fpsyg.2017.00422.

Paris, S. G., & Paris, A. H. (2001). Classroom applications of research on self-regulated learning. *Educational Psychologist, 36*(2), 89–101. https://doi.org/10.1207/S15326985EP3602_4.

Ping, A. M., & Hong, Q. (2021). Designing a self-regulated language learning strategy instructional program in a blended learning environment for pre-service teachers in China. *European Journal of English Language Teaching, 6*(3), 86–101. https://doi.org/10.46827/ejel.v6i3.3597.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.). *Handbook of self-regulation* (pp. 451–502). San Diego, CA: Academic Press. https://doi.org/10.1016/B978-012109890-2/50043-3.

Ramírez-Velásquez, I. M., Molina-García, J. C., & Guerrero-Peña, A. C. (2025). Engagement and Self-Regulation Scale for Higher Education Students (ES-R): Development and Psychometric Properties. *International Journal of Instruction, 18*(1), 173-192. https://doi.org/10.29333/iji.2025.18110a.

Rochmah, M. (2021). College students self-regulated learning strategies in academic writing and writing performance: A correlational study. *Research on English Language Teaching in Indonesia, 9*(1), 205–214.

Santangelo, T., Harris, K. R., & Graham, S. (2008). Using self-regulated strategy development to support students who have "Trubol giting thangs into werds." *Remedial and Special Education, 29*(2), 78–89. https://doi.org/10.1177/0741932507311636.

Schunk, D.H. (1989). Social cognitive theory and self-regulated learning. In B. J. Zimmerman & D. H. Schunk (Eds.*). Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 83–110). New York: Springer-Verlag. https://doi.org/10.1007/978-1-4612-3618-4_4.

Schunk, D. H. (2001). Self-regulation through goal setting. Reprinted at http://www.tourettesyndrome.net.

Seli, H. (2019). *Motivation and learning strategies for college success: A focus on self-regulated learning.* New York: Routledge. https://doi.org/10.4324/9780429400711.

Sirazieva, L. M., Fakhrutdinova, R. A., Kamasheva, J. L., & Leikin, M. (2017). Self-regulated learning in higher education. *Revista Publicando, 4*(13), 691–699.

Su, y., Zheng, C., Liang, J.C, & Tsai, C.C. (2018). Examining the relationship between English language learners' online self-regulation and their self-efficacy. *Australasian Journal of Educational Technology, 34*(3). https://doi.org/10.14742/ajet.3548.

Sun, T., & Wang, C. (2020). College students' writing self-efficacy and writing self-regulated learning strategies in learning English as a foreign language. *System*, *90*. https://doi.org/10.1016/j.system.2020.102221.

Teng, F., & Huang, J. (2019). Predictive effects of writing strategies for self-regulated learning on secondary school learners' EFL writing proficiency. *TESOL Quarterly, 53*(1), 232–247. https://doi.org/10.1002/tesq.462.

Teng, L. S. (2022). *Self-regulated learning and second language writing, English language education: Fostering strategic language learners.* Switzerland: Springer. https://doi.org/10.1016/j.jslw.2022.100909.

Tomak, B. (2017). *Self-regulation strategies that English language learners in a Turkish state university use to increase their proficiency and self-efficacy* (Doctoral dissertation, Middle East Technical University).

Tran, T. T. M. (2021). Use of Self-regulated learning strategies in paragraph writing at Van Lang University. *International Journal of TESOL & Education, 1*(3), 1–13.

Wale, B. D. (2021). *Effects of inquiry-based learning on EFL students' academic writing performance, critical thinking skills, and motivation* (Doctoral dissertation, Bahir Dar University, Ethiopia).

Wang, G. (2023). The effects of self-regulated learning writing strategies on English writing self-efficacy among Chinese Non-English major students. *Open Journal of Social Sciences, 11*(8), 164–176. https://doi.org/10.4236/jss.2023.118011.

Weinstein, C. E., Husman, J., & Dierking, D. (2000). Self-regulation interventions with a focus on learning strategies. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.). *Handbook of self-regulation* (727–747). San Diego, CA: Academic Press. https://doi.org/10.1016/B978-012109890-2/50051-2.

Wigfield, A., Klauda, S. L., & Cambria, J. (2011). Influences on the development of academic self-regulatory processes: In B. J. Zimmerman & Dale H. Schunk (Eds.). *Handbook of self-regulation of learning and performance* (pp. 33–48). Routledge.

Yang, L. F., Liu, Y., & Xu, Z. (2022). Examining the effects of self-regulated learning-based teacher feedback on English-as-a-foreign-language learners' self-regulated writing strategies and writing performance. *Frontiers in Psychology, 13.* https://doi.org/10.3389/fpsyg.2022.1027266.

Yigzaw, A., & Fentie, A. (2013). The impact of students' self-regulated language learning on their reading achievement in Ethiopian high schools: Grade 9 in focus. *Journal of Media and Communication Studies*, *5*(5), 44-51. https://10.5897/JMCS2013.0345.

Yu, L. (2015). *Effects of intervention on self-regulated learning for second language learners* (Doctoral dissertation, University of Arkansas, Fayetteville).

Yulianawati, I. (2016). Self-efficacy and writing: A case study at a senior high school in Indonesian EFL Setting. *Vision: Journal for Language and Foreign Language Learning, 8*(1), 79-101.

Zarei, A. A., & Hatami, G. (2012). On the relationship between self-regulated learning components and L2 vocabulary knowledge and reading comprehension. *Theory & Practice in Language Studies (TPLS), 2*(9), 1939-1944. https://doi.org/10.4304/tpls.2.9.1939-1944.

Zeleke, Y. D. (2022). Investigating the implementation of process approach to the teaching and learning of writing skills. *Journal of English Teaching and Learning Issues, 5*(1), 63- 80. https://doi.org/10.21043/jetli.v5i1.13649.

Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key sub-processes? *Contemporary Educational Psychology, 11*(4), 307–313. https://doi.org/10.1016/0361-476X(86)90027–5

Zimmerman, B. J. (1989). Models of self-regulated learning and academic achievement. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 1–26). Springer-Verlag. https://doi.org/10.1007/978-1-4612-3618-4

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3–17. https://doi.org/10.1207/s15326985ep2501_2

Zimmerman, B. J., Bonner, S., & Kovach, R. (1996). *Developing self-regulated learners: Beyond achievement to self-efficacy*. American Psychological Association. https://doi.org/10.1037/10213-000

Zimmerman, B. J., & Risemberg, R. (1997). Becoming a self-regulated writer: A social cognitive perspective. *Contemporary Educational Psychology, 22*(1), 73–101. https://doi.org/10.1006/ceps.1997.0919

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). Academic Press. https://doi.org/10.1016/B978-012109890-2/50031-7

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2

Zumbrunn, S., Tadlock, J., & Roberts, E. D. (2011). Encouraging self-regulated learning in the classroom: A review of the literature. *Metropolitan Educational Research Consortium (MERC)*, 1–28.

Author

Zelalem Ayalew Abate is a PhD candidate in TEFL at Bahir Dar University. His areas of research interest include the use of self-regulated learning instruction, critical thinking, and self-efficacy.

ORCID: https://orcid.org/0009-0006-7700-6365

Abiy Yigzaw (PhD) is a full professor in TEFL at Bahir Dar University. His areas of research interest include EFL/ESL writing and reading, self-regulated language learning, and Peer-led Learning (PLL).

ORCID: https://orcid.org/0000-0001-6232-9002

Yinager Teklesellassie (PhD) is an associate professor in TEFL at Bahir Dar University. His areas of research interest include EFL/ESL classroom interaction and task-based language teaching.

ORCID: https://orcid.org/0000-0001-8053-4747

How to reference this article: Abate, Z. A., Yigzaw, A., & Teklesellassie, Y. (2025). Enhancing Students' Writing Performance through Self-Regulated Learning Strategies. *GIST – Education and Learning Research Journal, 30*(30). https://doi.org/10.26817/16925777.1959