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NAVIGATING SELF-REGULATED WRITING: HOW EFL ISLAMIC UNIVERSITY STUDENTS USE STRATEGIES AND ONLINE RESOURCES

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Abstract: Self-Regulated Writing (SRW) is an important strategy as it enables students to initiate, monitor their thinking, and independently evaluate and revise their drafts. This study aims to explore: (1) the Self-Regulated Writing (SRW) strategies employed by EFL students in essay writing, (2) the specific SRW strategies used by advanced students across the PLEE (Planning, Executing, and Evaluating) cycle, and (3) the types of online resources students utilize during the writing. This study used concurrent mixed methods and of the 62 Islamic university students in the essay writing class, 5 were recruited to participate in the semi-structured interviews using purposeful sampling technique. Data from closed-

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ended questionnaires were analyzed using descriptive statistics, while data from observations and interviews were analyzed thematically. The results demonstrated that in SRW, the social environment dimension is ranked first and the motive dimension is ranked last. During the planning phase, students frequently utilized Google Scholar as an online tool for autonomous writing techniques, while during the execution and evaluation phase, students frequently utilized QuillBot as an online tool for independent writing strategies. Pedagogically, this study contributes to providing valuable insights for educators to design learning experiences that encourages learners to be autonomous in writing.

Keywords: *essay writing, online resources, self-regulated writing, strategies, writing skills*

INTRODUCTION

Writing remains a significant challenge for EFL learners in a variety of educational settings. Research shows that the difficulties faced include not only linguistic aspects such as idea development, content organization, grammar, and vocabulary, but also the inability to manage the writing process strategically (Arnawa & Arafah, 2023; Sasmita & Setyowati, 2021). Similar issues are observed across countries: students in Saudi Arabia struggle with mechanics (Nasim & Mujeeba, 2024), students in the United States with syntax and advanced vocabulary (Maamuujav et al., 2021). In Southeast Asia, Indonesian and Malaysian students face challenges in organizing ideas and selecting words, as well as non-linguistic barriers such as low literacy and self-awareness (Muamaroh et al., 2020; Nadesan & Shah, 2020). This pattern indicates that writing challenges are complex and cross-contextual, necessitating approaches that emphasize not only language acquisition but also self-regulated learning strategies. Self-Regulated Writing (SRW) is one possible approach that encourages

students to actively plan, monitor, and reflect on their writing process in order to improve results.

Writing is the most difficult language skill because it is recursive, requires high-level thinking processes, and necessitates continuous decision-making throughout the planning, writing, and revision processes (Harris, 2023; Wu, 2025). Unlike other skills, such as reading or speaking, writing requires students to manage multiple aspects at the same time, such as organizing ideas, selecting words, and fitting into academic discourse structures. As a result, a learning strategy that is both instructionally effective and allows students to self-regulate when confronted with writing challenges is required (Hashey et al., 2020; Varier et al., 2021). In this context, Self-Regulated Learning (SRL) is an important approach because it encourages students to use metacognitive, cognitive, and motivational strategies consciously during the writing process. SRL allows students to gain a better understanding of their own strengths and weaknesses, as well as the demands of the task and the strategies they used. SRL is used in writing to manage strategies in three stages: planning, implementation, and evaluation (Umamah & Cahyono, 2020). Building on this framework, the present study adopts the SRW model to explore how EFL students apply self-regulation strategies in essay writing.

Self-Regulated Writing (SRW) theoretical framework is based on the broader notion of SRL, which includes the cyclical processes of planning, strategy creation, and strategy evaluation. SRL refers to the methods by which learners regulate their own learning. This include establishing goals, selecting techniques, and tracking progress toward desired outcomes (Zimmerman, 1997). SRW is the specific application of SRL to writing. It describes the techniques and procedures that students use to manage their writing tasks, such as planning, drafting, revising, and editing (Sari et al., 2023; Umamah & Cahyono, 2020).

SRW strategies theoretical framework has been classified into six dimensions: motive (how students learn), method (task completion strategy), time (time management), physical environment (structuring the environment to support learning), social environment (seeking

help), and performance (Zimmerman & Bandura, 1994). Students who self-regulate are more conscious of the accuracy of their understanding, thoughts, motivation, and cognitive processes, and hence achieve better academically than those who do not self-regulate. This SRW framework is extremely relevant to this study because it allows for a thorough investigation of the SRW strategies used by EFL students when writing essays. Furthermore, this study adopts the PLEE (Planning, Implementing, Evaluating) model as a framework to analyze the writing strategies used by students. This model reflects the cyclical nature of the writing process, with students expected to: (1) plan ideas and strategies before writing, (2) implement these strategies while writing, and (3) evaluate and revise their work afterward. The PLEE model is consistent with the SRW framework in that both emphasize the importance of actively managing the writing process at each stage. Finally, the SRW theory incorporates the use of digital resources and tools into SRL strategies. According to the SRW framework, the use of digital tools such as academic search engines, automatic paraphrasing, and grammar checkers can be classified into three dimensions: method (task completion strategies), performance (result monitoring), and time management. These tools help students plan, implement, and evaluate their writing independently. As a result, strategic use of digital resources is an essential component of the self-regulation process for writers. Thus, the SRW theory serves as the primary foundation for understanding and analyzing students' self-regulation patterns while writing academic essays.

Several studies on independent writing in the EFL context show that, while most students have adequate self-regulation skills, only a small proportion use SRW strategies optimally. Varier et al. (2021) discovered that while some students demonstrated self-regulation skills, many did not use SRW strategies effectively, particularly during the planning and monitoring stages. Umamah and Cahyono (2020) supported these findings by demonstrating that the social dimension was most frequently used, while the motivational dimension was the weakest. These findings underscore the importance of both social

support and intrinsic motivation in the practice of SRW. These studies, however, did not specifically investigate how SRW strategies are implemented in the three stages of the PLEE writing cycle, nor how online tools are used as part of self-regulation strategies. As a result, the purpose of this study is to bridge the gap by investigating EFL students' SRW strategies in essay writing using the PLEE cycle, as well as the role of online resources in supporting the independent writing process. Several studies have found that, while SRW strategies are useful in EFL contexts, their use in higher education remains limited.

Prior studies (Arianto & Wulyani, 2022; Umamah et al., 2022) discovered that while students have a positive attitude toward SRW, they have not been able to apply it optimally. Low metacognitive competence is also a barrier, particularly for secondary school students (Al-Othman & Abdul-Aziz, 2024; Bai & Wang, 2024). Furthermore, Mickwitz and Suojala, (2020) emphasized that autonomous learning and self-regulation do not imply without assistance, but rather consciously directed assistance. These findings point to the need for more systematic mapping of SRW strategies. To that end, this study contributes by looking at SRW strategies using the PLEE model and the role of digital tools in promoting EFL students' writing independence.

Although SRW strategies have been shown to improve writing quality (Sun et al., 2022; Umamah & Cahyono, 2020) and students' learning motivation (Furer & Philipp, 2024; Sari et al., 2023), in-depth research on the application of SRW in expository essay writing by EFL students in Indonesia, especially in Islamic-based universities, is still very limited. Furthermore, few studies have found a link between using online sources and writing self-regulation strategies. The majority of existing research still focuses on elementary and secondary education levels, without considering the dynamics of SRW strategies in higher education settings. Therefore, this study aims to fill this gap with three main contributions: (1) examining SRW strategies in the context of expository essay writing by EFL students in Indonesia; (2) adopting the PLEE model to systematically map SRW strategies; and (3) exploring the types of online sources used by students as part of technology-based independent writing practices.

METHOD

Research Design

This study employed a convergent parallel mixed methods design (Creswell & Creswell, 2018; Plano Clark, 2017), which entails collecting quantitative and qualitative data concurrently but analyzing them separately before integrating them at the interpretation stage. This design was chosen to provide a comprehensive picture of the SRW strategies employed by EFL students. To answer research question 1, quantitative data were collected by distributing closed questionnaires to 62 students to determine the overall pattern of SRW strategy use. Meanwhile, research questions 2 and 3 were addressed qualitatively using observation, semi-structured interviews, and document analysis to delve deeper into the implementation of SRW strategies based on the PLEE model and the use of online resources. The mixed methods approach is deemed relevant because SRW is a complex process involving quantifiable strategic factors and cognitive considerations that cannot be achieved solely through quantitative data. The two types of data were integrated during the analysis stage to strengthen validity and depth of understanding.

Participants

62 Indonesian EFL students were recruited as participants using purposeful sampling techniques. They were undergraduates enrolled in the English study program at one of the Islamic universities located in Jember, Indonesia. They were in their second year and were chosen because they had completed an essay writing course, and therefore were anticipated to have prior experience writing and employing learning methodologies. Before distributing the questionnaire, a letter of consent was sent to the Head of the university's English education study program, inviting students to take part in this study. Before answering the questionnaire, students were requested to read the purpose section on the first page to provide their approval to participate in this study.

From the 62 students, five advanced-level students were selected to participate in semi-structured interviews. Selection was based on their highest writing assessment scores in the essay writing course. These advanced participants were chosen since they were deemed more likely to employ effective SRW strategies. The five participants, two males and three females, ranged in age from 19 to 20 years. Purposeful sampling is required because it allows researchers to select people who can provide the most precise information about the phenomena and contribute to a thorough understanding of the case. Furthermore, all participants gave verbal and written approval to participate voluntarily, record interviews, and exhibit excerpts. This study gathered participant information and asked for permission to complete a Google Form from individuals who had declared an interest in participating. The researchers outline the purpose and techniques of this study. To protect the participants' privacy, the researchers did not reveal their true names (pseudonyms). 5 Participants in the semi-structured interview were coded as P1 for Participant 1 and so forth.

Materials or Instruments

This study relied on three main instruments: questionnaires, observations, and semi-structured interviews, as well as document and artifact analysis. The questionnaire was adapted from SRW questionnaire developed by Abadikhah et al. (2018) and consisted of three main sections: (1) research objectives, (2) demographic information, and (3) SRW questionnaire. The SRW questionnaires, consisting of 60 items on a 5-point Likert scale (strongly disagree to strongly agree), was found to be highly reliable ($\alpha = 0.95$). Non-participant observation was used to assess students' SRW strategies and use of online resources when writing essays. These observations were documented using a recording device and a camera to ensure data accuracy. Semi-structured interviews were conducted to gain a deeper understanding of the SRW strategies and online resources used by students when writing essays. The interview guide was validated by experts before being used in the study. Meanwhile, documents and

artifacts were gathered as secondary data to supplement the questionnaire, observation, and interview results. The artifacts examined included student essay samples.

Procedures

This study began with a pilot test of the questionnaires and interview guideline with five students to ensure language clarity and cultural relevance. The pilot test results were used to revise several terms, making them more understandable. Following that, the Indonesian version of the questionnaires was distributed to 62 students who had completed the essay writing course. They were given one week to complete the questionnaire using Google Form.

Next, non-participant observation was carried out during three 90-minute essay writing sessions in class. This was a writing exercise (not an exam), with topics centered on education and technology. Observations centered on SRW strategies and the use of online resources during the planning, writing, and revision stages. These activities were documented using video and field notes. Furthermore, five students with the highest writing scores were selected for semi-structured interviews. Interviews were conducted individually for 30-45 minutes, recorded, and transcribed for analysis. The researchers also gathered documents and artifacts from participants, such as essay drafts, writing outlines, and revision notes, to supplement the findings of observations and interviews.

Data Collection

Data were collected over a four-week period using four methods: questionnaires, observations, interviews, and documentation. In the first week, questionnaires were distributed to 62 students to determine their SRW strategies when writing essays. In the second and third weeks, non-participant observations were made during three essay writing sessions in class to directly observe the use of SRW strategies and online sources.

In the fourth week, the five highest-scoring students were interviewed in a semi-structured format to learn more about their experiences using SRW strategies and online resources. Documents such as essay drafts and revision notes were also collected to supplement previous data. Triangulation was achieved by comparing the four data sources. If there were any discrepancies between the data, the researchers discussed them with the participants directly to ensure accuracy.

Data Analysis

The quantitative data from the questionnaires were analyzed using descriptive statistics to determine the overall pattern of students' use of SRW strategies. The mean scores for each dimension were calculated using a 5-point Likert scale: very low (1.00-1.80), low (1.81-2.60), moderate (2.61-3.40), high (3.41-4.20), and very high (4.21-5.00) (Eltahir et al., 2021). These findings provide an initial indication of how frequently certain strategies are used by participants.

Thematic analysis was used to examine qualitative data collected through observations and semi-structured interviews. Interview transcripts were coded based on the three stages of the PLEE cycle and the six SRW dimensions. Observation notes were used to validate and supplement the interview findings, particularly to identify SRW strategies that were clearly visible in students' writing practices.

To ensure the trustworthiness and validity, quantitative and qualitative data were compared during the interpretation stage. For example, if the quantitative scores indicated that the "social environment" dimension was highly rated, the qualitative data were examined to determine how students described peer or faculty support, as well as whether these practices were reflected in observations. Patterns of similarities and differences were identified, such as when students reported frequent use of a specific strategy in the questionnaire but interviews revealed a limited understanding of that strategy. The study gained a deeper and more valid understanding

of how students used SRW strategies and online resources in their essay writing by comparing and corroborating data from all three sources (questionnaires, observations, and interviews) (Patton, 2002; Taylor et al., 2016).

FINDINGS

The results of this study present findings based on three research questions: (1) What SRW strategies do EFL students use in writing essays? (2) How do advanced level EFL students apply SRW strategies while composing essays using the PLEE cycle? and (3) What types of online sources do students use in SRW, especially in writing essays?

What self-regulated writing (SRW) strategies do EFL students use in writing essays?

To answer the research question, data were collected using closed-ended questionnaires and presented in the form of tables containing descriptive statistics about the SRW strategy dimensions. This data is supplemented with interview quotes to provide more context for the strategies used by students. This study used questionnaires from Abadikhah et al. (2018) related to SRL strategy, which were distributed to participants to collect in-depth information related to six parameters of SRL theory (motivation, method, time, performance, physical environment, and social environment). Table 1 demonstrates the social environment dimension is positioned at first determined by the average score (3.99± .82) and the performance dimension is in second place (3.94 ± .77). However, the average score for the motive dimension is at its lowest (3.48 ± .80). Participants' responses are evaluated using a Likert scale categorized as very little (1.00-1.80), little (1.81-2.60), moderate (2.61-3.40), high (3.41-4.20), and very high (4.21-5.0) (Eltahir et al., 2021). The specific results of the questionnaires for each parameter can be seen in the Appendix.

Table 1.
Descriptive statistics of SRW strategy dimension

No	Items	Mean	SD	Order	Description
1	Performance dimension	3.94	.77	2	High
2	Method dimension	3.76	.85	3	High
3	Social environment dimension	3.99	.82	1	High
4	Physical environment dimension	3.60	.99	4	High
5	Time dimension	3.50	.81	5	High
6	Motive dimension	3.48	.80	6	High

Data was additionally gathered from semi-structured interviews with EFL students who used various SRW procedures to write essays. Several strategies generated by thematic analysis can be classified as follows:

Theme 1: Writing as a hobby (Scribbler)

Scribbler is a new theme in the motive dimension of SRW strategies that refers to those who write primarily for pleasure or personal reasons. This topic highlights the writer's internal motivation, which is driven by enjoyment and self-expression rather than by external obligations. Those who call themselves "writers" just want to explore ideas, convey emotions, or share their personal stories, and their ultimate goal is personal fulfilment, which fosters a sense of autonomy in writing and emphasizes flexible creativity. This theme highlights the value of personal involvement and enjoyment in writing as a means of improving skill development and maintaining continuous writing practice, as expressed by two Participants below.

> *"I enjoy writing, especially when I am engaged in the topic at hand. This enjoyment enhances the writing process and increases the likelihood that I will be totally immersed in the project. When I am truly interested in the content, I find it simpler to stay motivated and concentrated throughout the writing process." (P1, semi-structured interviews, November 22, 2024)*

> *"My motivation to write derives from myself, as writing is my particular pleasure. Aside from that, I believe that writing satisfies us and allows us to express ourselves freely." (P2, semi-structured interviews, November 22, 2024)*

Theme 2: Self-reward

Self-reward is an element in the motivational dimension of self-regulated writing frameworks. Where the writer remains motivated and focused throughout the writing process. Writers who use this method set personal goals and commit themselves little rewards or incentives for attaining specific milestones or finishing tasks. This incentive or recognition can take the form of a trip or a favorite culinary delight if they meet their writing goal. This subject focuses on the writer's role in staying engaged and overcoming writer's block or burnout. Self-respect is also an effective motivator, helping writers persevere through difficult work and stay focused, eventually enhancing productivity and enjoyment in their writing practice.

> *"Usually when I finish my writing. As a sort of appreciation for my efforts in the writing process, I reward myself by traveling and shopping." (P3, semi-structured interviews, November 22, 2024)*

Theme 3: Outlining or mind-mapping ideas

Outline/mind-map is an emerged theme in the independent writing strategy method dimension that refers to the use of formal planning approaches to organize ideas prior to drafting. Writers who use the outline/mind map technique begin by mapping out the major points to be conveyed in a piece of writing. This procedure typically entails organizing concepts in a logical order, identifying major supporting ideas, and managing the general flow of the text. An outline/mind map stresses clarity and direction in the writing process, assisting writers in developing a cohesive road map that guides their thinking while writing, hence reducing confusion in the writing flow. P1 and P4 explained how the outline/mind-map helped them plan out the essential aspects of their writing.

> *"My writing technique involves identifying the topic/theme to be written, obtaining relevant information, creating a writing plan with a mind map, and then beginning to write…" (P4, semi-structured interviews, November 22, 2024)*

> *"I plan my writing projects using an outline or mind map. This helps me organize my ideas and keeps the flow of my writing structured. I normally start with a simple outline and then add details." (P1, semi-structured interviews, November 22, 2024)*

Theme 4: Easy language for readers

Reader-friendly language is a theme in the independent writing strategy method dimension that focuses on modifying language and style to increase readability and comprehension for the intended audience. Easy-to-read language enables writers to deliberately use basic terminology, straightforward sentence patterns, and avoid too complicated expressions, resulting in easy-to-understand writing and a seamless message transmitted to a wide audience. This style to autonomous writing emphasizes clarity and simplicity, which serve to support the author's goals. P2 commented the following:

> *"The strategy I use in a writing assignment is to use language that is easy for readers to understand based on the type of writing assignment. For example, if I write a story, I will write it in casual, modern language that is appropriate for the theme or title of the story. Another example: if I am assigned to write a scientific paper in the form of a paper, I will write it in standard language that is consistent with EYD (Improved spelling) and easy to grasp by readers from various walks of life." (P2, semi-structured interviews, November 22, 2024)*

Theme 5: Organizing timetable

Timetable is a theme in the time dimension of self-organized writing strategies, emphasizing the importance of structured schedule in organizing the writing process successfully. Writers that employ this method allocate precise time blocks or deadlines for different stages of their work, such as planning, drafting, revising, and editing. This systematic strategy allows them to stay organized, devote appropriate time to each assignment, and meet their overall writing objectives within the time frame specified. By creating a timetable, authors

establish a disciplined habit that promotes consistency and lowers the likelihood of last-minute stress. P2 and P4 emphasized the usefulness of timelines as a method in self-regulated writing:

> *"The scheduling that I usually use to write my assignments is in a matter of days, for example: if the deadline for my writing assignment is given two weeks of work, then I will schedule the work on my writing assignment for one week before the deadline must be completed first because after I write it, I will definitely read it again and there will definitely be changes in every sentence." (P2, semi-structured interviews, November 22, 2024)*

> *"I use my cell phone's digital planner to schedule when I'll start writing." (P4, semi-structured interviews, November 22, 2024)*

Theme 6: A quiet and comfortable environment

A quiet and comfortable environment is one of the topics of the self-organized writing strategy's physical environment dimension, which focuses on selecting authors and providing a writing-friendly physical location. Writers who prioritize tranquil and comfortable surroundings by providing a suitable ambiance that can prevent interruptions or distractions and promote attention, such as a quiet room with gentle music, a comfy cafe, or a clean, aromatic, and well-organized table at home. This also covers lighting, seating, and noise levels, which are customized to the author's preferences to improve productivity and comfort. This was conveyed by the following Participants:

> *"The physical atmosphere is really crucial to my writing process. I can write indoors or outside as long as the environment is calm and pleasant." (P1, semi-structured interviews, November 22, 2024)*

> *"A comfy writing atmosphere is quite important to me. This had a significant impact on my psychology. A secluded room is the ideal work environment for me because it keeps me from being distracted by the outside world. Optimal lighting. Maintain a cool indoor temperature. Not too hot or chilly, and accompanied with your preferred music." (P4, semi-structured interviews, November 22, 2024)*

Theme 7: Promoting collaboration

Collaboration in writing is one of the most common themes in the social environment dimension of self-regulated writing strategies, which emphasize working with others to better the writing process. Writers who use collaboration actively seek criticism, suggestions, and support from peers, mentors, or writing groups, allowing them to enhance their manuscripts and expand their viewpoints. This subject includes actions like as brainstorming ideas, sharing drafts for feedback or comments, and co-writing with others, all of which promote a dynamic interchange of ideas that can help authors clarify their thinking and enhance their arguments. According to P2 and P3, this allows writers to feel more secure in developing their work.

> *"I frequently cooperate with others when writing. When I write collaboratively with others, we divide the writing tasks such that everyone contributes to the writing, whether it is through thoughts, energy, dollars, or other means." (P3, semi-structured interviews, November 22, 2024)*

> *"… I have partnered with others to complete writing projects. Dynamics in a group will undoubtedly develop when working on a group task because the thinking utilized to do it is not centered on just one topic but rather incorporates numerous ideas." (P2, semi-structured interviews, November 22, 2024)*

Theme 8: Encouraging peer-review

Writers frequently participate in peer review by sharing their drafts with coworkers or other writers who review the text, provide input, and make suggestions for improving the writing. This technique enables writers to think about other writers' points of view and develop others' ideas. So that the written results are clearer and more coherent.

> *"If I am having problems writing, I will seek assistance from someone who is skilled to help me improve my writing." (P4, semi-structured interviews, November 22, 2024)*

> *"... I will look at the content of the writing again while considering the existing input; if there is anything that is not perfect or not quite right, I will correct it and discuss it again with my colleagues." (P3, semi-structured interviews, November 22, 2024)*

Theme 9: Rereading drafts

Rereading drafts is one of the most visible performance elements of independent writing strategies, emphasizing the writer's habit of examining his or her work numerous times during the drafting process. Writers go over their work on a regular basis to ensure that it is clear, coherent, has proper grammar, and flows smoothly. These strategies assist people in identifying flaws, refining language, and ensuring that their thoughts are successfully communicated. By rereading the draft, the writer can determine whether his work is consistent with the initial intentions and make any necessary changes. P2 and P3 conveyed this.

> *"… The first step is to read what I've written over and over again; this is something I frequently do while reviewing my writing ability. Then, after reading what I've written several times, I'll replace some of the sentences with new ones that I believe are more appropriate and related to the prior ones. Next, evaluate my writing performance." (P2, semi-structured interviews, November 22, 2024)*

> *"I evaluate my writing performance based on the reader's understanding and repeated reading; if the reader can readily understand what I wrote, I believe my writing is successful, significant, or beneficial to the reader. I assess my work based on a sense of responsibility, initiative, punctuality or deadlines, and results."(P3, semi-structured interviews, November 22, 2024)*

Theme 10: Comprehending the writing issue

Comprehending the writing issue is the most prominent theme in the performance dimension of the independent writing method, which emphasizes the writer's thorough comprehension of the topic under consideration. Before and during the writing process, writers take the time to completely understand ideas, concepts, or challenges relevant to their topic. This method entails finding the core idea, supporting ideas, and creating links between ideas to make the writing more cohesive.

> *"... I also place a greater emphasis on my knowledge and insight into the subject matter of my writing..." (P2, semi-structured interviews, November 22, 2024)*

> *"I set goals for writing assignments by identifying the core topic and key ideas I wish to express. For specific goals, I want my writing to be straightforward to grasp." (P1, semi-structured interviews, November 22, 2024)*

How do advanced level EFL students apply self-regulated writing strategies while composing essays using the PLEE cycle (planning, executing, and evaluating)?

To answer this research question, data were gathered through observations and interviews and then presented as a narrative describing how students use SRW strategies at each stage of the writing process. Based on the findings from observations and interviews with EFL students, advanced level writers have to initially set writing assignment goals during the planning stage. This entails studying the assignment requirements and establishing clear essay objectives. Second, the writer should organize their thoughts, brainstorm, and outline the format of the essay. This includes selecting significant themes, formulating a thesis statement, and creating an outline to help them write. The third step is resource management, which includes gathering pertinent information, accessing reference sources, and organizing records.

> *"… I started by doing research and creating an outline. For creative writing, I am more adaptable by selecting many random words that come to mind and putting them together." (P1, semi-structured interviews, November 22, 2024)*

> *"I utilize the mind mapping, which allows me to put down several major concepts and rearrange them in writing form." (P5, semi-structured interviews, November 22, 2024)*

Based on the findings from observations and interviews with EFL students during the execution stage, students process the information they have collected. This entails structuring ideas into coherent paragraphs. Second, while writing, they constantly monitor their progress. This entails examining the consistency of their arguments, ensuring that their paragraphs flow logically and are consistent across the paper. Furthermore, advanced students frequently seek comments from peers or instructors to better their

writing. This execution stage resembles what was stated by the following Participants:

> *"I corrected my work by re-reading and editing each sentence on the spot." (P4, semi-structured interviews, November 22, 2024)*

> *"I revise my work by rereading and editing it thoroughly. To focus on details and eliminate errors, I utilize the reverse reading strategy (reading from end to beginning). I also seek mentor comments to verify the quality and coherence of my writing." (P1, semi-structured interviews, November 22, 2024)*

Based on the findings from observations and interviews with EFL students during the reflective stage, writers assess their essay. This includes examining their essays for substance, structure, and coherence. They analyze whether they have met their initial aims and find areas for improvement. Second, they rewrite and tweak their work. This includes checking for grammatical problems, polishing the language, and making any necessary changes to retain clarity and cohesion. Finally, conduct a self-assessment to evaluate their performance. They think on what tactics worked effectively and what strategies might be improved for future writing projects.

> *"Evaluate my writing performance by measuring concept clarity, flow, and linguistic accuracy. My requirements include good grammar, consistency, and the ability to deliver the information clearly." (P1, semi-structured interviews, November 22, 2024)*

> *"By examining the content of the writing. Is it clear and understandable to both me and the reader, does it have a good and explicit writing objective, and has it been reviewed using established writing criteria/guidelines." (P3, semi-structured interviews, November 22, 2024)*

What types of online sources do students use in self-regulated writing, especially in writing essays?

To answer this research question, data were gathered through observations and interviews and presented in the form of a narrative to explain how learners use online resources to support their writing process. Based on the findings from observations and interviews with EFL students in the planning stage, students frequently used Google

Scholar and Scopus as online resources for independent writing processes. One of these is due to access to reliable sources: Google Scholar and Scopus offer massive collections of academic articles, research papers, and scientific publications. Students seek reputable materials to support their arguments and enhance the quality of their writing.

> *"I frequently utilize Google Scholar, as well as a number of websites related to essay writing. Then, I establish the platform's reliability by considering the publication's credibility, multiple reviews, and citations."(P2, semi-structured interviews, November 22, 2024)*

> *"I use Google Scholar and Scopus. To verify the journal's reliability, I analyze its index and impact factor (Scopus index Q1, Q2, etc.). If the journal is published nationally, I will examine its accreditation and see if it has been indexed by Sinta." (P4, semi-structured interviews, November 22, 2024)*

Drawing on the findings from observations and interviews with EFL students during execution stage, Students frequently used QuillBot as an online tool of autonomous writing strategies for a variety of reasons. QuillBot, a paraphrasing tool, helps students rephrase sentences and improve the overall clarity of their work. By creating alternate words, students can explain their ideas more clearly and concisely, ensuring that their arguments are transmitted as effectively as P2 described as follows.

> *"While I'm writing, I frequently utilize Deepl Translation, an AI tool that helps me interpret grammar, and Quilboat AI, which assists me in the process of paraphrasing multiple lines to make them easier for readers to understand." (P2, semi-structured interviews, November 22, 2024)*

Grammar & Spell Check with Grammarly is a highly handy writing tool for detecting grammatical faults, spelling mishaps, and punctuation issues. During the execution phase, students can concentrate on conveying their thoughts while Grammarly detects flaws in their writing and generates more professional sentences.

> *"I frequently use Google Schoolar for tracking, yet some journals are still led to other websites. So, I went directly to the intended website and also used various*

international campus journal databases. I also use grammar checking frequently. Grammarly is incredibly beneficial to me in ensuring that I utilize appropriate and correct grammar in accordance with writing norms." (P4, semi-structured interviews, November 22, 2024)

"Grammar checker programs such as Grammarly help me enhance my language skills, and I use them frequently, particularly throughout the editing process. I say I use it quite often." (P1, semi-structured interviews, November 22, 2024)

Based on the findings from observations and interviews with EFL students during the evaluation phase, students frequently used QuillBot and other paraphrasing tools for independent writing procedures, for a variety of reasons, including improving text quality. During the evaluation step, students check their drafts for clarity, coherence, and effectiveness. Paraphrasing technologies, such as QuillBot, allow people to rearrange sentences and paragraphs to improve readability and flow. This assists in recognizing inappropriate or unclear sentences that may require modification, as indicated by the following Participants:

"When using online platforms to evaluate my writing, I mostly use the Grammar checker to examine the use of linguistic structures in my essays, and I occasionally use Chat GPT to generate fresh ideas. Apart from that, I frequently ask my friends for feedback and comment on my work." (P2, semi-structured interviews, November 22, 2024)

"I use web tools (Google Scholar, Scopus, or ScienceDirect) to modify my writing by searching for relevant themes and comparing different methodologies. If the evaluation is related to the content of the work, I rely on feedback from my colleagues and discuss it." (P5, semi-structured interviews, November 22, 2024)

Students frequently worry about plagiarism and the originality of their work when writing. They can use paraphrase techniques to reorganize ideas and combine information from numerous sources while keeping their ideas distinctive in a written work.

"I use website tools like Turnitin to check for plagiarism in written work. My familiarity with plagiarism checkers such as Turnitin also allows me to ensure that the references and writing resources I utilize are correct and follow the guidelines." (P4, semi-structured interviews, November 22, 2024)

> *"I use Turnitin to check that my work is original. This is very useful for finding unintended similarities to other sources, which I can correct before submitting work." (P1, semi-structured interviews, November 22, 2024)*

DISCUSSION

The present findings showed that students use collaboration strategies as part of the social environment dimension of the SRW theory (Zimmerman, 1997, 2002). Based on the questionnaires, this dimension had the highest average score (M = 4.32), indicating the importance of collaboration in the writing process. The most common type of collaboration is peer feedback, as stated by P2: "I frequently ask friends to provide feedback before submitting assignments." In addition, informal discussions with lecturers were conducted to clarify writing concepts. This finding is consistent with previous research (Hwang, 2025; Tajabadi & Ahmadian, 2020), which demonstrated the importance of feedback in improving writing quality. Furthermore, the rereading strategy in the performance dimension appeared significant; students routinely reread their writing to ensure clarity and coherence, as expressed by P3: "I reread to make sure my train of thought doesn't jump around." This supports finding of prior studies (Li et al., 2023; Taub et al., 2023) that active revision improves the quality of academic writing.

This current study demonstrated students' SRW strategies which include a variety of approaches that students use to manage their writing assignments independently, such as planning, monitoring, and evaluating. EFL students use strategies like goal setting, brainstorming, and academic reference searches to organize their ideas before they begin writing. This supports the findings of (Bai & Wang, 2024; Guo et al., 2021), who discovered that careful planning leads to a clearer and more logical writing structure. During the monitoring stage, students actively revise and edit their drafts to ensure that they remain consistent with the original purpose and academic standards. Chung et al. (2021) found that students who self-monitored their writing improved text cohesion and coherence. In the

evaluation stage, students use automated feedback and peer response as part of their evaluation writing process, as discussed in Tian and Zhou's (2020) study, which emphasized the importance of evaluation in improving academic writing quality. Overall, these findings support previous research indicating that SRW strategies play an important role in improving the quality of EFL students' writing (Sun et al., 2022; Umamah et al., 2022). These findings imply that writing instruction in EFL classrooms should include self-regulation strategy training to help students develop more effective and independent writing skills.

The findings of this study demonstrate that advanced EFL students actively use SRW strategies when writing essays, particularly during the PLEE cycle, which answers the second research question. Advanced EFL students frequently use independent writing processes while producing essays, such as the PLEE cycle. This discussion explores how students use self-regulation strategies in each stage of the writing process, in line with prior study findings. During the planning phase, advanced EFL students use a variety of self-regulation strategies to prepare for writing projects. Research shows that effective planning includes establishing defined goals, organizing thoughts, and acquiring important information. For example, (Guo et al., 2021) discovered that students frequently use goal setting and strategic planning as part of their writing processes. They emphasize the importance of pre-writing practices, such as brainstorming and outlining, which help students clarify their thinking and properly plan their essays.

During the implementation stage, students concentrate on the writing process by employing cognitive and metacognitive strategies such as self-monitoring to assess and improve their writing (Zimmerman, 2000, 2002). This study discovered that advanced EFL students frequently use tools like QuillBot and Grammarly to receive quick feedback and improve the accuracy and coherence of their writing, which is consistent with previous research findings (Amyatun & Kholis, 2023; Chanpradit et al., 2024). Meanwhile, in the evaluation stage, advanced EFL students use self-reflection and peer evaluation to

assess the strengths and weaknesses in their writing. Peer review platforms and the use of reflective journals have been shown to improve both writing quality and metacognitive awareness of the writing process and strategies used (Jika & Jibril, 2023; Loughlin & Griffith, 2020).

The findings related to the third question revealed that many students actively used online sources in the SRW process, indicating cognitive and metacognitive strategies consistent with the SRL theory (Zimmerman, 2000). At the planning stage, students were observed using Google Scholar and Scopus to look up academic sources, reflecting the method and motive dimensions of SRW. P4 went on: "I always start by looking for articles in Scopus or Sinta so they are more reliable." This finding aligns with research conducted by prior studies (Umamah & Cahyono, 2022; Yabukoshi & Mizumoto, 2024). During implementation, students frequently relied on tools such as QuillBot and Grammarly to paraphrase and edit, which aligns with the performance dimension and supports the findings of prior studies (Amyatun & Kholis, 2023; Chanpradit et al., 2024). P1 writes: "QuillBot helps me paraphrase so I don't get plagiarized, and Grammarly to correct grammar." During the evaluation stage, students were also found using ChatGPT to review drafts, indicating the social environment dimension and supporting the findings of previous studies (Teng, 2024; Wang et al., 2024). These present findings suggest that EFL students strategically incorporate a variety of online tools into each stage of the PLEE cycle to support their academic writing independence.

CONCLUSION

This study sought to identify the SRW strategies and types of online resources used by EFL students when writing essays. The findings revealed that SRW strategies differed depending on the writing stage, with the social environment dimension dominating, followed by the performance and method dimensions. Students relied heavily on social interactions, such as peer discussions or lecturer

feedback, to improve the quality of their writing. In terms of online resources, Google Scholar was the most commonly used in the planning stage, while QuillBot was used for paraphrasing during the revision stage. Although the use of technology encourages independent writing, caution is advised because not all students possess adequate digital literacy or ethical awareness. As a result, writing instruction should emphasize the prudent and responsible application of technology.

This study adds novelty to the study of SRW strategies by delving deeper into the essay writing practices of EFL students in Indonesia, a context that has not been widely explored in previous studies. The integration of the cyclical PLEE model distinguishes this study from previous studies, which typically take a linear approach to viewing the SRW process. Furthermore, this study adds theoretical and practical value by linking the use of online resources to the dimensions of SRW. Thus, these findings provide educators with new perspectives for designing academic writing learning that is not only based on metacognitive strategies but also responsibly uses technology to support students' learning independence.

These findings have important pedagogical implications for teachers seeking to effectively integrate technology into writing instruction. Teachers can support academic writing instruction by demonstrating how to conduct scholarly research using website like Google Scholar and providing clear ethical guidance on AI-based tools such as QuillBot. Since the social dimension was found to be dominant, teachers should organize group discussions or peer feedback. In addition, students should be encouraged to develop other aspects of SRW, such as methods and time management, in order to have more balanced writing strategies. Thus, this study demonstrates that online platforms not only support students in learning to write but also enhance their use of SRW strategies.

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DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES

The authors declare that QuillBot (v15.555.13) Artificial Intelligence was used exclusively for proofreading purposes during the preparation of this manuscript. This AI-assisted technology was employed to enhance language clarity and readability. The authors have carefully reviewed and edited the content to ensure its accuracy and quality, take full responsibility for the final version of the publication.

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Appendix

Table 2

Descriptive statistics of performance dimension

No	Items	Mean	SD	Description
1	I am open to feedback to improve my writing.	4.08	.75	High
2	I am open to changes based on the feedback I received.	3.90	.72	High
3	I listen attentively to people who comment on my writing.	3.95	.76	High
4	I ask for feedback on my writing performance from someone who is more capable.	4.23	.77	Very high
5	I make a deal with myself that I get a certain amount of the writing done I can do something afterwards.	3.94	.70	High
6	I tell myself I can do something I like later if I, right now, do the writing I have to get done.	3.85	.70	High
7	I ask others what changes should be done with my writing.	4.03	.85	High
8	I welcome peer evaluations for every writing output.	3.98	.71	High
9	If I am having a difficulty in writing, I inquire assistance from an expert.	4.03	.77	High
10	I browse through my past writing outputs to see my progress.	3.94	.72	High

11	I promise myself I can do something I want later if I finish the assigned writing now.	3.92	.75	High
12	I monitor my improvement in writing tasks.	3.76	.76	High
13	I take note of the improvements on what I write.	3.80	.77	High
14	I evaluate my accomplishments at the end of each writing session.	3.89	.77	High
15	I set a goal for how much I need to write and promise myself a reward if I reach that goal.	3.76	.82	High
16	I ask others how my writing is before passing it to my professors (lecturer).	4.01	.78	High
17	I promise myself some kind of a reward if I get my writing done.	3.89	.93	High

Table 2 demonstrates that item 4 (I ask for feedback on my writing performance from someone who is more capable) is positioned at first determined by the average score berdasarkan nilai rata-rata (4.23± 0.77) and item 1 (I am open to feedback to improve my writing) is in second place (4.08± 0.75) However, the average score of item 12 (I monitor my improvement in writing tasks) is at its lowest (3.76 ± 0.76).

Table 3.
Descriptive statistics of methods dimension

No	Items	Mean	SD	Description
1	I revise my paper if I do not content with it.	3.79	.79	High
2	I reread my work several times to find errors in my writing.	4.02	.78	High
3	I brainstorm (i.e., listing thoughts as they come to you) for ideas before I write.	3.87	.80	High
4	I create a draft before writing the final paper.	3.85	.85	High
5	I create outlines (physically or mentally) before I write.	3.87	.88	High
6	I proofread my work.	4.02	.67	High
7	I ask tutors to evaluate my writing and give suggested revisions.	3.85	.72	High

8	I free-write (i.e., writing about the subjects without worrying about sentence structure) to get out my thoughts.	3.73	.83	High
9	I use graphic organizers (e.g., tree diagrams) to organize my ideas.	3.32	.84	Moderate
10	I ask my peers to edit my writing.	3.24	.94	Moderate

Table 3 demonstrates that item 2 (I reread my work several times to find errors in my writing) is positioned at first determined by the average score (4.02± 0.78) and item 1 (I proofread my work) is in second place (4.02± 0.67) However, the average score of item 10 (I ask my peers to edit my writing) is at its lowest (3.24 ± 0.94).

Table 4
Descriptive statistics of social environment dimension

No	Items	Mean	SD	Description
1	I use library sources and the internet to find the information I want.	4.29	.71	Very high
2	I call/text a classmate about the writing homework that I missed.	4.03	.79	High
3	I use a variety of sources in making my paper.	4.13	.71	High
4	I am looking for a friend whom I can have an exchange of writing questions with.	3.84	.89	High
5	I take my own notes in writing class.	3.84	.91	High
6	I enjoy group writing work because we help one another.	3.81	.83	High

Table 4 demonstrates that item 1 (I use library sources and the internet to find the information I want) is positioned at first determined by the average score (4.29± 0.71) and item 3 (I use a variety of sources in making my paper) is in second place (4.13± 0.71) However, the average score of item 6 (I enjoy group writing work because we help one another) is at its lowest (3.81 ± 0.83).

Table 5
Descriptive statistics of physical environment dimension

No	Items	Mean	SD	Description
1	I switch off my TV or mobile phone for me to concentrate on my writing.	3.52	.86	High
2	I isolate myself from unnecessary noisy places.	3.79	.89	High
3	I can't study nor do my writing homework if the room is dark.	3.95	1.06	High
4	I avoid watching TV or using the Internet if I have a pending writing homework.	3.58	.86	High
5	I don't want to hear a single sound when I am writing.	3.16	1.09	Moderate

Table 5 demonstrates that item 3 (I can't study nor do my writing homework if the room is dark) is positioned at first determined by the average score (3.95± 1.06) and item 2 (I isolate myself from unnecessary noisy places) is in second place (3.79± 0.89) However, the average score of item 5 (I don't want to hear a single sound when I am writing)) is at its lowest (3.16 ± 1.09).

Table 6.
Descriptive statistics of time dimension

No	Items	Mean	SD	Description
1	I make sure I keep up with the weekly writing assignments for the writing course.	3.58	.67	High
2	I attend my writing class regularly.	3.92	.71	High
3	I find it hard to stick to a writing schedule.	3.58	.76	High
4	I make a schedule of the writing activities I have to do on workdays.	3.50	.86	High
5	I make good use of my study time (e.g. 5:00-7:00 p.m.) for writing assignments.	3.27	.81	Moderate
6	I spend my time each day planning for writing.	3.29	.91	Moderate
7	I write a set of goals (including writing one or two paragraphs) for myself (not for assignment) each day.	3.34	.79	Moderate

8	I make a list of the things I have to write each day.	3.52	.80	High

Table 6 demonstrates that item 2 (I attend my writing class regularly) is positioned at first determined by the average score (3.92± 0.71) and item 3 (I find it hard to stick to a writing schedule) is in second place (3.58± 0.76) However, the average score of item 5 (I make good use of my study time (e.g. 5:00-7:00 p.m.) for writing assignments) is at its lowest (3.27 ± .81).

Table 7.
Descriptive statistics of motive dimension

No	Items	Mean	SD	Description
1	I can write paragraphs with details that support the ideas in the topic sentences or main ideas.	3.60	.66	High
2	I can write the proper conclusion of an essay.	3.68	.72	High
3	I can get ideas in a clear manner by staying focused without getting off the topic.	3.55	.80	High
4	I can write a proper introduction to an essay.	3.53	.72	High
5	I can edit essays throughout the writing process.	3.63	.71	High
6	I can write a well-organized and sequenced paper with a good introduction, body, and conclusion.	3.56	.78	High
7	I keep track of everything I have to write in a notebook or on a calendar.	3.47	.86	High
8	I can complete a writing task without difficulty by the due date.	3.44	.78	High
9	I can easily generate ideas to write about.	3.34	.79	Moderate
10	I can write on an assigned topic without difficulty.	3.29	.84	Moderate
11	I use a planner to keep track of what I am supposed to accomplish.	3.39	.91	Moderate
12	I make a timetable of all the writing activities I have to complete.	3.44	.78	High

13	I plan the things I have to write in a week.	3.40	.84	Moderate
14	I make a detailed schedule of my writing activities.	3.37	.91	Moderate

Table 7 demonstrates that item 2 (I can write the proper conclusion of an essay) is positioned at first determined by the average score (3.68± 0.72) and item 5 (I can edit essays throughout the writing process) is in second place (3.63± 0.71) However, the average score of item 10 (I can write on an assigned topic without difficulty) is at its lowest (3.29 ± .84).