

An Analysis of Learning Strategies through Self-Regulation Theory

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ABSTRACT

This study examined learners' perceptions of learning strategies across three phases of self-regulated learning (SRL): forethought, performance and self-reflection stages. In particular, the study focused on the learners' perceptions of each phase and the relationships between the three phases. A quantitative survey design was used and 289 learners were surveyed and answered a 42-item questionnaire with a five-point likert scale. Metacognitive self-regulation and cognitive strategies (rehearsal, organisation, elaboration and critical thinking) were measured in the forethought phase and in the performance phase, respectively. Self-reflection was assessed by resource-management strategies, which included environment management, time management, effort regulation and help-seeking. Data regarding learners perceptions were analysed using descriptive statistics and Pearson correlation analysis was used to investigate the relationship between the three phases. The results revealed that the three phases were seen positively by the learners in general. In the forethought phase, learners were able to exhibit metacognitive awareness; in the performance phase, they used cognitive strategies actively; in the self-reflection phase, they showed positive utilization of resource management strategies. The correlation analysis showed that the forethought and performance, performance and self-reflection, and self-reflection and forethought were all strong positive correlations. These results confirm the cyclical theory of SRL and suggest that planning, strategy use and reflective adjustment are interrelated components of effective language learning. The study emphasizes the significance of supporting learners' learning strategies during all stages of the learning process in the language.

Keywords: self-regulated learning, language-learning strategies, metacognitive self-regulation, cognitive strategies, resource management.

INTRODUCTION

Background of the Study

To successfully learn a language, learners need to apply appropriate strategies to control, process and maintain their learning. In higher education students are expected to be more responsible for their own progress, as language development is not only related to classroom instruction but also related to how students plan, practice, monitor, and seek support during language learning. Recent research indicates that self-regulated language learners apply metacognitive, cognitive, behavioural, and motivational strategies to enhance language performance and learning confidence (Zhang & Zou, 2024; Chansri et al., 2024). Thus, learning strategies are crucial as they indicate the ways in which learners approach language tasks in meaningful and thought-provoking ways.

Self-regulated learning provides a helpful framework for the analysis of learning strategies in the various stages of language learning. Metacognitive self-regulation is the forethought stage, rehearsal, organisation, elaboration, and critical thinking are the performance stage, and environment and time management, effort

regulation, and help-seeking are self-reflection. The results of these strategy groups indicate that language learning is not just a matter of memorizing content, but also require planning, active engagement, as well as adaptation in the event of learning difficulties. Studying these stages, therefore, can give a deeper understanding of learners' language learning process as a whole and continuous process.

Statement of Problem

Learning strategies are well known as significant supports for language learning, but learners do not necessarily employ them in a balanced and connected way. Some recent studies indicate that self-regulated language learning strategies are correlated with language proficiency, such as grammar, reading, writing, and language functions, and metacognitive, cognitive, motivational, and behavioral strategies are correlated with academic and affective outcomes (Chansri et al., 2024; Zhang & Zou, 2024). Language learners, however, might vary with respect to the extent to which they plan their language learning, process language contents, make efforts, and seek help when they encounter problems. This poses a practical issue since learners employing one strategy at a time may not be able to make the full use of the self-regulatory cycle. The point, then, is not just if, but how, learners utilize strategies throughout the various stages of learning.

There has also been recent research that has advocated more attention to the frequency, effectiveness and context of self-regulated language learning strategies in authentic classrooms (Zhang & Zou, 2024). Furthermore, the results on the relationship between SRL strategies and language achievement are not conclusive and sometimes are inconsistent as some research showed positive correlations on certain language aspects while others demonstrated negative or unexpected correlations on some language aspects (Chansri et al., 2024; Wardani et al., 2023). Therefore, in this regard, it is necessary to have a study that examines how learners perceive learning strategies through the forethought, performance and self-reflection stages, and the relationship between the three stages. To meet this need, this study examines learning strategies using self-regulation theory, which believes that learning strategies can be viewed as a bundle of learning strategies that result in meaningful learning rather than an isolated learning behavior.

Objective of the Study and Research

Questions

This study examines learners' perceptions of learning strategies across the forethought, performance, and self-reflection phases of self-regulated learning. It also examines the relationships among the three phases. The research questions and corresponding null hypotheses are as follows:

- How do learners perceive learning in the forethought phase?
- How do learners perceive learning in the performance phase?
- How do learners perceive learning in the self-reflection phase?
- Is there a significant relationship between forethought and the performance phase?

H₀₁: There is no significant relationship between forethought and the performance phase

- Is there a significant relationship between performance and the self-reflection phase?

H₀₂: There is no significant relationship between performance and the self-reflection phase

- Is there a significant relationship between the self-reflection and forethought phase?

H₀₃: There is no significant relationship between the self-reflection and forethought phase

LITERATURE REVIEW

Theoretical Framework of the Study

Self-Regulated Learning Theory

The Self-Regulated Learning Theory emerged from the social cognitive theory and was greatly influenced by Zimmerman's research on learners' active involvement in learning. In his previous overview, Zimmerman (1990) defined SRL as "metacognitively, motivationally, and behaviourally active individuals in their own learning". The theory considers the learner as a person who plans, monitors, evaluates and adjusts his/her learning behaviour, instead of relying on external instructions only. In later work, Zimmerman's cyclical model of self-regulated learning comprised three stages: forethought, performance and self-reflection (Zimmerman, 2000). The forethought phase includes goal setting and strategic planning, the performance phase includes strategy use and monitoring of strategy during learning, and the self-reflection phase includes reviewing the outcomes of learning and adapting strategy for future learning. Self-regulated learning (SRL) is also important in language learning as it enables learner autonomy, motivation, persistence, and strategic behaviour; these are the findings of recent studies done by Yu (2023), and Zhang & Zou (2024). This study applies the theory to analyse the learning strategies during planning, performance and reflection. Therefore, learning strategies are considered to be a continuous cycle of regulation and this is the explanation of the learners' learning process from intention to action and improvement.

Learning Strategies in Language Learning

Language-learning strategies are the processes and activities learners use to improve their understanding, practise, organise and enhance the learning process. These are considered to be the typical signs of the learner's behaviors in the context of processing language input and giving learners more control over learning tasks. The broader conceptualisation of language-learning strategies in this study is informed by Wenden and Rubin (1987), while the measurement items were selected and adapted from the learning-strategies section of the Motivated Strategies for Learning Questionnaire developed by Pintrich et al. (1991). The MSLQ was developed to be used in higher education and differentiates between cognitive, metacognitive and resource-management strategies.

This study focuses on three groups of learning strategies: metacognitive self-regulation, cognitive strategies, and resource-management strategies. Metacognitive self-regulation refers to planning understanding, monitoring understanding and modifying the learning behaviour. Cognitive strategies are rehearsal, organisation, elaboration and critical thinking, whereas resource-management strategies are managing time and study environment, controlling effort and seeking help when needed. Recent research shows that these strategies help develop language, learner autonomy, perseverance, and confidence in language learning (Idris et al., 2022; Zhang & Zou, 2024; Chansri et al., 2024). Thus the concept of learning strategies cannot be seen as simply as methods of studying a language in isolation and should rather be considered as actual strategies which will help learners to control their learning language more deliberately.

In general, Self-Regulated Learning Theory and learning strategies work well together in providing an explanation of what language learning is, that is language learning is a planned, active and reflective process. The theory outlines the cyclical forethought, performance, and self-reflection phases, and learning strategies refer to the actions that learners use during the phases. Metacognitive self-regulation is linked to the forethought component of the operational definition in this study, cognitive strategies to performance and resource-management strategies to self-reflection. This alignment is not meant to be the original factor structure of the MSLQ but is used for the present study.

These strategies may not be used in a balanced or consistent way, however, by the learner. Some learners may be able to plan their learning but are not always able to maintain the effort, and others may be able to 'do the work' but not actively try to reflect on their learning. The interaction between language learning strategies and language learning tasks and contexts in real contexts is also emphasized in recent research on self-regulated language learning (Yu, 2023; Zhang & Zou, 2024). Thus, the present study focused on learning strategies as a

set of interconnected behaviours in the context of the self-regulatory cycle and explored the linkages between forethought, performance and self-reflection.

Past Studies on Learning Strategies

Studies on Metacognitive Self-Regulation

According to past research, metacognitive self-regulation is very significant in the planning, monitoring and evaluation of language learning. In a quantitative study that included 189 French-as-a-foreign language (FFL) learners, Idris et al. (2022) revealed that the students applied cognitive and metacognitive strategies in their language learning and when revisiting challenging topics and confirming their understanding of the target language. Likewise, Siregar et al. (2024) found that the use of metacognitive strategies for adult EFL learners not only increased their awareness of learning process but also improved their control over learning process. It is important to note, however, that these studies also suggest that metacognitive awareness needs to be converted into regular practice. Since metacognitive self-regulation is important to the forethought phase since it influences the way learners prepare themselves before they immerse themselves in language tasks, it is crucial that this is discussed and developed during this stage.

Studies on Cognitive Learning Strategies

Cognitive learning strategies are often associated with language knowledge processing, organising and application in the learning process. According to Idris et al. (2022), foreign language learning strategies, such as rehearsal, organisation, and elaboration, among others, were used by the learners to facilitate their foreign language learning process, while Chansri et al. (2024), in a quantitative study with 421 undergraduate students, concluded that foreign language learning abilities and knowledge were correlated with self-regulated learning strategies. Furthermore, Chen's (2022) meta-analysis revealed that self-regulated learning interventions were effective in students' L2 achievement, L2 strategy use and self-efficacy. However, a challenge is that learners may use deeper strategies less consistently, with more reliance on strategies which are familiar to them, such as memorisation. Thus, cognitive strategies can be said to represent the performance phase as they represent the way in which learners interact with the language input they are exposed to during the learning process.

Studies on Resource Management Strategies

As important as resource management strategies are, they illustrate how learners manage learning conditions, effort and how they navigate support systems. In their study of 662 German university students, Naujoks et al. (2021) discovered that learning readiness and environment structuring, as well as help-seeking, were all affected by students' preparedness and learning conditions during remote teaching. Raffi et al. (2023) conducted a study among 118 public university students in Malaysia to investigate the positive correlations among resource management, metacognitive self-regulation and cognitive strategies. Despite this, the need for help and managing effort is still difficult, as learners may be aware of the support that is available but not take up the assistance at the right time. Resource management is therefore closely linked to self-reflection as it indicates how learners react when facing learning challenges and how they adapt to their learning environment.

Studies on the Relationship between Self-Regulated Learning Phases

In recent research, self-regulated learning has come to be seen as an integrated process instead of a collection of strategies. Tinajero et al. (2024), from an integrative review of SRL models, described that learners choose, apply and modify SRL strategies based on their learning objectives, their own traits and learning situation. Likewise, Zhang and Zou (2024) conducted a review of 58 articles found in SSCI and found that SFLR is a process of interactions between the learner, strategies, tasks, and learning environments. The findings of empirical studies conducted by Raffi et al. (2023) also revealed that there were significant positive relationships between- resource management, metacognitive self-regulation and cognitive strategies. The results suggest that the three factors of forethought, performance, and self-reflection should be studied concurrently. Deeper insights are that strategy use is not just about planning, action, and adjustment, but about learning that is meaningful.

Previous research indicates that learning strategies are most effective when they are considered as integrated learning practices, instead of isolated learning strategies. Metacognitive self-regulation strategies aid students in planning and monitoring their learning, cognitive strategies aid students in processing and applying language knowledge, and resource management strategies help students maintain effort and control over the learning situation and seek assistance when needed. The reviewed literature, however, also indicates that learners do not employ these strategies equally well, and some of these strategies are more salient in planning, while others emerge during task execution or at the end of a task when learners experience problems. In addition, recent reviews and empirical studies have pointed out the need to explore the interactions of these groups of strategies in learning contexts and phases (Zhang & Zou, 2024; Tinajero et al., 2024). Thus, the present study is located to continue this discussion by exploring the concept of forethought, performance and self-reflection as linked stages of language learning and the deeper understanding of the relationship between strategy and planning, action and adjustment.

Conceptual Framework of the Study

Effective language learners use purposeful learning strategies to plan for language learning, participate in language tasks, and respond to language learning challenges. Other factors that affect learners' persistence are their motivation and perception of a learning task (Rahmat & Thasrabiab, 2024). The conceptual framework adopted in this study is grounded in Zimmerman's cyclical model of self-regulated learning, which comprises the forethought, performance, and self-reflection phases (Zimmerman, 2000). The forethought phase includes processes like goal setting and strategic planning, the performance phase includes processes of using strategy and self-monitoring while learning, and the self-reflection phase includes processes of evaluating learning outcomes and modifying future learning.

The measurement components were chosen and adapted from the learning-strategies part of the Motivated Strategies for Learning Questionnaire developed by Pintrich et al., (1991) and were operationally related to the three phases of the framework. The forethought phase was related to metacognitive self-regulation and the performance phase was related to cognitive strategies such as rehearsal, organisation, elaboration and critical thinking. Resource-management strategies comprising environment and time management, effort regulation, and help-seeking were associated with the self-reflection phase. This arrangement is the one used in the current research and is not reflective of the original factor structure of the MSLQ.

The framework shows how learners can be examined with regard to the perception of the three phases and the interconnections between the phases as shown in Figure 1. The first three research questions look at learner's perception of forethought, performance and self-reflection; the remaining research questions address the relationships between forethought and performance, performance and self-reflection and self-reflection and forethought. The framework is based on Zimmerman's cyclical model of language learning, which approaches the learning process as an interwoven network of activities that involve planning, strategy use, learning performance, reflection, and subsequent planning.

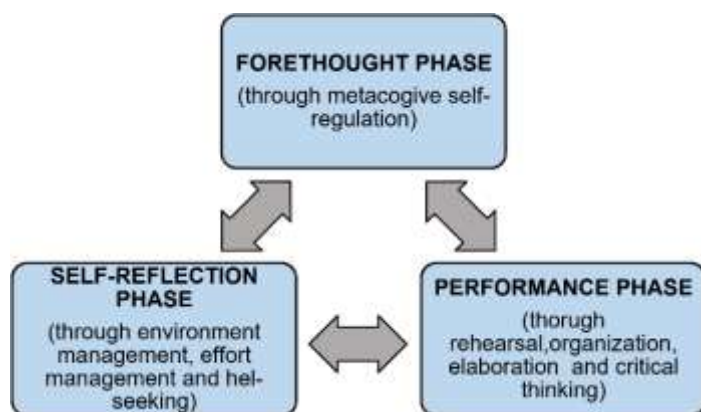


Figure 1- Conceptual Framework of the Study Based on Zimmerman's Cyclical Model of Self-Regulated Learning

METHODOLOGY

Research Design, Participants, and Sampling

The quantitative cross-sectional survey design was used to investigate the perceptions of the learners towards learning strategies in self-regulated learning process in three stages: before the learning, during the learning and after the learning. The respondents consisted of 289 third language learners, who were undergraduates from public university in Malaysia studying Arabic as a third language at the time of the data collection. They were from three very general disciplines – business and management, health sciences, and computer science. The participants were obtained by convenience sampling, since they were available through their language lecturers and willing to participate. This approach facilitated access to learners in the study context but restricted the generalisability of findings to the sample of learners who participated.

Instrument and Measures

The instrument consisted of 42-items that were selected and adapted from the learning-strategies section of the Motivated Strategies for Learning Questionnaire (MSLQ) of Pintrich et al. (1991). The initial MSLQ was designed for application at the higher education level, and provided evidence for its scale structure and reliability. Selected subscales included aspects of rehearsal, organisation, elaboration, critical thinking, metacognitive self-regulation, time and study environment management, effort regulation and help-seeking. The wording of items was placed into context for the courses which the participants had taken. The answers were given on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5).

Based on the conceptual framework, the 11 items related to metacognitive self-regulation were operationally related to forethought, the 19 cognitive-strategy items to performance, and the 12 items related to resource-management to self-reflection. Five items measured environment and time management within the context of resource management, three items measured effort regulation, and four items measured help-seeking within the context of resource management. Two negatively worded items were reverse-coded before the scale scores, internal consistency coefficients, and correlations were calculated. The scores were transformed using the formula 6 – original response, ensuring that higher scores consistently represented stronger self-regulation

After reverse coding, the Cronbach alphas were .870 for forethought, .949 for performance, and .851 for self-reflection. The total coefficient for the 42 item questionnaire was .962. The coefficients represent high internal consistency in the current sample. The adapted version of MSLQ was based on the original MSLQ, which had been previously psychometrically supported; however, there was no expert review, pilot validations, or factor analysis conducted for the adapted version prior to data collection. The coefficients reported in this study therefore provide evidence of internal consistency within the present sample but do not, by themselves, confirm the content or construct validity of the adapted three-phase measurement model.

Table 1. Likert Scale Use

No	Scale
1	Strongly Disagree
2	Disagree
3	Undecided
4	Agree
5	Strongly Agree

Data Collection and Data Analysis

The questionnaire link was distributed to the students by their language lecturers through WhatsApp. The respondents filled the questionnaire in a one-week data-collection period; and participation was voluntary. The data consisted of completed responses for all 42 learning-strategy items, so that all 289 responses were kept for analysis. The data were analysed with SPSS. Demographic characteristics were summarized as percentages and responses to learning-strategy items were summarized as means and standard deviations. Pearson correlation analysis was used to investigate the nature and extent of the relationships between forethought, performance and self-reflection. The analysis was designed to explore statistical relationships, not predictive or causal links.

Table 2. Distribution of Questionnaire Items

	VARIABLE (KEYWORD)		CONSTRUCT	ITEM	TOTAL ITEM
A	FORETHOUGHT (Metacognitive Self-Regulation)		METACOGNITIVE SELF- REGULATION		11 (.870)
B	PERFORMANCE (cognitive components)	(a)	Rehearsal	4	19 (.949)
		(b)	Organisation	4	
		(c)	Elaboration	6	
		(d)	Critical thinking	5	
C	SELF- REFLECTION (resource management)	(a)	Environment and time management	5	12 (.851)
		(b)	Effort regulation	3	
		(c)	Help-seeking	4	
					42 (.962)

Table 2 presents the distribution of the questionnaire items. The forethought scale comprised 11 items on metacognitive self-regulation. The performance scale comprised 19 items covering rehearsal, organisation, elaboration, and critical thinking. The self-reflection scale comprised 12 resource-management items covering environment and time management, effort regulation, and help-seeking. The complete questionnaire therefore contained 42 learning-strategy items.

Table 3. Internal Consistency of the Questionnaire Scales

Scale	Number of items	Cronbach's alpha	Interpretation
Forethought	11	.870	Good
Performance	19	.949	Excellent
Self-reflection	12	.851	Good
Overall questionnaire	42	.962	Excellent

Table 3 presents the internal consistency coefficients following the reverse coding of the two negatively worded items. The forethought, performance, and self-reflection scales had Cronbach's alpha coefficients of .870, .949, and .851, respectively. The overall coefficient was .962 for the 42-item questionnaire. These coefficients indicate good to excellent internal consistency within the present sample. Nevertheless, internal consistency should not be interpreted as confirmation of content or construct validity.

FINDINGS

Demographic Analysis

Demographic information gives a clear picture of the sample population, in terms of their attributes and makeup. Presenting demographic groups in percentages enables readers to see how the sample was distributed and determine the context of the data collection (Ziegenfuss et al., 2021). The gender and general academic disciplines of the respondents were summarised in the present study by percentages. The demographic findings presented here should be used to describe the sample that participated, and not to imply that this sample is representative of, or may be generalised to, a larger population.

Table 4. Percentage for Demographic Profile

Question	Demographic Profile	Categories	Percentage (%)
1	Gender	Male	29%
		Female	71%
2	Academic field	Science & Technology	23%
		Social Sciences & Business	77%

The demographic information regarding the 289 undergraduate respondents is shown in Table 4. During the data collection period, all the participants were enrolled in Arabic as a third language learning course in a public university in Malaysia. The participants consisted of those from business and management, health sciences and computer science programmes. The following programmes were included in these groups for demographic reporting purposes: the two broad academic-field categories used in the questionnaire. Women accounted for 71% of the respondents while men accounted for 29%. Academic field wise, 77% of the respondents were put under category: Social Sciences and Business and 23% under Science and Technology. Overall, the distribution gives a context to the participating sample but there were larger proportions for female students and those from Social Sciences and Business. This demographic profile provides an overview of the respondents before the analysis of learning strategies across the three phases of SRL.

Descriptive Statistics (mean)

Means and standard deviations were used to summarise the item-level responses. The mean represents the average response, while the standard deviation indicates the extent to which the responses vary around the mean (Vetter, 2017). A higher standard deviation reflects greater variation among respondents, whereas a lower value indicates that the responses are more closely grouped around the mean.

Findings for Forethought phase

This section presents data to answer research question 1: How do learners perceive learning in the forethought phase? In the context of this study, this is measured by metacognitive self-regulation.

Table 5. Mean (M) and Standard Deviation (SD) for Metacognitive Self-Regulation (11 items)

ITEM	M	SD
1. During class time, I often miss important points because I am thinking of other things.	3.10	0.91
2. When reading for the courses, I make up questions to help focus my reading.	3.42	0.83
3. When I become confused about something I am reading for the classes, I go back and try to figure it out.	3.62	0.76
4. If course readings are difficult to understand, I change the way I read the material.	3.62	0.76
5. Before I study new course material thoroughly, I often skim it to see how it is organized	3.41	0.77
6. I ask myself questions to make sure I understand the material I have been studying in this program.	3.41	0.79
7. I try to change the way I study in order to fit any course requirements and the instructors' teaching style.	3.53	0.74
8. I try to think through a topic and decide what I am supposed to learn from it rather than just	3.51	0.72

reading it over when studying for the courses in this program.		
9. When studying for the courses in this program I try to determine which concepts I do not understand well.	3.61	0.76
10. When I study for the courses, I set goals for myself in order to direct my activities in each study period.	3.56	0.77
11. If I get confused taking notes in classes, I make sure I sort it out afterwards.	3.57	0.77

Note: Item 1 was negatively worded and reverse-coded for scale-level reliability and correlation analyses.

Table 5 shows the mean and standard deviation for the forethought phase (metacognitive self-regulation). As a whole, the students had a medium to positive attitude towards self-regulation of learning. The greatest mean scores were for going back to comprehend confusing reading materials (**M = 3.62**) and for changing reading approaches when readings were confusing (**M = 3.62**). The results indicate that when students struggled, they were able to reflect on their learning and modify their approaches. This is in line with Idris et al. (2022), who reported that the use of metacognitive strategies by the learners was aimed at revisiting the topics that are difficult to learn and evaluating understanding in foreign language learning.

The negatively worded item relating to failure to pay attention in class due to being distracted by thoughts unrelated to the topic had a raw mean of **3.10**. Once reverse coded, the corresponding score was **2.90**, indicating that attention regulation continues to be a need of support for some learners. For analyses of scale-level reliability and correlation, a reverse coded score was used to guarantee that a higher score indicated higher levels of self-regulation. From the SRL perspective, this finding suggested that learners showed positive metacognitive learning practices in monitoring and adjusting their learning, but their ability to sustain attention during class was relatively low. This result is similar to Siregar et al. (2024) who stated that metacognitive strategies can enhance the consciousness of their thinking process and the control of learning behaviors. Therefore, more instructional support may be required to assist learners to monitor distractions and focus during language learning activities.

Findings for the Performance phase

This section presents data to answer research question 2: How do learners perceive learning in the performance phase? In the context of this study, this is measured by (i) rehearsal, (ii) organization, (iii) elaboration and (iv) critical thinking.

Table 6. Mean (M) and Standard Deviation (SD) for Rehearsal (4 items)

ITEM	M	SD
1. When I study for the classes, I practice saying the material to myself over and over.	3.55	0.74
2. When studying for the courses, I read my class notes and the course readings over and over again.	3.59	0.75
3. I memorize key words to remind me of important concepts in this class.	3.84	0.79
4. I make lists of important items for the courses and memorize the lists.	3.77	0.83

The mean and standard deviation of rehearsal strategies for the performance phase are presented in Table 6. It was concluded that in general, learners tended to use rehearsal in learning language materials. Memorising key words to remember important concepts (**M 3.84**) and making lists of important items then memorising (**M 3.77**) had the highest mean scores. The analysis indicates that the learners used memorisation and repetition as

a strategy for learning the necessary language content. However, the lowest mean was found for practising by repeating the material, $M = 3.55$, but the score is still positive overall. This pattern is observed in the performance aspect of SRL, which is the stage at which learners use cognitive strategies in learning activities. The results are similar to the results obtained by Idris et al. (2022) which showed that the use of cognitive strategies like rehearsal helps to process foreign language materials.

Table 7. Mean (M) and Standard Deviation (SD) for Organization (4 items)

ITEM	M	SD
1. When I study the readings for the courses in the program, I outline the material to help me organize my thoughts.	3.60	0.78
2. When I study for the courses, I go through the readings and my class notes and try to find the most important ideas.	3.68	0.80
3. I make simple charts, diagrams, or tables to help me organize course materials in this program.	3.44	0.91
4. When I study for the courses, I go over my class notes and make an outline of important concepts.	3.70	0.79

Table 7 shows the mean and standard deviation of the organization strategy in the performance phase. The overall results of the study revealed that learners tended to organise learning materials in a positive way in learning. The most common was to go over class notes and make an outline of the most important ideas ($M = 3.70$) followed by going through readings and class notes to make an outline of the most important ideas ($M = 3.68$). The results seem to indicate that note review and idea selection were more preferred by the learners for organizing information. The lowest mean was obtained for creating basic charts, diagrams, graphs or tables to structure topics of the course ($M = 3.44$). This shows that less frequently, visual organisation was used than note based organisation. This results is a reflection of the performance phase of SRL as students involved in structuring and managing the learning content with cognitive strategies. This finding is in accordance with Idris et al. (2022) who stated that cognitive strategies help students to process and organise foreign language materials.

Table 8. Mean (M) and Standard Deviation (SD) for Elaboration (6 items)

ITEM	M	SD
1. When I study for the courses in this program, I pull together information from different sources, such as lectures, readings, and discussions.	3.64	0.85
2. I try to relate ideas in one subject to those in other courses whenever possible	3.48	0.78
3. When reading for the courses, I try to relate the material to what I already know.	3.74	0.75
4. When I study for the courses in this program, I write brief summaries of the main ideas from the readings and my class notes.	3.53	0.76
5. I try to understand the material in the classes by making connections between the readings and the concepts from the lectures.	3.62	0.75
6. I try to apply ideas from course readings in other class activities such as lecture and discussion.	3.57	0.81

Table 8 shows the means and standard deviations for elaboration strategies during the performance phase. In general, the learners indicated positive tendencies in relating new learning materials to previous learning and

other learning sources. The highest mean value was for relating reading materials to what learners already know (**3.74**) followed by pulling together information from lectures, reading and discussion (**3.64**). The results indicate that the learners engaged in elaboration to gain an understanding of the information rather than just to internalize it. The lowest mean was for relating ideas in one subject to ideas in another courses, **M = 3.48**. This means that making connections across courses was not as common as making connections in the content to prior knowledge. These results refer to the performance stage of SRL, where learners were actively engaging in processing and extending the language input. The pattern is similar to that of Chansri et al. (2024) who revealed that SRL strategies correlated with English language skill and knowledge of learners.

Table 9. Mean (M) and Standard Deviation (SD) for Critical Thinking (5 items)

ITEM	M	SD
1. I often find myself questioning things I hear or read in the courses to decide if I find them convincing.	3.60	0.79
2. When a theory, interpretation, or conclusion is presented in classes or in the readings, I try to decide if there is good supporting evidence.	4.48	0.77
3. I treat the course materials as a starting point and try to develop my own ideas about it.	3.50	0.73
4. I try to play around with ideas of my own related to what I am learning in the courses.	3.55	0.79
5. Whenever I read or hear an assertion or conclusion in the classes, I think about possible alternatives.	3.48	0.75

Table 9 displays the mean and standard deviation for critical thinking strategies during the performance phase. In general, students' attitudes towards the evaluation of ideas and evidence were positive in the course materials. The largest mean was found for determining whether a theory, interpretation, or conclusion has good supporting evidence (**M = 4.48**), showing that students were confidently leaning to evaluate the trustworthiness of information. The lowest mean was for thinking about possible alternatives when reading or hearing an assertion or conclusion (**M = 3.48**).

This implies that students had more confidence in evaluating evidence than in constructing other viewpoints. The results of this study focus on the learning phase of self-regulated learning, where the learners used critical thinking skills to process and evaluate their language input in the learning activity. This result is similar to that of Chansri et al. (2024) who revealed that SRL strategies correlated with the English language abilities and knowledge of learners.

Findings for the Self-reflection phase

This section presents data to answer research question 3: How do learners perceive learning in the self-reflection phase? In the context of this study this is measured by (i) environment and time management, (ii) effort regulation and (iii) help-seeking.

Table 10. Mean (M) and Standard Deviation (SD) for Environment and Time Management (5 items)

ITEM	M	SD
1. I usually study in a place where I can concentrate on my course work.	3.85	0.83
2. I make good use of my study time for the courses in this program.	3.75	0.77
3. I make sure that I keep up with the weekly readings and assignments for the courses.	4.00	0.90

4. I attend the classes regularly in this program.	3.85	0.83
5. I have a regular place set aside for studying.	3.62	0.84

The means and standard deviations for the self-reflection phase are shown in Table 10. Students' general trend was increasing in their capacity of managing their learning environment and study habits. The highest mean scores were for keeping up with weekly readings and assignments ($M = 4.00$), studying in a place where you were able to concentrate ($M = 3.85$), and attending classes regularly ($M = 3.85$). The lowest mean was for those who had a regular place to study ($M = 3.62$). The results indicate that the students adapted their learning environment in general, but it will be necessary to give more support to them to learn to control study spaces and time management. This is similar to Naujoks et al. (2021) who found two other factors to be significant for self-regulated resource management: environment structuring and time management. It also supports Raffi et al. (2023), who concluded that there was a positive correlation between resource-management strategies and metacognitive self-regulation and cognitive strategies in foreign-language learning. In total these results demonstrate how the learning environment can offer learners practical support for their wider self-regulated learning.

Table 11. Mean (M) and Standard Deviation (SD) for Effort Regulation (3 items)

ITEM	M	SD
1. I work hard to do well in the classes in this program even if I do not like what we are doing.	3.71	0.76
2. When course work is difficult, I either give up or only study the easy parts.	3.04	1.01
3. Even when course materials are dull and uninteresting, I manage to keep working until I finish.	3.73	0.76

Note: The item concerning giving up or studying only the easy parts was negatively worded and reverse-coded for scale-level reliability and correlation analyses.

The mean and the standard deviation of the effort regulation variable in the self-reflection phase are shown in table 11. Working till completion of the course even if the materials are boring ($M = 3.73$) and working hard even if learners are not fond of the learning activity ($M = 3.71$) were the two highest means. The item about giving up or studying only the easy parts was negatively worded and had a raw mean of **3.04**. When reverse coded, the score was **2.96**, suggesting that if students are struggling in a course there might be a need for additional support for persistence. In order to ensure consistency in the level of effort regulation, the reliability and correlation analysis of the scale level was conducted using the reverse coded value. This finding is similar to what Raffi et al. (2023) reported, which is that foreign-language learning strategies had positive correlation with metacognitive self-regulation and cognitive strategies. It also corroborates the findings of Zhang and Zou (2024) who emphasized effort and persistence in the context of SLL. Overall, the results indicated that the students seemed to continue with the effort in learning materials that were less interesting, and when the materials were difficult to learn, they needed extra assistance.

Table 12. Mean (M) and Standard Deviation (SD) for Help-Seeking (4 items)

ITEM	M	SD
1. When I cannot understand the material in a course, I ask my lecturer for help.	3.58	0.83
2. When I cannot understand the material in a course, I ask another student in the class for help.	3.96	0.75
3. When I cannot understand the material in a course, I ask my friends from other class for help.	3.64	0.91

4. When I cannot understand the material in a course, I ask my seniors who have taken the course previously for help.	3.22	1.08
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Table 12 shows the mean and standard deviation for help-seeking in the self-reflection phase. In general, students indicated a positive disposition to request help when the content in the course was not understood. Peer support within class was the most sought after source of support, with $M = 3.96$. This was then followed by asking friends from other classes ($M = 3.64$), and asking lecturers for help ($M = 3.58$). However, the lowest M was for asking prior students in the senior level ($M = 3.22$). This suggests that students were more inclined to turn to their peers for assistance than seniors. The results agree with those of Naujoks et al. (2021) who found that help-seeking is a part of SRL and with those of Zhang and Zou (2024) who reported that help-seeking and guidance are components of SRL.

Exploratory Statistics (correlation)

According to He (2024), correlation is a statistical technique that shows how strongly two variables are related to each other or the degree of association between the two. A frequent way to articulate simple relationships without implying cause and effect. This section provides data for research question about correlation.

He (2024) states that a coefficient that is significant at the .05 level and positive correlation is on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0.

To determine if there is a significant association in the mean scores between Forethought phase and all phases of learning, data is analysed using SPSS for correlations. All results are reported separately in the table below (Table 13).

Table 13. Correlations among Forethought, Performance, and Self-Reflection

		Correlations		
		FORETHOUGHT	PERFORMANCE	SELF-REFLECTION
FORETHOUGHT	Pearson Correlation	1	.810**	.787**
	Sig. (2-tailed)		<.001	<.001
	N	289	289	289
PERFORMANCE	Pearson Correlation	.810**	1	.748**
	Sig. (2-tailed)	<.001		<.001
	N	289	289	289
SELF-REFLECTION	Pearson Correlation	.787**	.748**	1
	Sig. (2-tailed)	<.001	<.001	
	N	289	289	289

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

Findings for the Relationship between forethought and the performance phase.

There is a significant positive correlation between forethought and performance ($r = .810$, $p < .001$) as shown in Table 13. A higher score for metacognitive self-regulation also correlated with higher scores in cognitive strategies use when learning. Thus, the null hypothesis of RQ4 was rejected. The result confirms the cyclical view of SRL which posits the close relationship between planning/monitoring and SRL strategies use during actual task performance. This finding aligns with Raffi et al. (2023) and Zhang and Zou (2024) who defined SLL as an interaction between regulatory strategies, learning tasks and learning environments.

Findings for relationship between the performance phase and self-reflection phase.

Table 13 shows a strong positive relationship between performance and self-reflection ($r = .748$, $p < .001$). Learners who reported greater use of cognitive strategies also tended to report stronger resource-management

practices. Therefore, the null hypothesis for RQ5 was rejected. This finding indicates that active engagement through rehearsal, organisation, elaboration, and critical thinking is associated with the management of learning conditions, effort, and support. The result is consistent with Raffi et al. (2023) and Zhang and Zou (2024), who reported that cognitive and resource-management strategies operate as related elements of self-regulated learning.

Findings for relationship between self-reflection and the forethought phase.

Table 13 shows a strong positive relationship between self-reflection and forethought ($r = .787, p < .001$). Learners who reported stronger resource-management practices also tended to report greater use of metacognitive self-regulation. Therefore, the null hypothesis for RQ6 was rejected. This result supports the cyclical nature of self-regulated learning because learners' management of effort, learning conditions, and support is associated with how they plan and regulate subsequent learning. The finding is consistent with Tinajero et al. (2024) and Zhang and Zou (2024), who described self-regulated learning as an adaptive and interconnected process.

DISCUSSION

Synthesis of Findings with Previous Studies

The results indicated that the forethought stage is perceived positively from the metacognitive aspect of self-regulation in learning. Learners tended to go back to the material that was unclear to them, to modify reading techniques, to find unclear concepts, and to establish study aims. This means that pupils could check and manage their learning prior to and during language tasks. The result is in line with Idris et al. (2022) and Siregar et al. (2024) that found that metacognitive strategies in the EFL context could assist learners to review the difficult topic and that the use of metacognitive strategies could make learners aware and controlling in learning.

The results of the performance phase showed that the learners could process learning materials through rehearsal, organization, elaboration and critical thinking. They recalled significant vocabulary, sequenced notes, linked new information to existing knowledge and assessed evidence within the course materials. This indicates that students were not passively absorbing information but were actively processing the language input. This is in line with the findings of Idris et al. (2022) who found the role of cognitive strategies in processing foreign language materials and Chansri et al. (2024) who found that self-regulated strategies were related to English language abilities.

Self-reflection phase results have revealed that the learners applied resource management strategies to facilitate the execution of learning routines, efforts and seeking help. Students' attitudes were positive in reading the material, doing tasks even when content is boring and seeking assistance from other classmates in completing the tasks. But use of time, persistence when things are challenging and seeking help from seniors seemed less strong. These results confirm the findings of Naujoks et al. (2021), who found environment structuring and help seeking to be components of resource management, as well as Raffi et al. (2023), who reported a relationship between resource management and other learning strategies.

The results of the correlation showed that there is a strong relationship between the three stages of SRL. There was a strong correlation among forethought and performance, performance and self-reflection, and self-reflection and forethought. This indicates that the planning and monitoring of learning are also related to the application of strategies and management of learning resources by learners. The results corroborate the view in Raffi et al. (2023), Zhang and Zou (2024), and Tinajero et al. (2024), who were interested in the interactive nature of SRL that engages learners, SRL strategies, tasks, and learning environment.

Implications of the Findings

Theoretically, the findings support the applicability of Self-Regulated Learning Theory as a framework for interpreting language-learning strategies. The close connection between forethought, performance, and self-

reflection highlights that strategies should be linked as part of a learning cycle. This also supports the conceptual framework of this study for which metacognitive self-regulation is forethought, cognitive strategies is performance, and resource management is self-reflection.

In a pedagogical perspective, the results indicate that language teachers need to accompany learners to improve the use of balanced strategies in all three phases. Students should be supported to establish goals, track their comprehension, organize materials, assess ideas, plan time, persist in effort, and request assistance. Explicit strategy instruction and structured reflection should be integrated into the teaching of some students who demonstrated less of the tendency to control their attention, manage their time, persist, and seek assistance broadly. Therefore, language teaching needs to enable learners to be strategic, reflective and self-directed.

LIMITATIONS OF THE STUDY

Several limitations should be considered when interpreting the findings. First, convenience sampling was used to recruit undergraduate students from one public university, and the sample was unevenly distributed by gender and academic field. The findings therefore cannot be assumed to represent learners in other institutions or contexts. Second, the questionnaire was adapted from an established learning-strategy measure, but no separate expert review, pilot validation, or factor analysis was conducted for the adapted version before data collection. Although the scales demonstrated good to excellent internal consistency after reverse coding, further validation is needed to confirm the content and measurement structure of the operational three-phase model. Third, the cross-sectional self-report design captured learners' perceptions at one point in time and may be affected by response bias. Finally, Pearson correlation identifies statistical associations but does not establish prediction, temporal direction, or causality.

CONCLUSION

Summary of the Study

The aim of this study was to investigate the perception of learners towards the learning strategies in the forethought, performance, and self-reflection stages of self-regulated learning. In general, all three phases were perceived as positive by learners. They demonstrated metacognitive awareness in monitoring understanding, adjusting reading strategies and setting goals; applied cognitive strategies in rehearsal, organisation, elaboration and critical thinking; and used resource management strategies in learning routines, effort regulation and help-seeking from peers. The findings corroborate previous studies which regard metacognitive, cognitive and resource management strategies as elements of self-regulated language learning.

The results of the correlation analysis also indicated positive correlations among the three phases. Forethought was correlated with performance, performance correlated with self reflection, and self reflection correlated with forethought. The findings of this study support the cyclical view of SRL and the conceptual model of this study. Accordingly, the success of language learning is not only dependent on how individual learners plan to use their strategies but also on how they link the planning, action and reflection in each learning phase.

RECOMMENDATIONS FOR FUTURE RESEARCH

Future research should validate the adapted questionnaire before examining structural relationships among the three phases. Content validity may be assessed through expert review, while exploratory and confirmatory factor analyses may be used to examine the measurement structure in independent samples. Researchers should also recruit larger and more diverse samples through probability-based or stratified sampling across institutions, educational levels, academic programmes, and language-learning contexts. These steps would strengthen the measurement quality, representativeness, and generalisability of future findings.

Future studies may employ longitudinal, qualitative, or mixed-method designs to examine how learners' strategies develop over time. Interviews, reflective journals, and classroom observations could complement self-reported perceptions and provide deeper explanations of how learners plan, perform, and reflect during language learning. Researchers may also evaluate the effects of instructional interventions on metacognitive

self-regulation, cognitive strategies, and resource-management strategies. Such studies could clarify how strategy use changes through teaching support and learning experience.

Other variables, including motivation, self-efficacy, learning anxiety, digital readiness, and academic achievement, may also be examined to provide a broader understanding of self-regulated language learning. In addition, regression, path analysis, mediation analysis, or structural equation modelling may be employed to test theoretically justified predictive relationships among forethought, performance, and self-reflection. These relationships should not be interpreted as causal unless temporal ordering or experimental evidence is available. Overall, future research should continue to examine learning strategies as an interconnected process through which learners plan, act, monitor, and reflect on their learning.

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