Investigating The Relationship Between Language Learning Strategies Used by Undergraduates in Malaysia

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ABSTRACT

Learning strategies play significant roles in language learning. The strategies can assist learners in acquiring the language thus leading to academic excellence. At the same time, it can also hinder the language learning process. Realising the importance of learning strategies, this study aims to investigate the learning strategies used by language learners. A quantitative survey was administered via online questionnaire to 263 undergraduate students. The questionnaire consisted of four sections namely demographic profile, cognitive strategies, metacognitive strategies, and resource management strategies. The findings show that learners utilised all three domains for learning strategies. Pedagogically, the findings could help both learners and instructors understand the language learning strategies better. Consequently, a better teaching and learning process could be achieved by referring to the three main domains used by learners for their learning strategies.

1. INTRODUCTION

1.1 Background of the Study

Learning strategies encompass methodologies designed to facilitate the learning process (Chien, 2010), aiding individuals in acquiring knowledge and executing tasks effectively and efficiently. Typically, these strategies are purposeful and directed towards specific goals (Chamot, 2005), often categorised into cognitive, metacognitive, and resource management components. Examples of common learning strategies include rehearsal, self-regulation, and critical thinking.

In the language acquisition process, learning strategies are essential for helping learners acquire new languages. Adan and Hashim (2021) underscored the diverse array of learning strategies employed by language learners, enabling them to autonomously control, monitor, and plan their language learning journey. Consequently, these strategies empower learners to effectively acquire language proficiency.

English holds the status of a second language in Malaysia, necessitating learners to acquire proficiency in it. Despite its importance, learners face numerous challenges in acquiring English proficiency (Rahim & Zuaraimi, 2022; Aziz & Kashinathan, 2021). This has prompted extensive research endeavours to address the obstacles faced by learners. One proposed solution is the understanding and utilisation of learning strategies in language learning.

In the Malaysian context, numerous studies have investigated the learning strategies used by language learners, especially concerning English language acquisition. Research findings indicate that Malaysian students employ various strategies in language learning, such as guessing, reliance on contextual cues (Magasvaran et al., 2022), and strategic planning (Othman et al., 2022). Given the profound impact of learning strategies on language acquisition and the significance of English proficiency among Malaysian learners, investigating the specific learning strategies utilized by Malaysian learners holds considerable importance.

1.2 Statement of Problem

Wenden and Rubin (1987) introduced three broad categories of language strategies namely cognitive, metacognitive, and resource management. Cognitive strategies involve mental processes, while metacognitive strategies entail the emotional and self-regulatory aspects of learning. Resource management strategies, on the other hand, involve utilizing available resources in the learning environment.

Literature indicates that learners employ various strategies in language acquisition, which can either facilitate or impede the learning process (Rahmat, 2018). Therefore, investigating learners' language learning strategies could offer insights into the common approaches utilised in language acquisition.

Despite the many strategies employed, a certain percentage of Malaysian students still fail to learn a language effectively especially when it comes to the English language. Yaccob and Yunus (2019), reported that Malaysian secondary school students still could not achieve satisfactory levels although many learning strategies have been applied. In addition, a systematic literature review conducted by Aziz and Kashinathan (2021) also revealed similar findings where it was highlighted that Malaysian students are having difficulties in language learning especially in speaking. Both Yaccob and Yunus (2019) and Aziz and Kashinathan

(2021) highlight persistent challenges Malaysian students face, especially in speaking. While various strategies, such as collaborative learning and authentic materials, have been employed, their effectiveness remains uncertain.

Based on the aforementioned studies, it is evident that Malaysian learners utilise diverse language learning strategies, some yielding positive outcomes while others may be less effective. Hence, there is a need for further research to explore and understand the language learning strategies preferred by Malaysian learners, particularly within their specific contexts and individual characteristics, as emphasised by Seng et al. (2023). Thus, this study would enrich the existing literature on language learning strategies.

2. RESEARCH OBJECTIVE AND RESEARCH QUESTIONS

The objective of this study is to investigate the language learning strategies used by undergraduates in Malaysia. Three research questions were formulated to achieve the research objectives. The three research questions are:

1. What are learners' perceptions regarding the use of cognitive components in language learning strategy?

2. What are learners' perceptions regarding the use of metacognitive components in language learning strategy?

3. What are learners' perceptions regarding the use of resource management in language learning strategy?

4. Is there a relationship between all language learning strategies?

2.1 Language Learning Strategies

Generally, learning strategies are viewed as processes aimed at acquiring, organising, or transforming information (Alexander et al., 1998). These strategies have been proven pivotal for successful academic endeavours and optimising the learning process. Hence, learners must recognise the most effective learning strategies for themselves. Similarly, these strategies are equally important for teachers to ensure that the teaching process is effective.

The same condition can be observed in the domain of language learning as learners employ several strategies in acquiring the targeted language. Following a well-defined concept of learning strategies by Wenden and Rubin (1987), language learning strategies typically encompass cognitive, metacognitive, and resource management components.

Cognitive strategies enhance students' ability to process information deeply, facilitating its transfer and application to novel contexts, thereby fostering improved retention and comprehension (Winn et al., 2019). Sub-strategies within this domain include repetition, translation, grouping, deduction, contextualization, and transfer (O'Malley & Chamot, 1990 as cited by Mohammadi et al., 2015).

On the other hand, the metacognitive component pertains to knowledge about one's cognitive processes (Rivas et al., 2022). Employing metacognitive strategies, such as directing, monitoring, regulating, organizing, and planning, enhances learning quality by increasing students' awareness of their cognitive processes, thereby facilitating self-regulation. Identifying effective strategies enables learners to transfer their efficacy to various aspects of their lives.

Resource management constitutes a critical facet of successful academic learning. Commonly utilized strategies encompass time management, study environment optimization, effort management, peer learning, and seeking assistance from qualified individuals such as peers or instructors (Ahmed and Khanam, 2014). These strategies empower students with active control over their learning environment and processes.

Together, cognitive, metacognitive, and resource management strategies create a comprehensive approach to language learning. While cognitive strategies help in the direct engagement with the content, metacognitive strategies offer guidance for self-regulation in learning, and resource management strategies ensure that learners have the necessary support and materials. By integrating these strategies, learners can enhance their proficiency and achieve their language learning goals effectively. But, as cautioned by Rahmat (2018), the learning strategies could also hinder learning among learners. Thus, it can be concluded that learning strategies have significant impacts towards learning.

2.2 Past Studies on Language Learning Strategies

Learning strategies serve as indispensable tools employed by learners across diverse domains to facilitate the acquisition of knowledge and skills, particularly in the context of language learning. Numerous studies have been conducted to explore the language learning strategies employed by language learners from various backgrounds. Additionally, the relationship between these strategies is also investigated to get a deeper understanding of this issue. The studies have contributed valuable insights into the utilisation of learning strategies among language learners.

Ahamad Shah et al. (2013) explored the language learning strategies among undergraduate students in a Malaysian university. A total of 312 learners were involved in this study where they provided data via the Strategy Inventory for Language Learning (SILL). The study revealed that learners used different types of language learning strategies. The most prominent strategy used by learners was social strategy followed by compensation and cognitive strategies. The findings also revealed that learners from different backgrounds employed different language learning strategies. This might be due to the different demands and needs of the learners.

Anggarista and Wahyuddin (2022) examine the language learning strategies employed by English as a Foreign Language (EFL) students and their relationship with English proficiency. Using a quantitative approach, the study found that learners used several language learning strategies namely metacognitive cognitive, compensation, memory, affective, and social learning strategies. In addition, the research unveiled the prominent usage of metacognitive strategy among learners, which includes practices such as attentional focus, study planning, and goal setting. It was also found that there was a significant correlation between the use of language learning strategies and students' English proficiency.

In another study by Zaini et al. (2023), the relationship between language learning strategies and their impact on learners was investigated. A total of 129 respondents provided the data for this study via an online questionnaire. The existence of learning strategies was evident and predominantly, learners utilised metacognitive strategy for language learning. It was also revealed that metacognitive learning strategies positively impact learning outcomes by enabling learners to monitor, adjust, and set goals, thereby enhancing their overall study effectiveness.

The studies highlight the significance of language learning strategies among learners. It can be seen that learners employed several learning strategies in learning languages. As mentioned by Ahamad Shah et al. (2013), the strategies employed depend on the needs of the learners. Thus, it can be suggested that different learners utilise different language learning strategies. Additionally, the studies also revealed that the strategies are related to each other where generally, one strategy impacts the other positively.

2.3 Conceptual Framework

The conceptual framework of this study is derived from the work of Wenden and Rubin (1987). The existence of three learning strategies was investigated and later the relationship between all language learning strategies was explored. Figure 1 illustrates the conceptual framework of this study.
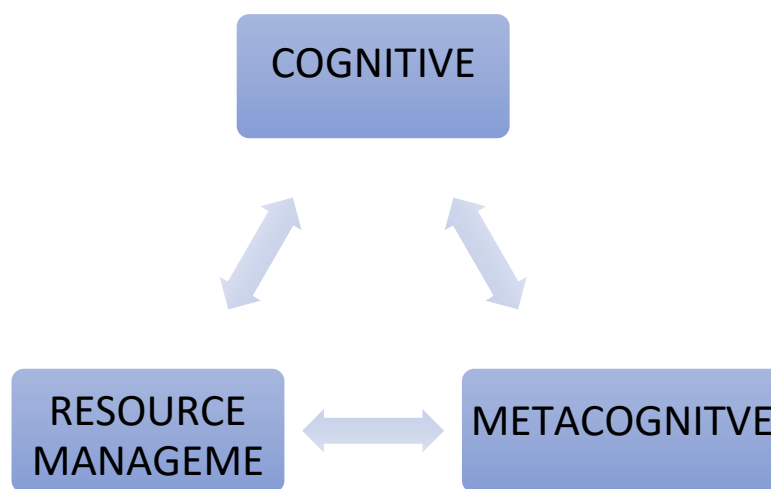

Figure 1: Conceptual Framework of the Study

3. METHODOLOGY

This study employed a quantitative approach in investigating the language learning strategies as well as their relationships. As such, a 5 Likert-scale survey was developed by adapting data from past studies. Firstly, the three learning strategies proposed by Wenden and Rubin (1987) were used as the basis of the survey. Later, the items for each learning strategy were adapted from past studies such as from Wenden and Rubin (1987) and Zaini et al. (2023).

The survey was divided into two sections namely Demographic Profile and Language Learning Strategy. The Demographic Profile section consisted of only 2 items. The purpose of this section was to get brief background information on the respondents. Next, the Language Learning Strategy Section was further refined into three sections: Section A (Cognitive), Section B (Metacognitive), and Section C (Resource Management). Altogether there were 41 items where 19 items were in Section A, 11 items in Section B, and 11 items in Section C.

Table 1 illustrates the reliability of the survey. The analysis shows Section A obtains a score of 0.966 for Cronbach Alpha, Cronbach Alpha of 0.941 for Section B, and Section C scores a Cronbach Alpha of 0.918. These findings reveal a good reliability of the instrument used for this study. Data collected using the survey were then analysed using SPSS to calculate the mean

as well as the relationship between all learning strategies. The findings were then tabulated and discussed.

In collecting the data, a purposive sampling method was employed. Purposive sampling was used to align the sample with the research's aims and objectives, hence enhancing the study's reliability of its data and results (Campbell et al., 2020). The survey was distributed to respondents via an online survey platform. A period of 2 weeks was allocated to collect the data for this study. A total of 263 participants responded to the survey. All respondents were undergraduates from Malaysian tertiary education institutions. Most researchers consider the minimum acceptable sample size for a correlational study to be at least 30. Data obtained from a sample smaller than this may provide an inaccurate estimate of the relationship's degree (Fraenkel & Wallen, 2009: 335). Hence, the data collected for this study was deemed sufficient.

Table 1: Distribution of Items in the Survey

Strategy (Wenden and Rubin (1987)		Sub-Strategy				Cronbach Alpha
A Cognitive Components	(a)	Rehearsal	4	19		.966
	(b)	Organization	4			
	(c)	Elaboration	6			
	(d)	Critical Thinking	5			
B Metacognitive Self-Regulation				11		.941
C Resource Management	(a)	Environment Management	5	11		.918
	(b)	Effort Management	4			
	(c)	Help-Seeking	2			
		TOTAL		41		.979

4. FINDINGS

4.1 Demographic profile

Table 2 depicts the demographic profile of the respondents. The data reveals a distribution of 43% of males and 57% of females who responded to the questionnaire. As for the discipline, almost half of the respondents, 52% are in social science, while 48% of the respondents are in Science and Technology.

Table 2: Percentage for Demographic Profile

Q1	Gender	Male	Female
		43%	57%
Q2	Discipline	Science & Technology	Social Science
		48%	52%

4.2 Cognitive Components

This section presents data and findings to answer research question 1- How do learners perceive the use of cognitive components in language learning? Table 3 presents the mean score for rehearsal. Based on the findings, the highest mean is 3.7 for the item 'I memorise keywords to remind me of important concepts in this class and the lowest mean is 3.3 for the item 'When I study for the classes, I practice saying the material to myself over and over'. Based on the mean score, it can be suggested that the practice of saying the materials by themselves is not

frequently applied as a learning strategy. Overall, it can be implied that rehearsing is used by learners as a learning strategy.

Table 3: Mean for rehearsal

Item	Mean
LSCCRQ1 When I study for the classes, I practice saying the material to myself over and over.	3.3
LSCCRQ2 When studying for the courses, I read my class notes and the course readings over and over again.	3.4
LSCCRQ3 I memorise keywords to remind me of important concepts in this class.	3.7
LSCCRQ4 I make lists of important items for the courses and memorize the lists.	3.6

Table 4 depicts the mean score for the organization. Based on the 4 questions given in the questionnaire, the highest mean is 3.5 for the items 'When I study for the courses, I go through the readings and my class notes and try to find the most important ideas' and 'When I study for the courses, I go over my class notes and make an outline of the important concepts'. These mean scores imply that taking notes and making an outline out of the notes are practised as strategies among the learners. The item 'I make simple charts, diagrams, or tables to help organise course materials in this program' has the lowest score of 3.2.

Table 4: Mean for Organization

Item	Mean
LSCCOQ1 When I study the readings for the courses in the program, I outline the material to help me organize my thoughts.	3.4
LSCCOQ2 When I study for the courses, I go through the readings and my class notes and try to find the most important ideas.	3.5
LSCCOQ3 I make simple charts, diagrams, or tables to help me organize course materials in this program.	3.2
LSCCOQ4 When I study for the courses, I go over my class notes and make an outline of important concepts.	3.5

Table 5 shows the mean score for elaboration. As for the elaboration learning strategy, all 6 items score somewhat more or less the same as one another. The item 'When reading for the courses, I try to relate the material to what I already know' has the highest mean score (3.5) while the item 'When I study for the courses in this program, I pull together information from different sources, such as lectures, readings, and discussions', 'I try to relate ideas in one subject to those in other courses whenever possible', 'When I study for the courses in the program, I write brief summaries of the main ideas from the readings and my class notes' and 'I try to apply ideas from course readings in other class activities such as lecture and discussion' with the mean score of 3.3.

Table 5: Mean for Elaboration

Item	Mean
LSCCEQ1 When I study for the courses in this program, I pull together information from different sources, such as lectures, readings, and discussions.	3.3
LSCCEQ2 I try to relate ideas in one subject to those in other courses whenever possible	3.3
LSCCEQ3 When reading for the courses, I try to relate the material to what I already know.	3.5

Item	Mean
LSCCEQ4 When I study for the courses in this program, I write brief summaries of the main ideas from the readings and my class notes.	3.3
LSCCEQ5 I try to understand the material in the classes by making connections between the readings and the concepts from the lectures.	3.4
LSCCEQ6 I try to apply ideas from course readings in other class activities such as lecture and discussion.	3.3

Lastly, Table 6 shows the mean score for critical thinking. The item 'I try to play around with ideas of my own related to what I am learning in the courses' has the highest mean score of 3.4. The lowest mean score recorded is 3.2 for the item 'When a theory, interpretation, or conclusion is presented in classes or the readings, I try to decide if there is good supporting evidence'.

Table 6: Mean for Critical Thinking

Item	Mean
LSCCCTQ1 I often find myself questioning things I hear or read in the courses to decide if I find them convincing.	3.3
LSCCCTQ2 When a theory, interpretation, or conclusion is presented in classes or in the readings, I try to decide if there is good supporting evidence.	3.2
LSCCCTQ3 I treat the course materials as a starting point and try to develop my own ideas about it.	3.3
LSCCCTQ4 I try to play around with ideas of my own related to what I am learning in the courses.	3.4
LSCCCTQ5 Whenever I read or hear an assertion or conclusion in the classes, I think about possible alternatives.	3.3

4.3 Metacognitive Components

This section presents data to answer research question 2- How do learners perceive the use of metacognitive components in language learning? Table 7 depicts the mean for metacognitive self-regulation. There are 11 items presented to respondents, with just a minor variance in the mean score. Among all these questions, the item "When I become confused about something I am reading for the classes, I go back and try to figure it out" and "I ask myself questions to make sure I understand the material I have been studying in this program" share the highest mean score (3.4). It demonstrates that the respondents have given their best effort in grasping what they learn. The lowest mean score (3.0) is recorded for the item "During class time, I often miss important points because I am thinking of other things".

Table 7: Mean for Metacognitive Self-Regulation

ITEM	MEAN
MSSRQ1 During class time, I often miss important points because I am thinking of other things.	3.0
MSSRQ2 When reading for the courses, I make up questions to help focus my reading.	3.1
MSSRQ3 When I become confused about something I am reading for the classes, I go back and try to figure it out.	3.4
MSSRQ4 If course readings are difficult to understand, I change the way I read the material.	3.3
MSSRQ5 Before I study new course material thoroughly, I often skim it to see how it is organized	3.1
MSSRQ6 I ask myself questions to make sure I understand the material I have been studying in this program.	3.4
MSSRQ7 I try to change the way I study in order to fit any course requirements and the instructors' teaching style.	3.3

Item	Mean
MSSRQ8 I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for the courses in this program.	3.2
MSSRQ9 When studying for the courses in this program I try to determine which concepts I do not understand well.	3.3
MSSRQ10 When I study for the courses, I set goals for myself in order to direct my activities in each study period.	3.3
MSSRQ11 If I get confused taking notes in classes, I make sure I sort it out afterwards.	3.3

4.4 Resource Management Components

This section presents data to answer research question 3- How do learners perceive the use of resource management in language learning? Table 8 shows the mean score for environment management. The item "I attend the classes regularly in this program" scored the highest mean score (3.8) indicating that classes of the course would be the main learning environment for students to learn the language. As for the other items, they share the same mean score with an average of 3.4.

Table 8: Mean for Environment Management

Item	Mean
RMCEMQ1 I usually study in a place where I can concentrate on my course work.	3.5
RMCEMQ2 I make good use of my study time for the courses in this program.	3.4
RMCEMQ3 I have a regular place set aside for studying	3.4
RMCEMQ4 I make sure that I keep up with the weekly readings and assignments for the courses.	3.4
RMCEMQ5 I attend the classes regularly in this program.	3.8

Table 9: Mean for Effort Management

Item	Mean
RMCEMQ1 I have a regular place set aside for studying	3.3
RMCEMQ2 I work hard to do well in the classes in this program even if I do not like what we are doing.	3.5
RMCEMQ3 When course work is difficult, I either give up or only study the easy parts.	3.0
RMCEMQ4 Even when course materials are dull and uninteresting, I manage to keep working until I finish.	3.6

Table 9 shows the mean score for Effort Management. The highest mean score is 3.6 for the item "Even when course materials are dull and uninteresting, I manage to keep working until I finish". The lowest mean score (3.0) is recorded for the item "When course work is difficult, I either give up or only study the easy parts". This shows that the respondents will still give their best effort in their studies even when they must face difficult situations in their learning process.

Lastly, Table 10 shows the mean score for Help-Seeking. Both items scored the same mean score of 3.7. This shows that help-seeking is commonly practised among the respondents when they face difficulties in their learning.

Table 10: Mean for Help-Seeking

Item	Mean

RMCHSQ1 When I cannot understand the material in a course, I ask another student in the class for help.	3.7
RMCHSQ2 I try to identify students in the classes whom I can ask for help if necessary.	3.7

4.5 Relationship between all Strategies

To determine if there is a significant association in the mean scores between metacognitive, effort regulation, cognitive, social and affective strategies data is analysed using SPSS for correlations. Results are presented separately in Tables 11,12, and 13 below.

Table 11 shows there is an association between cognitive and metacognitive strategies. Correlation analysis shows that there is a highly significant association between cognitive and metacognitive strategies (r=.881**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between cognitive and metacognitive strategies.

Table 11:

Correlations

		COGNITIVE	METACOGNITIVE
COGNITIVE	Pearson Correlation	1	.881**
	Sig. (2–tailed)		.000
	N	263	263
METACOGNITIVE	Pearson Correlation	.881**	1
	Sig. (2–tailed)	.000	
	N	263	263

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

Correlation between Cognitive and Metacognitive Strategies

Correlations		METACOGNITIVE	RESOURCEMANAGEMENT
METACOGNITIVE	Pearson Correlation	1	.820**
	Sig. (2–tailed)		.000
	N	263	263
RESOURCEMANAGEMENT	Pearson Correlation	.820**	1
	Sig. (2–tailed)	.000	
	N	263	263
**. Correlation is significant at the 0.01 level (2–tailed).			

Correlation between Metacognitive strategies and Resource management

Table 12 above shows there is an association between metacognitive strategies and resource management. Correlation analysis shows that there is a highly significant association between metacognitive strategies and resource management (r=.820**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between metacognitive strategies and resource management.

Table 13 shows there is an association between resource management and cognitive strategy. Correlation analysis shows that there is a highly significant association between resource management and cognitive strategy (r=.826**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between resource management and cognitive strategy.

Table 13: Correlation between Resource Management and Cognitive Strategy

Correlations		RESOURCEMANAGEMENT	COGNITIVE
RESOURCEMANAGEMENT	Pearson Correlation	1	.826**
	Sig. (2–tailed)		.000
	N	263	263
COGNITIVE	Pearson Correlation	.826**	1
	Sig. (2–tailed)	.000	
	N	263	263
**. Correlation is significant at the 0.01 level (2–tailed).			

5. CONCLUSION

5.1 Summary of Findings and Discussions

The findings of the studies showed the language learning strategies that the student perceived in 3 main components as well as in the sub-strategies for each main component. Firstly, in the

main domain of Cognitive Components for rehearsal sub-strategy, the students rely on memorisation of keywords as the item scored the highest mean of 3.7. Furthermore, for the organization sub-strategy, the students rely on going through the class notes and trying to find the most important ideas as well as outlining important concepts with both scoring a mean of 3.5 respectively. As for the elaboration sub-strategy, the findings showed that the students try to relate the material with what they already know with a mean of 3.3 in the findings. Lastly, for the critical thinking sub-strategy, the students try to play around with their ideas of their own to what they are learning in the courses as it recorded the highest mean of 3.5

Secondly, for metacognitive components, the students perceived the learning strategies they applied when they became confused about something that they read in classes, they usually go back and try to figure it out and they always ask themselves questions to make sure that they understand the material they have been studying in their respective courses. Both strategies scored a mean of 3.4

Finally, for the resource management component, the students perceived that, for sub-strategy environment management, they try to attend the classes regularly in their courses as the learning strategy which scored a mean of 3.8 On the other hand, for sub-strategy of effort management the students will give their heart out in their study even though they are having difficulties. The sub-strategy scored a mean of 3.6, which is the highest.

The findings highlight the importance of language learning strategies among learners. The existence of three learning strategies as well as the sub-strategies show that language learners use different strategies that they consider effective according to their needs. Hence, the findings add support to the existing literature on language where it is suggested that language learners employ various learning strategies.

In addition to that, the findings of the research also showed that there is a strong positive relationship between cognitive and metacognitive strategies. Furthermore, the findings also indicate that there is a strong positive relationship between metacognitive strategies and resource management. Lastly, there is also a strong positive relationship between resource management and cognitive strategy.

These findings are in line with previous studies (Anggarista & Wahyuddin, 2022; Zaini et al., 2023) where the learning strategies correlate positively with each other. The high positive correlations show that each strategy is important for learners, and they are often used interchangeably in language learning.

5.2 Pedagogical Implications and Suggestions for Future Research

From this research, the lecturer can understand what common strategies are applied by their students to cope with the fast-paced learning in their courses. Thus, the lecturer can accommodate their lesson plan to suit the strategies used by the students. This will help the students to understand their better and easier for their course. In addition to this, future research may investigate more mature students as the sample of the research such as master's or PhD students. Given the different nature of post-graduate studies to undergraduate studies, the research may yield different results. Finally, another suggestion is to carry out future research at different institutions of higher learning as different demographic backgrounds may lead to more significant findings as well as new relationship findings between variables.

ACKNOWLEDGEMENT

AUTHORS' CONTRIBUTION

MIR wrote the introduction, literature review and methodology sections. SHS co-wrote the literature review section. MFN AND SO collected and refined the data. MHY carried out the data analysis and wrote the discussion and implication sections. All authors provided critical feedback and helped shape the research.

CONFLICT OF INTEREST

None declared.

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