An Investigation of How Foundation Learners Perceive Their Use of Learning Strategies

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Abstract
Transitioning from school to higher education institutions, learners may face many challenges, especially in coping with the new cultures of tertiary education. Learners entering universities come from a broad spectrum of diverse backgrounds, including various types of public and private secondary schools such as Full Boarding Schools, Vocational Colleges and Technical High Schools, Government-Aided Religious Schools, National Religious Secondary Schools, Sports Schools, Art Schools, The Royal Military Academy, MARA Junior Colleges of Science (MRSM), and many other private schools. Thus, it is pivotal that learning styles and strategies are redesigned to adapt to the demands of university education. The present study aims to discover the perception of learning strategy utilization among foundation studies learners. This quantitative research explores the relationship among cognitive, metacognitive self-regulation, and resource management as components of learning strategies as propounded by Wenden and Rubin (1987). A purposive sample of 297 participants, randomly selected among learners at the Centre of Foundation Studies, Universiti Teknologi MARA, responded to the survey. The survey utilized a 5-point Likert scale which comprises four sections. The results indicate that the three components of learning strategies positively correlate with one another. In addition, it is also found that metacognitive self-regulation positively influences learners by guiding them in supervising their learning process and resolving their confusion by referring back to their reading materials and seeking help from their peers. This finding is crucial to aid educators in employing suitable learning strategies for foundation learners to prepare them for their degree studies.

Keywords: cognitive skill, foundation study, learning strategies, metacognitive self-regulation, resource management

Introduction

Background of Study

Learning strategies have been regarded as one of the most fruitful research areas for studying the learning process and its influencing factors (Aizpurua et al., 2017). In their book “Learning Strategies,” Nisbet and Shucksmith (1986) refer to strategies as being at a higher level than skills. A learning strategy is a series of purposeful activities that can be easily adjusted to suit the specific context. Learning is strategic when the learners are aware of the learning process and control their efforts in utilizing particular skills and strategies (Peculea & Bocos, 2015).

Research learning strategies are becoming increasingly important, especially in today’s expanding education system. Learning strategies are essential as we aim for sustainable life-long learning and deep understanding (Lin et al., 2017; Wegner et al., 2013). According to Oxford (2016), independent, autonomous, and lifelong learners could be produced using learning strategies. It also acts as one of the vital factors for success in academic performance (Almoslamani, 2021; Chetty et al., 2019; Pino-Juste & López, 2010).

There is a plethora of research on learning strategies in Malaysia across various fields, including vocabulary (Benedict & Shabdin, 2021; Kho et al., 2021; Nur & Jusoh, 2022; Supian & Mohd Asraf, 2021; Yaacob et al., 2019; Yip et al., 2021) language (Dawi & Hashim, 2022; Hashim et al., 2018; Maros & Saad, 2016; Min et al., 2021; Muniandy & Shuib, 2016; Noor et al., 2016; Othman et al., 2022; Osman et al., 2018; Sani & Ismail, 2021), accounting (Shaffie et al., 2020), and environmental engineering (Hadibarat & Rubiyatno, 2019). The literature, as mentioned above, focused on learning strategies adopted by students at various levels, including primary, secondary, postgraduate, and graduate levels. However, there is currently a lack of research on learning strategies adopted by foundation students in Malaysia. The foundation level is an essential phase in a learner's education journey as it serves as a transition period between secondary school and university. Hence, it is pertinent that such a study is conducted to examine how the foundation learners perceive their use of learning strategies in the learning process.

Statement of the Problem

Foundation learners rely on effective learning strategies to improve academic performance and attain their educational objectives. Prior research has shown the positive impacts of cognitive strategies, metacognitive self-regulation, and resource management on learning outcomes and academic achievement (Cameron & Tanti, 2011; Pintrich, 2004). However, several problems and challenges hinder the accomplishment of this ideal situation. Research has highlighted that foundation learners often struggle with ineffective learning strategies, lack of self-regulation skills, and difficulty in managing their resources (Zimmerman, 2002). These challenges act as barriers to their academic success and hinder the development of student’s independent and self-directed learning behaviours.

Despite the challenges, there is still a significant gap in understanding how foundation learners, who are transitioning into higher education, perceive and use cognitive strategies, metacognitive self-regulation, and resource management (Wenden & Rubin, 1987) in their learning practices. This lack of knowledge prevents the development of targeted interventions and instructional techniques that could assist foundation learners in using learning strategies to improve their academic achievement. Therefore, there is a pressing need for an investigation into how foundation learners perceive their use of learning strategies to bridge this gap and give significant insights to educators.
Objective of the Study and Research Questions

This study is conducted to explore learners’ perceptions of their use of learning strategies. Specifically, it aims to address the following questions:

- How do learners perceive their use of cognitive strategies?
- How do learners perceive their use of metacognitive self-regulation?
- How do learners perceive their use of resource management?
- Is there a relationship between the use of different strategies?

Literature Review

Learning strategies are considered an important aspect of learning. They encompass learners’ initiative in identifying and implementing learning methods, whether through self-monitoring or formal education (Oxford, 2017). Similarly, Hattie and Donoghue (2016) stated that learning strategies provide a structured process that enables learners to devise a plan, monitor their learning accordingly, and evaluate their learning progress. The three essential aspects of learning strategies are cognitive, metacognitive, and resource management (Pintrich et al., 1993; Sun et al., 2018). Cognitive strategies assist learners in acquiring and comprehending information, while metacognitive strategies focus on planning and monitoring their learning progress (Sukying, 2021). Lastly, resource management strategies involve managing the learning environment to suit the learner, which includes internal and external regulations (Naujoks et al., 2021). Combining these three areas of learning strategies would assist learners to tailor their learning accordingly and achieve their desired outcomes. However, past studies show different findings on the use of these learning strategies.

Past Studies on the Use of Learning Strategies

Several studies have examined learning strategies, including a notable study conducted by Ismail and Al-Khatib (2013). Their study specifically focused on investigating the patterns of language learning strategies employed by 190 male and female students enrolled in the Foundation Programme at the United Arab Emirates University (UAEU). The study also aimed to explore the influence of language proficiency level and gender on the utilization of these strategies. The findings of the study revealed that among the six types of strategies examined, metacognitive strategies were the most frequently utilized. They were followed by social, compensation, affective, cognitive, and memory strategies, respectively, in terms of frequency. Additionally, the study found no significant differences in the use of learning strategies between male and female students. These findings shed light on the learning strategies employed by foundation students in the context of language learning. They highlight the prevalence of metacognitive strategies and provide valuable insights into how language proficiency level and gender may or may not influence the utilization of learning strategies.

Zaini et al. (2023) conducted another significant and recent study on learning strategies. The study involved 129 undergraduate students enrolled in universities in Malaysia. The research specifically focused on exploring cognitive components that influence language learning, namely rehearsal, organisation, elaboration, critical thinking, and metacognitive self-regulation. The findings of the study revealed that metacognitive self-regulation plays an important role in facilitating effective learning outcomes. By employing metacognitive self-regulation strategies,
individuals were able to monitor and adjust their learning strategies, identify areas where they needed to improve their understanding, and set goals to guide their study activities.

In another study, Anthonysamy et al. (2021) studied the effects of self-regulated learning strategies on 563 Malaysian undergraduates’ perceived learning performances. These participants are enrolled in Multimedia degree programs in universities in the central region of Malaysia. The researchers distributed the Motivated Strategies for Learning Questionnaire (MSLQ), which consists of four domains, namely cognitive engagement, metacognitive knowledge, resource management and motivational beliefs, to explore the participants’ responses. The findings indicated that there was a significant effect on all four domains on students’ perceived learning performance. In other words, the students had a positive impact by employing cognitive learning strategies to acquire knowledge, using metacognitive strategies to monitor their learning to attain good performance, utilising resource management to manage their time and environment to help in their learning and identifying their motivational beliefs. The findings showed that to perform well at the tertiary level, students believe that they need to apply the learning strategies which help them to reflect on their learning and find ways to improve their learning performance.

**Conceptual Framework**

Figure 1 shows the conceptual framework of the study. This study explores how learners perceive their use of learning strategies. This study also investigates the interrelationships among these strategies. According to Rahmat et al. (2021), learners tend to focus on the type of learning that motivates them, prioritizing the tasks that they know will produce their desired outcomes. To maximize learning, learners use strategies such as cognitive components, metacognitive self-regulation, and resource management, as proposed by Wenden and Rubin (1987). Cognitive components can be measured by sub-strategies such as a) rehearsal, (b) organisation, (c) elaboration, and (d) critical thinking. In addition to that, resource management is measured by sub-categories such as (a) environment management, (b) effort management, and (c) help-seeking.

![Conceptual Framework of the Study-Learning Strategies Used by Learners](image-url)
Methodology

This quantitative study aims to explore the use of learning strategies among undergraduates. A purposive sample of 297 participants responded to the survey. The instrument used was a 5-point Likert-scale survey, based on the framework of learning strategies proposed by Wenden and Rubin (1987), which reveals the variables presented in Table 1 below. The survey consisted of four sections. Section A included items on the demographic profile. Section B comprised 19 items addressing cognitive components. Section C encompassed 11 items focusing on metacognitive self-regulation. Lastly, Section D included 11 items on resource management.

Table 1. Distribution of Items in the Survey

<table>
<thead>
<tr>
<th>Section</th>
<th>Learning Strategies</th>
<th>Items</th>
<th>No.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Cognitive Components</td>
<td>(a) Rehearsal</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) Organisation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Elaboration</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) Critical Thinking</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Metacognitive Self-Regulation</td>
<td></td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Resource Management</td>
<td>(a) Environment Management</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) Effort Management</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Help-Seeking</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

| Total number of items | 41 |

Table 2. Reliability of Survey

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>41</td>
</tr>
<tr>
<td>.924</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .924, thus, revealing good reliability of the instrument chosen/used. Further analysis of the findings using SPSS was done to answer the research questions of this study.

Findings

Findings for Demographic Profile

Q1 Gender

Figure 2. Percentage for Gender
This study collected data from 297 respondents (refer to Figure 2), comprising 227 female and 70 male participants. The female respondents represented a significant proportion of the sample, including 76% of the total data, while the male respondents constituted 23% of the total sample.

For the foundation programme, concerning Figure 3, 163 respondents were from the Law Foundation Programme, which constituted 55% of the sample population and represented the majority in this study. It is followed by the Teaching English as Second Language Foundation Programme (TESL) with 58 respondents representing 20% of the total sample. Foundation in Science students constituted the third group with 56 respondents, representing 19% of the total sample. The Engineering Foundation Programme accounted for the remaining 6%, with 20 respondents.

For the semester, concerning Figure 4, 93% of the respondents were from Semester 2, indicating that most of the respondents are in their second semester of study.
The majority of the respondents (refer to Figure 4), which consisted of 276 respondents or 93% of the sample population of this study, were among the second-semester students while the remaining 21 respondents, which represented 7% of the sample population, were among the first semester students.

Findings for Cognitive Strategies

This section presents data to address Research Question 1: How do learners perceive their use of cognitive strategies? In the context of this study, cognitive components are measured by (a) rehearsal, (b) organisation, (c) elaboration, and (d) critical thinking.

(a) Rehearsal (4 items)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCCRQ4 I make lists of important items for the courses and memorises the lists.</td>
<td>3.7</td>
</tr>
<tr>
<td>LSCCRQ3 I memorise keywords to remind me of important concepts in this class.</td>
<td>4.2</td>
</tr>
<tr>
<td>LSCCRQ2 When studying for the courses, I read my class notes and the course readings over and over again.</td>
<td>3.9</td>
</tr>
<tr>
<td>LSCCRQ1 When I study for the classes, I practise saying the material to myself over and over.</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Figure 5. Mean for Rehearsal

There are four strategies (refer to Figure 5) under the cognitive components: rehearsal, organisation, elaboration, and critical thinking. Learners use cognitive strategies to facilitate their thinking and engagement in their learning. The rehearsal strategy assists learners in continuously practising the materials they have learned. Table 6 shows the results of the use of rehearsal as a cognitive strategy by the respondents. The highest mean score for this category is 4.2, recorded for item 3, which shows that the respondents prefer to practise memorizing crucial components needed for learning. Meanwhile, the lowest mean is 3.6, recorded for item 1, suggesting that respondents have the slightest preference for repeatedly saying the material that they have learned. The remaining items scored 3.9 for item 2 and 3.7 for item 4, respectively. The overall results for the rehearsal strategy show the respondents’ positive use of the strategy.

(b) Organisation (4 items)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCCOQ4 When I study for the courses, I go over my…</td>
<td>3.8</td>
</tr>
<tr>
<td>LSCCOQ3 I make simple charts, diagrams, or tables…</td>
<td>3.3</td>
</tr>
<tr>
<td>LSCCOQ2 When I study for the courses; I go through…</td>
<td>4.0</td>
</tr>
<tr>
<td>LSCCOQ1 When I study the readings for the courses…</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Figure 6. Mean for Organisation
Figure 6 displays the results for the organisation strategy, which has four items. The organisation strategy enables learners to map out their learning in a structured manner. Overall, the results of this strategy are positive. The highest mean score for the organisation strategy is 4, as observed in item 2. This indicates that most of the learners practice going through their class notes to identify crucial ideas needed for learning. On the other hand, the lowest mean score is 3.3 for item 3, suggesting that the learners do not prefer to use graphic organisers such as charts or diagrams to organise their learning. Item 4 scored 3.8, and item 1 scored 3.7 each.

(c) Elaboration (6 items)

| LSCCEQ1 | I pull together information from different sources, such as lectures, readings, and discussions. | 3.7 |
| LSCCEQ2 | I try to relate ideas in one subject to those in other courses whenever possible | 3.7 |
| LSCCEQ3 | When reading for the courses, I try to relate the material to what I already know. | 4.1 |
| 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. | 3.5 |
| LSCCEQ5 | I try to understand the material in the classes by making connections between the readings and the concepts from the lectures. | 3.9 |
| LSCCEQ6 | I try to apply ideas from course readings in other class activities such as lecture and discussion. | 3.8 |

Figure 7. Mean for Elaboration

The data in Figure 7 displays the results of the learners’ use of elaboration as a cognitive strategy. There are six items in this strategy. The elaboration strategy helps learners connect the new information learned in the class with their prior knowledge or other sources. The highest mean is 4.1, recorded for item 3, indicating that the respondents practice connecting what they learn with their previous knowledge. It could also be said that the learners can reflect on the understanding that they know and relate it to what they have learned. The lowest score for this strategy is 3.5, recorded for item 4. This result shows that the learners do not prefer summarising notes from their readings or class notes. Item 1, “When I study for the courses in this program, I pull together information from different sources, such as lectures, readings, and discussions,” and item 2, “I try to relate ideas in one subject to those in other courses whenever possible,” both scored 3.7. This indicates that to some extent, learners integrate information acquired in the program with data from diverse sources. Additionally, they amalgamate knowledge gained in one course with that of other courses. In general, the results show that the learners are more inclined to relate new information that they learned with information they already knew.
(d) Critical Thinking (5 items)

Figure 8. Mean for Critical Thinking

Figure 8 indicates the results of the responses for critical thinking as a cognitive strategy by the Foundation studies respondents. Learners use critical thinking to evaluate and create new ideas related to their learning. The highest mean score for this strategy is 3.9, observed for item 1. This shows that the respondents mainly evaluate the information learned in a course and decide if they should accept the information. On the other hand, the lowest mean score of 3.6 is recorded for items 2, 3, and 5, which include statements such as “When a theory, interpretation, or conclusion is presented in classes or the readings, I try to decide if there is good supporting evidence," "I treat the course materials as a starting point and try to develop my ideas about it," and “Whenever I read or hear an assertion or conclusion in the classes, I think about possible alternatives.” It can be inferred that respondents rated these items similarly, possibly indicating the consistent practice of these critical thinking aspects. Meanwhile, a mean score of 3.8 was recorded for item 4, “I try to play around with ideas of my own related to what I am learning in the courses”. In general, learners practise thinking critically to a certain extent where their learning is concerned.

Findings for Metacognitive Self-Regulation

This section presents data to answer Research Question 2: How do learners perceive their use of metacognitive self-regulation?

Figure 9. Mean for Metacognitive Self-Regulation
Figure 9 depicts the usage of metacognitive self-regulation in the learning process. Metacognitive self-regulation refers to the utilization of strategies by students to regulate and monitor their learning process. There are 11 items, and the findings are grouped into five categories: ‘never, rarely, sometimes, very often, and always’. The results presented in Table 4 indicate a positive outcome. The highest mean in this section is 4.0, which is recorded for items 3 and 9. It means that learners very often refer back to their reading materials when they get confused. The findings also show that foundation learners usually try to determine which concepts they do not understand well. The rest of the items recorded satisfactory responses, ranging from an average mean score of 3.1 to 3.8. The lowest mean score in this section is 3.1, indicating that learners perceive that they sometimes miss essential points during class because they are thinking about other things.

**Findings for Resource Management**

This section presents data to answer Research Question 3: How do learners perceive their use of resource management? In the context of this study, resource management is measured by (a) environment management, (b) effort management, and (c) help-seeking.

(a) Environment Management (5 items)

![Figure 10. Mean for Environment Management](image)

The data presented in Figure 10 pertains to the resource management component of environment management. The table includes five items (RMCEMQ1 to RMCEMQ5) and their corresponding mean scores. Item 1, “I usually study in a place where I can concentrate on my coursework” received a relatively high mean score of 4.4, suggesting that most foundation learners likely have dedicated study spaces where they can concentrate on their coursework effectively. The mean scores for items 2, 3, and 4 are all the same, at 3.8. This shows that learners generally agreed to the same extent regarding the significance of effectively utilizing study time, maintaining a regular study space, and keeping up with readings and assignments. Additionally, the results revealed the highest mean score of 4.7 for item 5, “I attend the classes regularly in this program,” suggesting a high attendance rate among learners. Overall, the data implies that learners generally have a positive approach towards environmental management, emphasizing the importance of studying in a conducive place and attending classes regularly.
An Investigation of How Foundation Learners Perceive

Arab World English Journal (AWEJ) Volume 15. Number 1. March 2024

Akahsah, Azizun, Vijayan, Musa, Saleh & Rahmat

(b) Effort Management (4 items)

Figure 11. Mean for Effort Management

Figure 11 presents the data on effort management, which consists of four items (RMCEMQ1 to RMCEMQ4), along with their respective mean scores. Item 1, “I have a regular place set aside for studying” has a mean score of 3.9, showing that respondents generally agreed that they have a designated location to study. This may be attributed to the university providing conducive study environments such as the library or proper study stations in the hostel. Besides that, Item 2 reflects a significantly positive attitude among respondents towards their study, as they strive to work hard despite having less interest in the program. The low mean score of 2.6 for Item 3 confirms that the respondents demonstrate a positive attitude towards their studies by not easily giving up or only studying the easy parts of the course. The efforts and attitude of the respondents are shown through Item 4, as the high mean score of 4.1 suggests that they will complete their tasks even when course materials are dull and uninteresting. Overall, the data indicate that the respondents maintain a positive attitude towards their studies despite having less interest in the program or when the course materials are dull and uninteresting.

(c) Help-Seeking (2 items)

Figure 12. Mean for Help-Seeking

Figure 12 presents the data on help-seeking, which consists of only two items. Both items show a high mean score of 4.3, indicating the readiness of the learners to ask their classmates for help if they cannot understand the material on their own, as depicted in item 1. Additionally, Item 2 shows that learners try to identify other students in the class whom they can refer to when necessary. Overall, the data suggests that learners exhibit a positive inclination towards seeking help and actively engage in collaborative learning by relying on their classmates for assistance when needed.
Findings for Relationship between the Use of Different Strategies

This section presents data to answer Research Question 4: Is there a relationship between the use of different strategies? To determine if there is a significant association in the mean scores between cognitive, metacognitive self-regulation, and resource management strategies, data were analyzed using SPSS for correlations. The results are presented separately in Tables 3, 4, and 5 below.

Table 3. Correlation between Cognitive Strategies and Metacognitive Self-Regulation

<table>
<thead>
<tr>
<th></th>
<th>Cognitive</th>
<th>Metacognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.751**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>297</td>
<td>297</td>
</tr>
</tbody>
</table>

Table 3 shows an association between cognitive strategies and metacognitive self-regulation. The correlation analysis reveals a highly significant association between cognitive strategies and metacognitive self-regulation (r=.751**) and (p=.000). According to Jackson (2015), a coefficient is considered 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 ranges from 0.3 to 0.5, and a strong positive correlation falls within the range of 0.5 to 1.0. Therefore, the strong positive correlation observed between cognitive strategies and metacognitive self-regulation suggests a strong relationship between these two variables.

Table 4. Correlation between Metacognitive Self-Regulation and Resource Management

<table>
<thead>
<tr>
<th></th>
<th>Metacognitive</th>
<th>Resource Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.572**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>297</td>
<td>297</td>
</tr>
</tbody>
</table>

Table 4 depicts an association between metacognitive self-regulation and resource management. The correlation analysis shows that there is a highly significant association between metacognitive self-regulation and resource management (r=.572**) and (p=.000). According to Jackson (2015), a 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 self-regulation and resource management.
Table 5. Correlation between Metacognitive Self-Regulation and Cognitive Strategies

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Resource Management</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Management</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>297</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Pearson Correlation</td>
<td>.536**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>297</td>
</tr>
</tbody>
</table>

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

Table 5 shows an association between resource management and cognitive strategies. The correlation analysis shows that there is a highly significant association between resource management and cognitive strategies with \( r = 0.536** \) and \( p = 0.000 \). According to Jackson (2015), a coefficient is important at the .05 level, and a positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be between 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 indicates a strong positive relationship between resource management and cognitive strategies.

Discussion

**Question 1: How do learners perceive their use of cognitive strategies?**

The findings showed that the foundation students prefer to employ cognitive strategies which are familiar to them and less complicated as evidenced by the highest score of the four cognitive components discussed above. In other words, they tend to memorize key concepts, go through their class notes to get the essential information for them to memorize, use their prior knowledge to connect with the new knowledge that they acquire and also evaluate the information learned and decide if they should accept the information. Students at this level frequently use learning strategies that they have been using since their secondary school. At this point, this finding is invaluable because it serves as a benchmark or guidance for educators to map a suitable level of taxonomy domain as well as to devise appropriate types of assessments to align with the intended taxonomy domain. It is also an indicator for educators to assist foundation students in exploring more learning strategies on cognitive components. This is in line with the finding of Kasmani and Bengar (2013) which concluded that many lecturers and EFL undergraduate students are still lacking in awareness of the existence of vocabulary learning strategies, including cognitive and metacognitive strategies. In addition, Young (2013) suggested that foundation students should receive cognitive and metacognitive strategy training to become highly self-regulated, autonomous achievers.

**Question 2: How do learners perceive their use of metacognitive self-regulation?**

Al-Harthy, Was and Isaacson (2010) found no direct effect of metacognitive self-regulation on the total scores of respondents in exams. Still, a study by Uzuntiryaki-Kondakci & Capa-Aydin (2013) recorded that metacognitive self-regulation plays a key role in critical thinking. This research however aims at examining the students’ use of metacognitive self-regulation in the learning process, not its impact on students’ performance. When reading for the courses, students make up questions to help focus on the reading and go back to reading when they get confused. Students
also determine the concepts that they do not understand well. Other positive self-regulations that they employed include setting goals to achieve in each study period, asking themselves questions to ensure understanding and changing the way of study to fit the course requirements. The findings indicated that the foundation students applied metacognitive and self-regulation in their learning process. This showed that metacognition self-regulation is frequently used by foundation students and has a high potential to impact the learning process. This is in line with Yong (2013) who reported that the more successful students exerted greater metacognitive control over their learning. Therefore, it is significant to emphasize the effective use of metacognitive self-regulation among students.

(Question 3: How do learners perceive their use of resource management?)
The findings of this study on learners' perceptions of resource management, encompassing environment management, effort management, and help-seeking carry significant implications for both educational practice and the understanding of student behaviour. The positive attitudes demonstrated by learners towards environmental management highlight the importance of conducive study spaces and regular class attendance. These findings concurred with the findings by Naujoks (2021) in which a positive environment for studying leads to a more effective learning environment, especially for learners during remote teaching and learning. The high mean score for the findings related to the study environment reflects that learners are aware of the importance of a well-structured learning environment as a basic condition for studying. As for effort management, the findings of this study are consistent with the same previous study in which the learners in both studies found that they still managed to complete all their assignments despite the challenges that they had to face. Lastly, for help-seeking, the current study found that learners are ready to refer to their peers should they encounter any issues. Interestingly, this is contrary to the findings by Naujoks (2021) in which learners in the previous study were not keen to seek help. This contrary finding might be due to the reason that the learners in the previous study were experiencing online teaching while the existing learners were having their learning physically.

(Question 4: Is there a relationship between the use of different strategies?)
There is a strong relationship between the use of different strategies. The findings showed that there is a significant association between cognitive, metacognitive self-regulation, and resource management strategies used among the Foundation Studies students. This shows that the students used ways to comprehend information learned in the lessons, planned and monitored their learning and managed their learning environment. In other words, the Foundation students are highly motivated to learn as they strive to understand the content taught to them and effectively determine ways to make sense of the content. At the same time, they continuously monitor their understanding and utilize the resources provided to learn. These findings align with the study conducted by Anthonysamy et al. (2021), who found a positive effect between undergraduates’ self-regulated strategies and their perceived learning performances. The difference in the current study is this study did not explore students’ students’ performance in learning which could be looked into in the future.

Conclusion
The study provides a significant conclusion after examining learning strategies proposed by Wenben and Rubin (1987). The purpose of the questionnaire was to explore cognitive
components pertinent to learning strategies, encompassing elements like rehearsal, organization, elaboration, and critical thinking, and metacognitive self-regulation. The results stipulate that metacognitive self-regulation can positively influence learning by allowing learners to realize their weaknesses and therefore enable them to find solutions. For example, most learners go back to their reading when they get confused and try to figure it out. They can also identify which concepts they struggle to understand. Learners commonly employ strategies such as relating new information to prior knowledge and seeking explanations from peers as part of their preferences. It is also found that learners attend classes regularly, and they make an effort to do well even if they lack interest in what they are doing. Apart from that, reading materials, including personal notes, are very important because learners rely on them frequently, and they also tend to memorize.

With these findings, it is significant for educators to use the information to improve the teaching and learning process. Firstly, encouraging group discussion and engaging learners during lectures should be practised as part of learning strategies. Secondly, providing relatable examples can facilitate better understanding among learners. While memorization may be preferred in foundation studies, there should be other learning strategies for some degree courses. For instance, legal study requires comprehension and analysis, which cannot be accomplished solely by memorizing textbooks. Hence, it is essential to employ suitable learning strategies to maximize the performance of every learner.

It is undeniable that learning strategies should not remain stagnant. Educators should pave the way for learners to discover their best potential and enhance their cognitive and metacognitive self-regulation. At the same time, optimizing resources for management will improve the learning process. Therefore, further research can explore innovative approaches to give insight and self-awareness among learners about their level of self-regulation and strategies to improve it. Apart from that, developing unconventional learning strategies and methodologies is imperative to attract the students’ interest and cultivate a passion for the learning process.

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