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Exploring The Use of Language Learning Strategies Through Reciprocal Determinism

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Abstract

A learning strategy is a person's approach to completing a task and it varies according to individual compatibility. In learning Japanese, the use of appropriate strategies plays an important role in the learning process and can improve students' performance. The researchers were inspired and motivated to conduct this study to discover students' views on the strategies used to learn Japanese to achieve optimal learning outcomes. Thus, the objective of this study was to explore learning strategies through reciprocal determinism used by undergraduate students studying Japanese at the main campus of Malaysia's largest public university. This quantitative research employed a survey via Google Form with 5-Likert scales and was administered to 144 participants learning Japanese as a third language course. It contained four sections that engaged a merge of Bandura's (1986) reciprocal determinism and learning strategies by Wenden & Rubin (1987). The instruments were divided into three sections which consisted of 41 items with 19 items on Behaviour, 11 items on Individual Characteristics and 11 items on Environment. Data was analysed using SPSS Frequency Statistics. The findings showed that generally students claimed that they practiced saying the materials to themselves repetitively, memorised key words to be reminded of key concepts and kept studying the materials learned from class. The data also revealed that students were mostly positive on their metacognitive self-regulation. Furthermore, within a good environment, students put in effort in their studying and they sought help when needed. Future studies are encouraged to focus on creating a teaching model based on the language learning strategy found in this research through qualitative research or a combination of both quantitative and qualitative methods between face-to-face and online language learning.

Keywords: Learning Strategies, Reciprocal Determinism, Behaviour, Individual Characteristics, Environment

Introduction

Background of Study

Japanese is one of the Third Language courses offered at the main campus of the largest public university in Malaysia which is the subject of this study. In this university, all the skills needed to learn Japanese, namely speaking, reading, writing and listening skills are taught comprehensively in a relatively limited period of time. Instructors need to have appropriate strategies to deliver the syllabus contents, while students need to have strategies to master the four skills when learning the language.

Skinner (1971) defined learning theory as that human behaviour is always influenced by the environment. However, in addition to the environment, behaviour also affects a person's thoughts and environment. The environment influences the way a person thinks and feels, which in turn affects their behaviour, which affects the environment and so on (Bandura, 1977). Meanwhile, reciprocal determinism is a central concept of Bandura's (1977) Social Learning Theory that consists of three factors that influence behaviour, namely the environment (E), the individual (P) and the behaviour (B) itself (Bandura, 1977).

Oxford (1990) classified strategies into direct and indirect strategies. Direct strategies involve and require mental processing directly while learning a language (memory, cognitive, and compensation) (Mahmud and Nur, 2018; Wael et al., 2018). Indirect strategies support language learning without directly involving the target language (metacognitive, affective, and social) (Habók and Magyar, 2018; Wael et al., 2018).

Students will have to adapt precise and effective learning methods and some strategies or tactics to help understanding the language. On the other hand, instructors can alter their teaching strategies by ensuring that the methods, materials and resources used are in accordance with the way students learn and increase the learning potential of each student.

Statement of Problem

Strategy is an overall approach related to the implementation of ideas, planning and the implementation of an activity. A learning strategy then is an individual's way of organizing and using a specific set of skills to learn content or accomplish other tasks more effectively and efficiently in a school or non-academic setting (Schumaker and Deshler, 1992). Learning a second or foreign language is influenced by cognitive factors including memory (its form and type), attention and awareness and forgetting. In language learning, metacognitive strategies, such as planning, self-monitoring, self-evaluation and priority setting are important elements (Algamal, 2019; Hattie and Donoghue, 2016).

According to Zain (2021) who studied the relationship between language learning strategies (memory, cognitive, compensation, metacognitive, affective and social strategies) and Arabic language proficiency among students, he identified that there was a positive and significant relationship between the use of language learning strategies and Arabic language proficiency. Meanwhile, Chin et al (2021) pointed out that students used strategies from the cognitive category most often, but the metacognitive category was the least favoured when learning Mandarin vocabulary. Min et al (2022) in their study about exploring strategies in Mandarin language learning discovered that the cognitive strategies most often used were rehearsal, elaboration, organizational and critical thinking. The students applied metacognitive self-

regulation strategies and practiced resource management strategies, favouring environmental strategies, help-seeking and effort-management strategies in learning Mandarin online.
In learning Japanese, Zakaria et al (2017) disclosed that students preferred compensation strategies most but unfavoured affective strategies. On the contrary, social strategies were the most frequently used strategy while compensation strategies were the least used strategy by students. In another study by Yunus et al (2022), students in their institution were moderately adapted to metacognitive categories. However, they opted strategies from the affective categories as the lowest frequency of use.

Different strategies produce different results. Broadbent and Poon (2015) proved that self-regulated learning strategies of time management, metacognition, critical thinking and effort regulation were found to be significantly positively correlated with academic performance in an online setting. However, wrong or lack of strategies can lead to comprehension problems. These problems turned out to be a factor in students' inability to fully understand the subject and indirectly affects students' perceptions and interest in foreign language learning, as well as their language achievement (Nawi et al., 2020).

Although many students learn Japanese online, not much is known about the use of learning strategies and how the strategies used affect learning outcomes. To fill this gap, this study aims to investigate learning strategies through reciprocal determinism used by undergraduates learning Japanese in the main campus of the biggest public university in Malaysia. This study is done to answer the following questions:

- How does behaviour influence language learning?
- How do individual characteristics influence language learning?
- How does the environment influence language learning?
- Is there a relationship between variables for language learning?

Literature Review

Learning Strategies

Recent definitions of language learning strategies were conceptualized to allow comparisons between various, mainly learner-centered factors, at the same time, focusing on methods in which strategies were recognised to be initiated by learners and their aims for doing so (Thomas et al., 2021). Hakan et al (2015) briefly referred to learning strategies as stages taken by learners to develop their own learning. Meanwhile, Montaño-González (2017) defined learning strategies as a set of methods that were used to achieve influence over their own learning practice. Similarly, Hardan (2013) viewed learning strategies as means to assist the acquisition of language and the practice of information they obtain, collect and remember.

Past Studies on Motivation for Learning Language

Previous studies have been done to examine the foreign language learning motivation, especially in terms of issues involving tertiary level students and English language as second language or foreign language. Binalet and Guerra (2014) investigated 30 freshman students of Bachelor of Science in Criminology at the Ifugao State University using a questionnaire of 18 items and a Grammatical Judgment Test (GJT). They aimed to study the relationship between students' motivation and grammatical knowledge and discovered that motivation in

learning English language could not be used to project students' grammatical knowledge. Other factors also must be taken into account when it comes to students' language learning.

Using the same number of respondents, Schiller and Dorner (2021) studied to measure the foreign language learning-related motivation of 30 senior students in Budapest. Through a validation process and survey modelled after the socio-educational model of Gardner (1985), the statistical data showed that a positive attitude towards English as Foreign Language subject and clear objectives in the beginning stages of learning determined students' language learning motivation. One of the main factors of these motivations was integrativeness as senior learners took time to develop a positive attitude towards the target language culture.

Alamer and Almulhim (2021) investigated language anxiety and self-determined motivation among 134 Saudi undergraduate students who were studying English as Foreign Language. Using a mix-method approach, open-ended questions were asked to the respondents for qualitative analysis and questionnaires were analysed using logistic regression analysis for quantitative analysis. Alamer and Almulhim (2021) discovered that general language anxiety could be negatively associated with autonomous motivation as students tended to experience especially lower language anxiety when learning English in the classroom.

The studies discussed have revealed that students' motivation to learn a language involves various factors such as the participation of other students or peers and their general view of the language itself. These factors are aligned with Bandura's (1986) theory of Reciprocal Determinism where human actions are influenced by behaviour, individual characteristics and the environment. Despite this, these researchers did not analyse their data through Bandura's (1986) theory. This research will find motivation for Language Learning through Reciprocal Determinism theory.

Past Studies on Language Learning Strategies (LLS)

Many studies have been done to investigate the learning of foreign languages and in recent years, focus was given to issues relating to online learning and English Language as Foreign Language.

Sukying (2021) studied the Language Learning Strategies used by Thai EFL university students. Using a questionnaire based on Oxford's (1990) LLS taxonomy, the data was collected from 1,523 first year students who had taken a university level general English course. It was discovered that affective strategies were used the most frequently chosen LLS and the learners' choices of LLS were influenced by environmental factors as well as contextual factors, such as learning cultures, values, tasks and activities.

Also focusing on English language but with the distinction of gender, Hakan et al (2015) collected their data from 120 Turkish students in the English Preparation Year. Like Sukying (2021), they also distributed a questionnaire originally developed by Oxford (1990) but with Turkish bilingual equivalence. The findings demonstrated that both male and female students preferred to use memory and affective LLS in their study.

In terms of online learning strategies, Lin et al (2017) have conducted a study on learning strategies, namely self-regulation learning (SRL) strategies for online classes. It involved 466

high-school-level online language students in a Midwestern virtual school. They collected the data using a measurement model called CFA and discovered that the only major predictor of the students' online language-learning achievement was using SRL strategies.

The previous studies viewed that LLS used by students were dependent on several factors including environmental, gender and the form of class. Similar to section 2.2, these factors were also aligned with Bandura's (1986) theory. These factors were vital as LLS used by students can also be used to determine the language achievement of students.

Conceptual Framework

This study was rooted from Bandura's (1986) theory of Reciprocal Determinism. The theory explained how people's act was influenced by three important factors: behaviour, individual characteristics and environment. All these three factors were influenced by one another. The behaviour of a person was influenced by the environment that he or she was in. This behaviour then influenced the individual's characteristics (Rahmat, 2018). In the context of this study, the learner's (A) Behaviour was observed through his/her cognitive components. Next, the learner's (B) Individual characteristics were observed through the learner's metacognitive self-regulation. Finally, the learner's (C) Environment was observed through resource management.

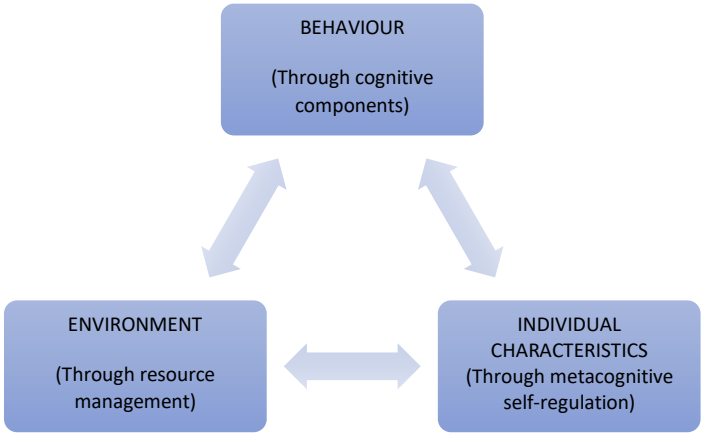

Figure 1 - Conceptual Framework of the Study- Understanding the Use of Language Learning Strategies through Reciprocal Determinism

Methodology

This quantitative study was done to investigate learning strategies used by undergraduates. A purposive sample of 144 participants responded to the survey. The instrument used was a survey with 5 Likert scales. The sections were a product of the merge of Bandura's (1986) reciprocal determinism and learning strategies by Wenden & Rubin (1987). The survey had 4 sections. Section A had 5 items on the demographic profile. Section B had 19 items on Behaviour. Section C had 11 items on Individual Characteristics. Section D had items on Environment.

Table 1
Distribution of Items in the Survey

	RECIPROCAL DETERMINISM (Bandura, 1986)	**Learning Strategies (Wenden & Rubin, 1987)**		**SUB-STRATEGIES**		
B	BEHAVIOUR	COGNITIVE COMPONENTS	(a)	Rehearsal	4	19
			(b)	Organization	4	
			(c)	Elaboration	6	
			(d)	Critical Thinking	5	
C	INDIVIDUAL CHARACTERISTICS	METACOGNITIVE SELF-REGULATION				11
D	ENVIRONMENT	RESOURCE MANAGEMENT	(a)	Environment Management	5	11
			(b)	Effort Management	4	
			(c)	Help-Seeking	2	
Total						41

Table 2
Reliability of Survey

Reliability Statistics

Cronbach's Alpha	N of Items
.942	41

Table 2 shows the reliability of the survey. The analysis shows a Cronbach Alpha of .942; thus, revealing a good reliability of the instrument chosen/used. Further analysis using SPSS was done to present findings to answer the research questions for this study.

Findings

Findings for Demographic Profile

Q1. Gender

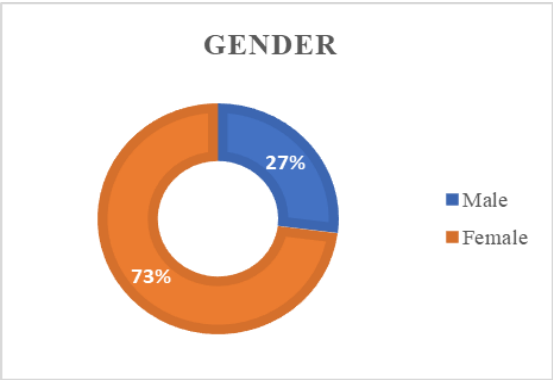

Figure 2 - Percentages for Genders

Figure 2 shows that of the 144 responses obtained for the percentages for genders, 73% are female and 27% are male students.

Q2. Faculty

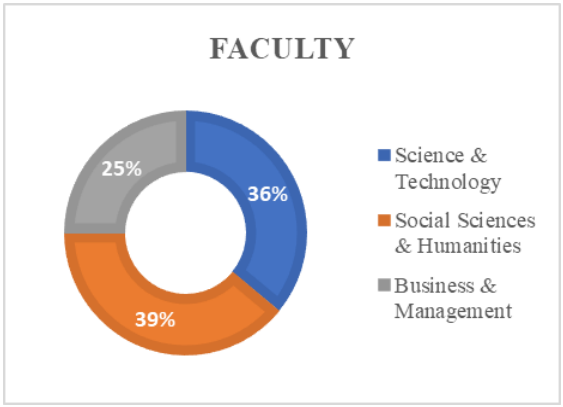

Figure 3 - Percentages for Faculties

Figure 3 above indicates that 39% of the respondents are from Social Sciences and Humanities. Science and Technology ranks second with 36% respondents and the least respondents with 25% are from Business and Management.

Q3. Current Semester

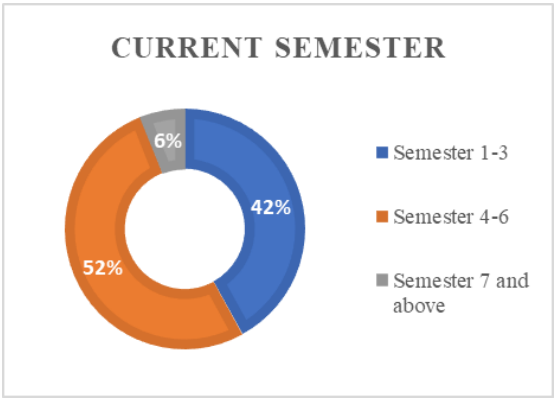

Figure 4 – Percentages for Current Semester

Figure 4 delineates the percentages for the current semester of the 144 respondents, where 52% are from Semester 4-6, 42% from Semester 1-3 and only 6% are from Semester 7 and above.

Q4. Japanese Language Level

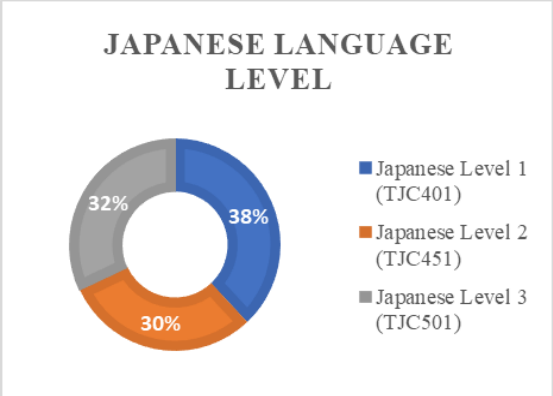

Figure 5 – Percentages for Japanese Language Levels

Figure 5 above reveals that 38% of the respondents are from Level I or Introductory Japanese I (TJC 401), 32% respondents from Level II (Introductory Japanese II or TJC 451) and 32% are from Level III (Introductory Japanese III or TJC 501).

Q5. Years of Learning Japanese

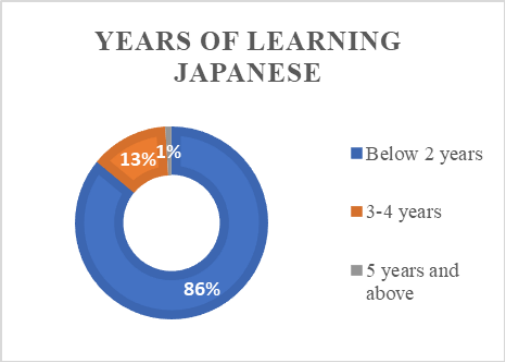

Figure 6 - Percentages for Number Years of Learning Japanese

The number of years studying Japanese as portrayed in Figure 6 above clearly depicts that students having less than 2 years of Japanese language learning experience are dominating with 86%-point score, 13% with 3-4 years learning experience and only 1% have 5 years and above of Japanese language learning experience.

Findings for Behaviour

This section presents data to answer Research Question 1 - How does behaviour influence language learning? In the context of this study, behaviour was measured by cognitive components such as (a) rehearsal, (b) organization, (c) elaboration and (d) critical thinking.

(a) Rehearsal (4 items)

Table 3

Mean for Rehearsal

Items		**Mean**
LSCCRQ1	When I study for the classes, I practice saying the material to myself over and over.	3.8
LSCCRQ2	When studying for the courses, I read my class notes and the course readings over and over again.	3.7
LSCCRQ3	I memorize key words to remind me of important concepts in this class.	3.8
LSCCRQ4	I make lists of important items for the courses and memorize the lists.	3.7

Based on Table 3 which unveils the mean scores for Rehearsal as a cognitive component, items LSCCRQ1 and LSCCRQ3 recorded the higher mean score of 3.8 each, with the remaining two items recording a mean score of 3.7 each.

(b) Organization (4 items)

Table 4

Mean for Organisation

Items		**Mean**
LSCCOQ1	When I study the readings for the courses in the program, I outline the material to help me organize my thoughts.	3.6
LSCCOQ2	When I study for the courses, I go through the readings and my class notes and try to find the most important ideas.	3.8
LSCCOQ3	I make simple charts, diagrams, or tables to help me organize course materials in this program.	2.9
LSCCOQ4	When I study for the courses, I go over my class notes and make an outline of important concepts.	3.7

Table 4 describes the mean values for Organisation as a cognitive component. Findings show that the highest mean of 3.8 is for item LSCCOQ2. This is followed by the mean of 3.7 and 3.6 respectively for items LSCCOQ4 and LSCCOQ1. The lowest mean of 2.9 is for item LSCCOQ3.

(c) Elaboration (6 items)

Table 5

Mean for Elaboration

Items		**Mean**
LSCCEQ1	When I study for the courses in this program, I pull together information from different sources, such as lectures, readings, and discussions.	3.7
LSCCEQ2	I try to relate ideas in one subject to those in other courses whenever possible	3.5
LSCCEQ3	When reading for the courses, I try to relate the material to what I already know.	4.0
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.	3.7
LSCCEQ6	I try to apply ideas from course readings in other class activities such as lecture and discussion.	3.6

Table 5 reveals the mean scores for Elaboration as a cognitive component. Item LSCCEQ4 has the highest mean score with 4.0, followed by items LSCCEQ1 and LSCCEQ5 with a mean score of 3.7 each. Items LSCCEQ6 and LSCCEQ2 have mean scores of 3.6 and 3.5 respectively, while item LSCCEQ4 has the lowest mean score of 3.3.

(d) Critical Thinking (5 items)

Table 6

Mean for Critical Thinking

Items		**Mean**
LSCCCTQ1	I often find myself questioning things I hear or read in the courses to decide if I find them convincing.	3.7
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.	3.4
LSCCCTQ3	I treat the course materials as a starting point and try to develop my own ideas about it.	3.5
LSCCCTQ4	I try to play around with ideas of my own related to what I am learning in the courses.	3.5
LSCCCTQ5	Whenever I read or hear an assertion or conclusion in the classes, I think about possible alternatives.	3.5

Lastly, for the cognitive component Critical Thinking, the mean scores are presented in Table 6 above. As per the figure, the highest mean score is 3.7, which is represented by item LSCCCTQ1 while the lowest score is 3.4 by item LSCCCTQ2. The other three items all which are LSCCCTQ3, LSCCCTQ4 and LSCCCTQ recorded a mean score of 3.5 each.

Findings for Individual Characteristics

This section presents data to answer Research Question 2 - How do individual characteristics influence language learning? In the context of this study, individual characteristics were measured by 11 items in the metacognitive self-regulation.

(a) Metacognitive Self-Regulation (11 items)

Table 7
Mean for Metacognitive Self-regulation

Items		**Mean**
MSSRQ1	During class time, I often miss important points because I am thinking of other things.	2.8
MSSRQ2	When reading for the courses, I make up questions to help focus my reading.	3.2
MSSRQ3	When I become confused about something I am reading for the classes, I go back and try to figure it out.	3.9
MSSRQ4	If course readings are difficult to understand, I change the way I read the material.	3.6
MSSRQ5	Before I study new course material thoroughly, I often skim it to see how it is organized.	3.5
MSSRQ6	I ask myself questions to make sure I understand the material I have been studying in this program.	3.6
MSSRQ7	I try to change the way I study in order to fit any course requirements and the instructors' teaching style.	3.5
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.	3.4
MSSRQ9	When studying for the courses in this program I try to determine which concepts I do not understand well.	3.7
MSSRQ10	When I study for the courses, I set goals for myself in order to direct my activities in each study period.	3.6
MSSRQ11	If I get confused taking notes in classes, I make sure I sort it out afterwards.	3.7

Table 7 above illustrates the mean values for Metacognitive Self-Regulation. It is seen that the highest mean score of 3.9 is for item MSSRQ3. The second highest score with the mean of 3.7 are items MSSRQ9 and MSSRQ11. This is followed by items MSSRQ4, MSSRQ6, and MSSRQ10 with a score of 3.6 each. Two items, MSSRQ5 and MSSRQ7 share the mean score of 3.5 while items MSSRQ8 and MSSRQ2 show a mean of 3.4 and 3.2 respectively. Lastly, the lowest mean score of 2.8 is for item MSSRQ1.

Findings for Environment

This section presents data to answer Research Question 3 - How does the environment influence language learning? In the context of this study, the environment was measured by resource management such as (a) environment management, (b) effort management and (c) help-seeking.

(a) Environment Management (5 items)

Table 8

Mean for Environment Management

Items		Mean
RMCEMQ1	I usually study in a place where I can concentrate on my coursework.	4.2
RMCEMQ2	I make good use of my study time for the courses in this program.	3.8
RMCEMQ3	I have a regular place set aside for studying.	3.7
RMCEMQ4	I make sure that I keep up with the weekly readings and assignments for the courses.	3.6
RMCEMQ5	I attend the classes regularly in this program.	4.5

Table 8 indicates the mean values for Environment Management in influencing language learning. RMCEMQ5 displays the highest mean of 4.5, followed by RMCEMQ1 with 4.2. On the other hand, item RMCEMQ2 has a mean score of 3.8 and RMCEMQ3 has 3.7. The lowest mean score is 3.6 for item RMCEMQ4.

(b) Effort Management (4 items)

Table 9

Mean for Effort Management

Items		Mean
RMCEMQ1	I have a regular place set aside for studying.	3.8
RMCEMQ2	I work hard to do well in the classes in this program even if I do not like what we are doing.	3.8
RMCEMQ3	When coursework is difficult, I either give up or only study the easy parts.	2.5
RMCEMQ4	Even when course materials are dull and uninteresting, I manage to keep working until I finish.	3.8

Table 9 demonstrates the mean values for Effort Management in influencing language learning. Three items share the highest mean score of 3.8 which are RMCEMQ1, RMCEMQ2 and RMCEMQ4. Meanwhile, item RMCEMQ3 has the lowest mean score of 2.5.

(c) Help-Seeking (2 items)

Table 10

Mean for Help-Seeking

Items		Mean
RMCHSQ1	When I cannot understand the material in a course, I ask another student in the class for help.	4.2
RMCHSQ2	I try to identify students in the classes whom I can ask for help if necessary.	4.0

Table 10 portrays the means for Help-Seeking in influencing language learning. Only two items are featured in this variable, with RMCHSQ1 as the highest mean score of 4.2, while RMCHSQ2 as the lowest mean score of 4.0.

Findings for Relationship Across Variables for Language Learning

This section presents data to answer Research Question 4 - Is there a relationship between variables for language learning? To determine if there is a significant association in the mean scores between behaviour, individual characteristics and environment, data was analysed using SPSS for correlations. Results are presented separately in table 11, 12 and 13 below.

Table 11

Correlation between Behaviour and Individual Characteristics

Correlations

		TOTALBEHAVIOUR	TOTALIndividualcharacteristics
TOTALBEHAVIOUR	Pearson Correlation	1	.739**
	Sig. (2-tailed)		.000
	N	144	144
TOTALIndividualcharacteristics	Pearson Correlation	.739**	1
	Sig. (2-tailed)	.000	
	N	144	144

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

Table 11 shows there is an association between behaviour and individual characteristics. Correlation analysis shows that there is a high significant association between behaviour and individual characteristics (r=.739**) and (p=.000). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured 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. This means that there is also a strong positive relationship between behaviour and individual characteristics.

Table 12

Correlation between Behaviour and Environment

Correlations

		TOTALBEHAVIOUR	TOTALENVIRONMENT
TOTALBEHAVIOUR	Pearson Correlation	1	.589**
	Sig. (2-tailed)		.000
	N	144	144
TOTALENVIRONMENT	Pearson Correlation	.589**	1
	Sig. (2-tailed)	.000	
	N	144	144

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

Table 12 shows there is an association between behaviour and environment. Correlation analysis shows that there is a high significant association between behaviour and environment (r=.589**) and (p=.000). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured 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. This means that there is also a strong positive relationship between behaviour and environment.

Table 13
Correlation between Environment and Individual Characteristics

Correlations

		TOTALENVIRONMENT	TOTALindividualcharacteristics
TOTALENVIRONMENT	Pearson Correlation	1	.590**
	Sig. (2-tailed)		.000
	N	144	144
TOTALindividualcharacteristics	Pearson Correlation	.590**	1
	Sig. (2-tailed)	.000	
	N	144	144

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

Table 13 shows there is an association between environment and individual characteristics. Correlation analysis shows that there is a high significant association between environment and individual characteristics (r=.590**) and (p=.000). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured 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. This means that there is also a strong positive relationship between environment and individual characteristics.

Conclusion

Summary of Findings and Discussion

Based on the findings presented in 4.0, as to behaviour influencing language learning, which was measured by cognitive components, specifically rehearsal, organisation, elaboration and critical thinking. Starting with rehearsal, it seems that on average the students' behaviour is positive at best, with them claiming that they practice saying the materials to themselves repetitively, memorise key words to be reminded of key concepts and keep studying the materials learned from class. Furthermore, with regards to organisation, the students on average indicated that they practise organising skills in their learning, specifically when going through their reading materials and making outlines. For elaboration, on average the students employ elaborating strategies. They attempt to relate materials to their existing schemata, connecting between their readings and the class, and sourcing information from a variety of sources aside from classes. Lastly, for critical thinking, on average the students claim to process critical thinking skills in their learning. Therefore, where behaviour is concerned, the students employ rehearsal, organisation, elaboration and critical thinking, thus showing positive behaviour in influencing their language learning. These findings are somewhat similar to Hakan et al (2015) where cognitive skills are vital in language learning.

Another variable that was tested in influencing language learning would be individual characteristics. This variable was measured by metacognitive self-regulation. Based on the findings, the students on average are mostly positive on their metacognitive self-regulation. Self-regulation learning (SRL) is deemed important when it comes to language learning. The findings coincide with Lin et al (2017) where their study uncovered that SRL is a prime predictor for the students' online language learning.

The third variable is on how the environment influences language learning. This variable was measured by the students' resource management, specifically environment management,

effort management, and help-seeking. Following the analysis, the students on average scored a high mean for all three, thus indicating positive findings here. This shows that they study within a good environment, they put in effort in their studying, and they seek help when needed. The findings of the present study are in line with the findings from Sukying (2021) where their study found that one of the students' chosen language learning strategies are environmental factors.

When analysing the relationship between the three variables, the analyses found that the relationship between all three variables are positive, significant, and strong. This may not indicate causation between these variables, but it does indicate that behaviour, individual characteristics and environment have a strong relationship between one and the other. This means that as one variable increases, the other two variables increase as well - as students' behaviour in learning increases, so does their individual characteristics and environment as well and this affects their language learning.

Pedagogical Implications and Suggestions for Future Research

The data in this research has resulted in several pedagogical implications. In this research, students mainly adopted LLS involving Environment (through resource management). It is determined in the study that students prefer to seek help should they require aid. Thus, by encouraging student-student interaction and instructor-student interaction, a healthy and stable language learning line could be created where one could find assistance at any appropriate time.

Students also tend to use LLS in regard to effort management where students pushed themselves to study despite having negative feelings. It is necessary for instructors to either create a positive environment for language learning or have an optimistic outlook when teaching students. It can be achieved through the design of course contents or teaching methods that are aligned with current students' tendency. In addition, students tend to focus their LLS on reading (elaboration) and memorizing (rehearsal). By utilizing this LLS, course designers and instructors need to build learning materials that comply with students' tendency. However, due to the objective of language learning that requires various language skills, reading (elaboration) and memorizing (rehearsal) should not only be the main focus. These results also show that students need to be exposed to materials in the form of audio or video to hone their communication skills.

This study has addressed only the question of general LLS among tertiary students. Future studies are encouraged to focus on building a teaching model based on LLS discovered in this research. The teaching model should be aligned with language learning purposes as well as encouraging students to discover other LLS. The lack of qualitative data means that we did not explore ideas that could further explain the quantitative findings. This indicates that future researchers should either obtain their data qualitatively or by hybrid of both quantitative and qualitative methods to acquire more in-depth findings of the data. Finally, it would be interesting if study is done on the distinction of LLS between traditional language learning and online language learning. This could uncover how students adopt their shift in learning method and whether they are efficient or not.

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