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The Effects of Reading Strategy Awareness on L2 Comprehension Performance among the Rungus in North Borneo

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ABSTRACT

The Rungus are the indigenous people in Sabah, Malaysia. Malay as a second language and the primary instruction in schools seems inevitable. The study aims to determine the effects of reading strategies in the L2 reading comprehension tests on textual content and vocabulary. Participants consisted of twenty-six Form Four Rungus tribe pupils from Kudat Sikuati II Government Secondary School. The study used an ex-post facto research design. The researchers employed cognitive and metacognitive strategy questionnaires and two reading comprehension tests on L2 textual content and vocabulary. The researchers applied Cronbach alpha reliability statistics, paired sample test, and regression analysis. The study indicates that the L2 reading comprehension test on textual content and cognitive strategy were linearly related. Also, the factors related to L2 vocabulary in the reading comprehension test and metacognitive strategy are statistically significant. There is a very substantial relationship between past knowledge and reading comprehension among the participants. This study found that the use of cognitive strategies facilitates L2 reading comprehension with first language translation. The participants use translation strategies at a high level. However, they often use the metacognitive strategy more than the cognitive strategy. There is a significant positive relationship between metacognitive awareness and high-skilled readers' performance. Low-level skilled readers choose the cognitive strategy. Meanwhile, the regression analysis between the L2 reading comprehension test on textual content and cognitive strategy revealed a positive association (β=.435) that is statistically significant ($p<.05$). The regression analysis between the L2 reading comprehension test on vocabulary and metacognitive strategy indicated a positive association (β=.440) and statistically significant ($p<.05$). Reading strategies facilitate students to understand the text, thereby improving their reading comprehension tasks. In addition to demonstrating positive implications on teaching students to read a second language, the findings are essential for teaching Malay language vocabulary. The schema theory employed in the study implicates that reading comprehension performance is generated from the interaction between top-down strategy (metacognitive) and bottom-up strategy (cognitive). A large-scale study could potentially reveal the use of translation strategy as a strategic trait associated with high-achievement readers or is, in fact, a bilingual additive.

INTRODUCTION

The Rungus are the indigenous people who live in the northern state of Sabah. They refer to their identity as the Momogun ethnic group, which is one of sixteen different subgroups. The largest subgroups are Lingkabau, Nulu, Gonsomon, Sindapak, Garo, and Marigang (Appell, 1963, p. 9-10). The language and culture of the Rungus tribe are quite similar to the neighbouring Dusun tribes (Topin, 1996, p. 3; Reid, 1997, p. 135). Their language belongs to the Dusunic family, which is part of the Austronesian group from Northern Indonesia. The social boundaries in the life of a society that distinguishes the Rungus tribe from the Dusun-speaking group are customary law, the use of "Rungus" autonym, and dress. The origins of the Rungus tribe are still shrouded in mystery as no written record exists of their lineage. Appell (1978, p. 143) mentions that the Kudat Peninsula is considered the original land of the Rungus tribe. Those who occupied the Melabong Peninsula across the Marudu Bay first moved there a century before the British's arrival. The primary social markers of the Rungus tribe are domestic families, longhouses, and villages. Traditionally, the Rungus tribal social organisation was an egalitarian unit because no leaders and class systems were based on descent. Such a social organisation system has created problems to trace the origins of the Rungus tribe. The modern Rungus community has abandoned animism practices and beliefs as most have embraced either Christianity or Islam. Some of them are involved in businesses, modern agriculture, or

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working in the public sector. The Rungus community today is a society that has changed. These changes are significant, especially in the education, economic, political, and healthcare industries. The Christian influence was so strong on the Rungus tribe that they succeeded in changing their way of life and traditional practices. These changes are related to the influx of the Chinese from Hong Kong in 1883 and the Christian missionaries from the Basel Mission that began in 1951. The Basel Mission and the Hakka Christians in Kudat were established in the 18th century. Efforts carried out by the Basel Mission to look after the welfare of the Chinese Christian community was extended to the Rungus tribe. The Evangelical Missionary Society in Basel, Switzerland sent Rev. H. Honeggar on 23rd November 1952 to spread Christianity among the Rungus. Over sixty percent of the Rungus people today are Christians, while the rest are still practicing their traditional beliefs, and some have converted to Islam. Practitioners of old and traditional practices can still be traced, especially the older generation who is already compatible with the traditional way of life. However, its influence is diminishing, and the last generation of animists is now almost extinct (Raymond, 2014, p. 65-66).

Research Problem

There are about fifty different languages in Sabah. The existence of many languages proves that the Malay language is not the only mother tongue of the Sabahan. The Malay language has become the second language of the non-Malay indigenous communities of Rungus in Kudat, Sabah. Thus, the process of accepting and mastering the Malay language is not present naturally among students of the Rungus tribe but through a formal learning process. In terms of learning standard Malay as the primary medium of instruction, students must improve various skills, including reading comprehension on Malay language materials. Reading comprehension accounts for most of the final results in the Malay Language subject in schools. However, due to the traditional teaching of reading methods, teachers still focus on teaching words, sentences, grammar, and sentence translation that neglect students' reading skills training based on the pre-reading, reading, and post-reading phases. With teachers continuing to use the traditional methods, it is not easy to cultivate students' interest in reading, especially among the non-Malay students such as the Rungus pupils, in the rural schools in Kudat, Sabah. Therefore, these non-Malay students face many problems to improve their reading ability when reading difficult textual contents (Xue, 2019, p. 58).

Most students learn standard Malay without any particular technique, approach, or strategy. Students are rarely being disclosed to the realisation that standard Malay is a skill-oriented subject. A skill in nature requires a lot of training to obtain high efficiency (Wan Dyarudin, 2017, p. 4). Reading strategies are an essential component of second language reading comprehension. Reading strategies in this study are seen as conscious actions used by readers to correct mistakes in comprehension (cognitive strategy) or deliberate actions by readers to monitor such improvement efforts (metacognitive strategy). The study reported that skilled second language readers are students with high reading comprehension scores or high second language knowledge. They differ from less proficient second language readers in using the strategy (Osuji, 2017; Fauziah, 2017; Sri Widyantari, Nyoman & Pande Latria, 2019; Ruhina, 2020).

Readers who are less proficient in this research have the following characteristics: (1) using language-based bottom-up strategy; (2) lacking the awareness and resources to improve comprehension distractions; and (3) lacking the necessary knowledge to evaluate their efforts to improve comprehension. There is an opinion that using such strategies is mainly due to a lack of decoding skills, lexical experience and syntactic knowledge (Fathi & Afzali, 2020, p. 475). Furthermore, due to the attention given to language-based features, students with low-level second language knowledge have fewer resources to apply to higher-level cognitive or metacognitive strategies. In general, below-average second language readers do not have effective metacognitive strategies and little awareness of reading approaches (Fauziah, 2017, p. 18). They also use less metacognitive strategy to monitor their text comprehension. On the other hand, successful second language readers know how to use appropriate strategies to improve text comprehension. Reading strategy research also shows how strategic readers interact with written text and how their strategic behaviour relates to effective reading comprehension.

As a second language, Malay vocabulary is not acquired instantly or simultaneously. Vocabulary mastery requires various word knowledge components; even learning word knowledge is a gradual development. The Rungus pupils need to have enough Malay vocabulary to understand and comprehend the standard Malay. More importantly, they need to update their vocabulary knowledge continuously by changing with new words, and the use of old words becomes stale. In this research, the Rungus pupils' Malay vocabulary is associated with their background knowledge of Malay exposure. Background knowledge of the language can help to improve reading comprehension in the standard Malay; however, its effect seems to confine. The literature review shows that the level of second language knowledge shrinks the amount of students' second language background knowledge (Azlinda, 2018; Acosta, 2019; Zuriyani & Mohamed Ismail, 2019; Zano, 2020). For example, Karakoç & Köse (2017, p. 353) suggested the possibility of two linguistic thresholds affecting the amount of second language background knowledge. In this study, the Rungus pupils with low knowledge of the Malay language score (below 50%) do not benefit from their background Malay language knowledge. Regarding the background knowledge of second language readers with high achievement, Al-Shumaimeri (2006, p. 12) mentioned the following reasons:

> Their language knowledge freed their cognitive resources to make effective use of their comprehension procedures' skills and strategies.

The statement shows that limited second language knowledge can hinder the positive effects of readers' reading comprehension achievement. In short, the focus of the study on second language background knowledge is related to this

current research, i.e., the readers need to have background knowledge relevant to the topic of second language passage.

Aims of the Study

The researchers presented two objectives to determine the reading strategies in the second language (L2) reading comprehension using the standard Malay among Rungus tribe pupils in Sikuati II Government Secondary School, Kudat, Sabah.

1. To determine the effects of using reading strategies in the L2 reading comprehension test on textual content.
2. To determine the effects of using reading strategies in the L2 reading comprehension test on language vocabulary.

The researchers put forward two null hypotheses in line with objectives 1 and 2, as follows:

Ho_1: Reading strategy has no statistically significant effect on L2 textual content in a reading comprehension test.

Ho_2: Reading strategy has no statistically significant effect on L2 vocabulary in a reading comprehension test.

LITERATURE REVIEW

This literature review consists of information on metacognitive strategy from previous research (Tabatabaei, Ahadi, Bahrami & Khamesan, 2017; Osuji, 2017; Fauziah, 2017; and Zuriyani & Mohamed Ismail (2019). The study on the use of translation strategies from L2 to L1 includes Acosta (2019) and Zano (2020). Researchers such as Imam (2017) and Xue (2019) relate their findings to the schema theory, while Sri Widyantari, Nyoman, and Pande Latria (2019); Sylvester, Alizah, and Rosliah (2020); Ruhina (2020) explored the advantages of using the cognitive strategies in L2 reading comprehension.

Tabatabaei et al. (2017) conducted a partial experimental study on two psychology students in bachelor's courses from the Islamic Azad University, Birjand Branch. Successful readers are those who monitor their learning skills through the use of metacognitive strategies. There is a significant positive relationship between metacognitive awareness and high-skilled readers' performance. Students who do not have such a strategy showed low progress in L2 performance. This finding indicates a significant positive relationship between metacognitive awareness and students' educational performance (Tabatabaei et al., 2017, p. 243). The researchers compared the findings to the present study with the participants who passed their standard Malay subject in Form Three Assessment with at least a 50% score. One of Osuji's (2017) objective aimed to identify how vocabulary competence influences the use of English reading comprehension strategies as a second language among Igbo ethnic participants in an educational college in Nigeria. Pearson correlation between cognitive strategies with the participants reading comprehension scores was $r = .253$, $p < 0.05$, $N = 80$. The correlation of metacognitive strategies with reading comprehension scores was $r = .342$, $p = < .05$, $N = 80$. This statistical data analysis shows that the participants are more likely to use the metacognitive strategies in reading comprehension. The correlation also shows a positive relationship between metacognitive strategies and reading comprehension performance by the Igbo ethnic participants (Osuji, 2017, p. 169). Fauziah (2017) studied the relationship between awareness of using metacognitive strategies with reading comprehension ability in English as a second language. Forty students from government secondary schools in Malaysia answered a questionnaire on metacognitive awareness. The Pearson correlation analysis results showed a significant relationship between metacognitive awareness and reading comprehension ability. In specific, the Pearson correlation test showed positive, linear and significant relationships ($r = .4476$, $p = .004$). Thus, the hypotheses stated that metacognitive awareness significantly contributes to L2 reading comprehension are acceptable. The more the participants use the top-down strategy, the better their reading comprehension test scores are compared to the bottom-up strategy (Fauziah, 2017, p. 22). Zuriyani and Mohamed Ismail (2019) wrote an article on the contribution of reading strategies to L2 reading comprehension among fourth-semester students at UiTM Terengganu, Malaysia. They quoted Rumelhart (1980) that the readers' schema activation correlated positively with two stages of processing: bottom-up and top-down. There are two types of schema: content schema (background knowledge of textual content) and formal schema (language, discourse, and rhetorical competence). More specifically, a formal schema is applied when readers make hypotheses using the bottom-up approach and content schema with the top-down approach for predictions. Through the interactive model, the reader's lack of content schema is highly dependent on the process from the bottom up because this interactive reading model is compensatory and complementary (Zuriyani & Mohamed Ismail, 2019, p. 277). In the present study, researchers applied the schema theory (Rumelhart, 1980) to find out whether the activation of the bottom-up and top-down schema is related to cognitive or metacognitive strategies.

Acosta (2019) aimed to identify reading comprehension strategies in Spanish language classes by second language learners at Midwestern University, USA. The results showed that the participants use translation strategies when reading texts written in Spanish. According to Acosta (2019, p. 70), translation is the most widely used reading comprehension strategy by second-language readers. Almost all readers in his study use translations focused on vocabulary. Zano (2020) also found translation as a reading comprehension strategy. He explores high school students' reading comprehension strategies in South Africa taking English First Additional Language (EFAL). He used questionnaires on the inventory of language learning strategies to identify reading comprehension strategies among the students. Sixty-six percent of the respondents viewed translation as one of the best strategies in vocabulary knowledge. He inferred translation as the process of transferring ideas from one language to another. However, EFAL students divert ideas without changing the source text's purpose (Zano, 2020, p. 6). The information in his study helps to examine the translation strategy of the Run-

gus tribe participants who use Malay as the second language in the present study.

Imam (2017) explored cognitive strategies in helping students comprehend texts in the Indonesian language based on students' reading comprehension scores. Accordingly, cognitive strategies are related to how students learn, remember and present ideas reflexively and analytically (p. 110). He adapted Rumelhart's (1977) schema theory that readers use schema to find the meaning of the text they are reading. Schema is knowledge structures that represent concepts in readers' minds and are used to understand the text they read. Therefore, to understand the text, the reader needs a schematic of the text (p. 118). In this regard, Xue (2019, p. 60) concludes that when people understand new things, they need to connect new things with known concepts and past experiences. A schema is a type of memory structure. Readers can rearrange reading material according to the schema in the brain so that they can better understand the text. We found that the findings of Imam (2017) and Xue (2019) are in tandem with the application of the schema theory in the present study.

Sri Widyantari, Nyoman, and Pande Latria (2019) studied the influence of cognitive learning strategies on students' learning outcomes in Tegallalang Public Secondary School, Indonesia. Cognitive learning strategies make a positive contribution to the learning outcomes because there are repetitive activities, elaboration, and organisation in such strategies. Repeating activities consist of simple and complex repetitions. Reading the material regularly helps students to remember, memorise, and understand knowledge which supports the cognitive learning outcomes. The students' repeated reading activities retain knowledge longer in the short-term memory, which is then transferred to the long-term memory (Sri Widyantari et al., 2019, p. 154). Their finding is consistent with the research done by Sylvester, Alizah, and Rosliah (2020) on the Malay language reading proficiency of non-native speakers in Bintulu, Sarawak. They found that cognitive learning involves the processing and producing of various learning information, starting with basic strategies, namely rehearsals (Sylvester et al., 2020, p. 40). These strategies involve learning techniques that evoke an internal relationship between information understood and prior knowledge, such as summaries, paraphrases, and constructing analogies from ideas. Ruhina (2020) explored the use of cognitive and metacognitive reading strategies among Omani EFL (English as a Foreign Language) students from various disciplines. Findings suggest that Omani EFL students have awareness and use cognitive strategies more often than metacognitive strategies. He concluded that students do not choose metacognitive strategies because they consider it challenging. Metacognitive strategies such as analysing and evaluating what is read and validating predictions require additional skills to know how to use them. Therefore, Ruhina (2020, p. 302) assumed that students do not know how to use it. Based on the findings of this study, we obtained information that most second language students choose cognitive strategies over metacognitive strategies. These results are based on the questionnaire responses. It does not involve reading comprehension tests for textual content or vocabulary knowledge. The literature review on metacognitive strategies, the use of translation strategies, information on schema theory and the use of cognitive strategies in reading comprehension are compared with the results of the present study in the analysis and discussion section.

THE PRESENT STUDY

Methodology

This study adapted the schema theory from Rumelhart (1980). The schema theory explains how readers use their background knowledge to understand and learn from texts. The basic notion of schema theory is that written text does not carry meaning by itself. Instead, the text gives readers a clue as to how they derive meaning from existing knowledge. Schema and related concepts resulted from the development of research in cognitive science that emphasises background knowledge in text comprehension. The schema theoretical process consists of several sources of knowledge representing different linguistics levels (characteristics, letters, clusters, lexical knowledge, and semantics). Rumelhart (1980, p. 37) proposed six variables that influence comprehension orally and written, namely background knowledge; strategies used in comprehension tasks; the purpose of the reading or the nature of the task; text length; text type; and new vocabulary processing.

Background knowledge

The participants in the present study are Rungus Tribe students who use the Malay language as their second language. They are native speakers of the Rungus language in the informal domains, especially in family, neighbourhood, and friendship. As a result, their background knowledge of the Malay language is lower than the native speakers themselves.

Strategies in reading comprehension tasks

The strategies used by students in reading comprehension tasks are cognitive strategies and metacognitive strategies. Rumelhart (1980) relates the reader's background knowledge to cognitive strategy (bottom-up). Metacognitive strategies are related to high-level schema producing the top-down activation. Both types of processing occur simultaneously and interactively. According to Phakiti (2006, p. 53), the nature of cognitive strategy is to comprehend, retrieve, and memory while metacognitive strategy involves planning, monitoring, and evaluating.

Purpose of reading or nature of the task

The present study aims to assess the participants' knowledge of Malay textual contents and vocabulary performance in reading comprehension tests.

Length of the texts

To obtain Malay vocabulary data among the participants, we used two passages from a textbook. The participants must provide meanings of the words or phrases based on the words used in the passage. The total number of words in the first passage is 218. The vocabulary test in the second passage consists of 367 words.

Text type

In this study, we use explanatory text that contains processes related to natural, social, scientific, cultural, and other phenomena.

New vocabulary processing

New vocabulary processing involves sequencing skills and graphic organisers. Sequencing refers to identifying story components such as beginning, middle, end, and the ability to retell the events in a particular text based on their sequence. A graphic organiser is a communication tool that uses visual symbols to express knowledge, concepts, thoughts, or ideas, and their relationships.

Location of the Study

The data were obtained from twenty-six Rungus tribe pupils from Sikuati II, Government Secondary School in Kudat, Sabah, Malaysia. The majority of the Rungus reside in Kudat Peninsula around Marudu Bay in Sabah, as shown in Figure 1.

The Rungus tribe's identity goes according to the bay where they reside. Eberhard, Gary, and Charles (2019, p. 639) stated that ninety percent of the Rungus tribe speak Rungus as their first language. They also use mixed languages when communicating at home, among friends, and in the religious and employment domains. All adults have a positive attitude towards the Rungus language, including most young people who speak the Sabahan Malay dialect as their second language. A small number of them use Chinese Hakka, Iranun, Kadazan, Dusun, Kimaragang, and Tombonuo as the second languages. The Rungus language uses Latin Rungusip writing. The literacy rate in the Rungus language as the first language is eighty percent. In the standard Malay as a second language, the literacy rate is eighty-five percent. The literacy rates in the first language (Rungus language) for the generation aged 45 years and above are higher than those aged 30 years and below. The literacy in standard Malay is higher than the Rungus language as standard Malay is the language of instruction in schools.

Figure 1. Kudat district and Kota Marudu in the map of Sabah (Source: Low & Azlan, 2014, p. 75)

Research Instrument

Based on the responses to the questionnaire in the pilot study, all the 26 participants can read the text in the standard Malay language with six pupils (62%) at a moderate level and ten pupils (38%) at a lower level. The study used ex post facto research design to investigate the effects of reading strategy awareness on L2 reading comprehension tests: the standard Malay textual content and vocabulary.

Reading strategy use measures

The reading strategy measures cognitive and metacognitive strategies in the form of a questionnaire. The questionnaire provides a quick understanding of the strategies used by the participants. Several statements describe some of the things the participants did when they were taking the reading test. Each statement indicates how they thought during the test. They were allowed to take a look at the passage as they were answering the questionnaire by choosing 1 (Never), 2 (Sometimes), 3(Often), 4(Usually), and 5(Always) based on a 5-point Likert scale. The researchers adopted the Osuji (2017) questionnaire to measure specific cognitive and metacognitive strategies associated with reading comprehension. Five strategy items in the 14-item questionnaire are about cognitive strategy and nine metacognitive strategy items. Apart from changing the word 'Igbo' to 'Rungus' in item 2, no other changes were made.

Reading comprehension measures

Ten questions were designed to test readers' general ability to locate explicit information in the text, either at the sentential or contextual levels. The word count for the textual content of the passage in the study is 218 words. The explanatory passage entitled "Fenomena Remaja" (Adolescent Phenomenon) was derived from the Form Four Standard Malay textbook (2004, p. 28-29). The textbook used is the same in all schools in Malaysia. The explanatory text contains processes related to natural, social, scientific, cultural, and other phenomena.

Vocabulary comprehension measures

To obtain an understanding of L2 vocabulary among the participants, we used a passage entitled "Langkah Menghasilkan Komputer Peribadi Ciptaan Malaysia" (Steps to Produce a Malaysian Invented Personal Computer") from Form Four Standard Malay Textbook (2004, p. 60). The total number of words in this passage is 367. The participants were required to give the meaning of the words or phrases based on the textual contexts.

Data Analysis

The cognitive and metacognitive strategies questionnaire was adapted from Osuji (2017). A cut-off point of.80 was set

for equal intervals between the five Likert scale. The equal interval enabled the researchers to determine the highly scored items by the participants in both the cognitive and metacognitive strategies. Osuji (2017, p. 216) decided that:

A mean score of 1.00 – 1.80 would indicate that the students never use a particular strategy (the lowest level).

A mean score of 1.81 – 2.60 would indicate that the students sometimes use a particular strategy (the low usage level).

A mean score of 2.61 – 3.40 would indicate that the students often use a particular strategy (the medium-usage level).

A mean score of 3.41 – 4.20 would indicate that the students usually use a particular strategy (the high-usage level).

A mean score of 4.21 – 5.00 would indicate that the students use a particular strategy always whenever they read (the highest level)

L2 reading comprehension test on textual content follows the description marks from the Management Division of Full Boarding Schools and Malaysian Ministry of Education Excellence Schools (2012, p. 3).

Four marks – acceptable content, complete content, and grammatical sentences

Three marks – acceptable content, complete sentence, but less grammatical

Two marks - less content and fewer grammatical sentences

One mark - fewer complete content and fewer grammatical sentences

0 mark - content does not follow the text

The correct answer for the L2 vocabulary is one mark. No mark or zero mark for an incorrect one.

Paired sample statistics measured the mean, standard deviation, and standard error of the mean for cognitive strategy, metacognitive strategy, L2 reading comprehension (RC) test on textual content, and L2 vocabulary. The linear regression analysis in SPSS computation determines the relationship between the dependent variables (L2 RC test on textual content; L2 vocabulary) and prediction variables (cognitive strategy; metacognitive strategy). The output determines whether to reject or accept the null hypothesis.

Validity and Reliability

The researchers used split-half reliability for the reading strategies questionnaire, L2 reading comprehension test on textual content and vocabulary during the pilot study. The scores from even and odd questions from thirty Rungus tribe pupils are correlated for the two halves. A reliable test will have at least an acceptable correlation. van Griethuijsen et al. (2014, p. 589) stated that Cronbach's alpha internal consistency of $0.6 \leq \alpha < 0.7$ is acceptable. Based on the pilot study, the Cronbach's Alpha for the reading strategy in Table 1 is 0.699. The internal consistency is acceptable. The Cronbach's alpha for the reading comprehension test on textual content in Table 1 is 0.642. The internal consistency is acceptable. The Cronbach's alpha for the L2 RC test on vocabulary is 0.608. Therefore, the internal consistency is acceptable.

Table 1. The Cronbach's alpha reliability statistics

Item Statistics			
	Mean	**Std. Deviation**	**N**
Odd Item	3.95	.413	30
Even Item	4.20	.523	30
Reading Strategies			
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**		**N of Items**
.699	.711		2
Item Statistics			
	Mean	**Std. Deviation**	**N**
Odd	2.87	1.776	30
Even	3.17	1.577	30
L2 RC Test on Textual Content			
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**		**N of Items**
.642	.645		2
Item Statistics			
	Mean	**Std. Deviation**	**N**
V.Odd	2.39	1.124	30
V.Even	2.33	.884	30
L2 RC Test on Vocabulary			
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**		**N of Items**
.608	.620		2

RESULTS AND DISCUSSION

Usage Level of Cognitive and Metacognitive Strategies by the Rungus Pupils in L2 Reading Comprehension

The researchers questioned the participants' specific reading strategies in the reading comprehension test using standard Malay material. Accordingly, the researchers determined the cognitive and metacognitive strategies in reading comprehension based on the explanatory text. According to Osuji (2017, p. 12-13), cognitive strategies make a prediction, translate, summarise, connect with prior knowledge or experience, use grammatical rules and guess the meaning of texts. Metacognitive strategies generally conceptualise planning, monitoring, and evaluating the learning or reading process. Table 2 presents the cognitive strategy from items 1-5, while the metacognitive strategy from items 6-14.

Item 1, 'I translated the reading text and tasks into Rungus to enhance my understanding' obtained a mean of 4.08 (high). Item 2, 'I tried to understand the text and questions regardless of my vocabulary knowledge' acquired a mean of 4.35 (very high). Item 3, 'I tried to find topics and main ideas of the passage without reading it in detail' achieved a mean of 4.23 (very high). Item 4, 'I read the text and questions several times to better understand them' attained a mean of 3.69 (high). Item 5, 'I used my prior knowledge to help understand the text' gained a mean of 4.12 (high).

Furthermore, item 6 for the metacognitive statement, 'I was aware of what and how I was doing in the test' drew

Table 2. Usage level of the cognitive and metacognitive strategies in L2 reading comprehension

Item	Cognitive Strategies	Mean	Strategy usage level
1	I translated the reading text and tasks into Rungus to enhance my understanding	4.08	High
2	I tried to understand the text and questions regardless of my vocabulary knowledge	4.35	Very high
3	I tried to find topics and main ideas of the passage without reading them in detail	4.23	Very high
4	I read the text and questions several times to better understand them	3.69	High
5	I used my prior knowledge to help understand the text	4.12	High
	Overall level	4.094	High
Item	**Metacognitive Strategies**	**Mean**	**Strategy usage level**
6	I was aware of what and how I was doing in the test	4.08	High
7	I checked my answers as I was progressing in the test	4.35	Very high
8	I corrected mistakes immediately when found any	4.23	Very high
9	I determined what the test questions required me to do	3.69	High
10	I was aware of the need to plan a course of action	4.12	High
11	I tried to understand the questions adequately before attempting to answer	4.69	Very high
12	I was aware of selected strategies to help me complete the test questions before solving them	3.96	High
13	I checked my accuracy as I was progressing through the test	4.19	High
14	I identified relevant information in the text to help me understand the text and answer the questions	4.23	Very high
	Overall level	4.17	High

a mean of 4.08. These data indicate that the metacognitive strategies are used at high levels. Item 7, 'I checked my answers as I was progressing in the test' obtained a mean of 4.35 (very high). Item 8, 'I corrected mistakes immediately when found any' landed a mean of 4.23 (very high). Item 9, 'I determined what the test questions require me to do' earned a mean of 3.69 (high). Item 10, 'I was aware of the need to plan a course of action' derived a mean of 4.12 (high). Item 11, 'I tried to understand the questions adequately before attempting to answer' obtained a mean of 4.69 (very high). Item 12, 'I was aware of selected strategies to help me complete the test questions before solving them' acquired a mean of 3.96 (high). Item 13, 'I checked my accuracy as I progressed through the test' earned a mean of 4.19 (high). Item 14, 'I identified relevant information in the text to help me understand the text and answer the questions' has a mean of 4.23 (very high).

Based on the mean usage of the cognitive strategies in Table 2, no cognitive strategy items are at the low and medium levels. There are three cognitive strategies at the high levels and two at very high levels. In the metacognitive strategies, no items are at the low and moderate levels. There are five items with high-level responses and four at a very high level. The researchers found that the Rungus tribe pupils employed both the cognitive and metacognitive strategies in L2 reading comprehension but higher on the metacognitive side.

For discussion, the present study results show the usage level of cognitive and metacognitive strategies by the Rungus tribe pupils in L2 reading comprehension. The cognitive strategy item 1, 'I translated the reading text and tasks into Rungus to enhance my understanding' was at a high level (Mean = 4.08). Thus, there is a tendency among the participants to employ the translation strategies. The Rungus language is still active in their minds while trying to build meaning from the L2 passage. The findings support the statement of Elekaei, Tabrizi, and Chalak (2020) that cognitive strategies facilitate second language learning with the first language translation methods. Participants use translation strategies at a high level. Most of the participants translated standard Malay into the Rungus language to improve their reading comprehension. This finding is not surprising as standard Malay is not an everyday language in the life of the Rungus tribe in Kudat, Sabah. The results are in line with Acosta (2019, p. 70) who stated that almost all readers in his study used translation strategies. As the language of communication between the tribes in Sabah, the Malay language has become an intermediary medium for the ethnolinguistic groups, not to mention the Rungus speakers. Consequently, there is a habit of translating standard Malay into their mother tongue (Rungus) to attain equality of meaning of a word or phrase. Some participants translate standard Malay into Rungus language to improve their understanding. This unique text processing strategy has never been reported in a study on learning standard Malay as L2 in Sabah.

The cognitive strategy that the participants frequently utilised at a very high level (Mean = 4.35) is item 2, which is 'I tried to understand the text and questions regardless of my vocabulary knowledge.' Acosta (2019) relates this response to in search for obscure information such as guessing, asking a friend or teacher, and resorting to a dictionary. Simultaneously, the metacognitive strategy is often used contrary to the cognitive strategy of item 2. Metacognitive strategy item 11, 'I tried to understand the questions adequately before attempting to answer' received a very high response (Mean = 4.69). The result is consistent with the study of Tabatabaei et al. (2017) that successful readers are those who monitor their learning skills by using metacognitive strat-

egies. There is a significant positive relationship between metacognitive awareness and high-skilled readers' performance. These findings are not aligned with Latifa (2017) and Ruhina (2020, p. 298) who reported that participants have an awareness of using cognitive strategy more often than metacognitive strategy. They claimed that students do not prefer the metacognitive strategy since they must analyse and critically evaluate the information in a text. The same goes with the study by Commander et al. (2016) which reported that readers most often use cognitive strategies. Ruhina (2019, p. 302) identified that low-level skilled readers choose the cognitive strategy. They do not select metacognitive strategy since they consider it to be more challenging. The metacognitive strategies like "analysing and evaluating what is read" and "validating predictions" require additional training. On the other hand, the results of this study exhibit that the participants often used metacognitive strategies more than cognitive strategies, which do not support the findings of Sri et al. (2019, p. 154) that cognitive strategies contribute positively to learning outcomes due to activities, explanations, and repetitive organisation. Inversely, readers use metacognitive strategies to plan and monitor their comprehension processes (Kutluturk & Yumru, 2017).

L2 Reading Comprehension Test on Textual Content

Table 3 shows the frequency and percentage of L2 reading comprehension using the explanatory text entitled "Fenomena Remaja" (Adolescent Phenomenon) from the Form Four Standard Malay textbook (2004, p. 28-29). The total number of words in this passage is 218.

Overall, the findings showed that questions 3 (literal) and 5 (inference) respectively obtained the three highest marks. Other than that, 20 (76.9%) and 17 participants (65.4%) obtained two marks, while 2 (7.7%) and 4 participants (15.4%) managed to get one mark. One participant failed to get any marks for questions 3 and 5. Meanwhile, the most challenging question to answer is question 9 (critical). None of the participants got full marks (4) or three marks. Only 11 participants (42.3%) gained one mark, while 12 others (46.2%) failed to answer question 9. Based on the Schema Theory (Rumelhart, 1980), the task nature involves four levels of complexity: literal, inference, critical, and interactive. The percentage of correct answers at each level involves only literal, inference, and critical. The literal level is a significant level of understanding as a basis for further comprehension. This level consists of the ability to identify the necessary important information. The level of inference involves determining the meaning of the text. Readers need to combine information to conclude the author's message. At the critical level, the reader analyses or synthesises information and applies it to other information. Comprehension at the critical level includes expressing opinions, constructing and developing new ideas. The percentage of correct answers at the literal level is 48.08%, the inference level (49.04%), and the critical level (35.77%).

Table 4 displays the participants reading strategy and reading comprehension statistics.

The mean of the cognitive strategy (4.330) was higher than the metacognitive strategy mean (4.231). The cognitive strategy has a mean difference of 3.003 with the L2 reading comprehension (RC) test on textual content (1.327). Twenty-six participants answered the questionnaire on reading strategies and the L2 reading comprehension test on textual content. The standard deviation of the L2 RC test on textual content in Table 4 shows the value of.3365 in the data set closest to the mean group score. In contrast, the standard deviation value of metacognitive strategy.5013 is scattered farthest from the mean group score within the standard normal distribution.

Data in Table 5 clearly show a positive association (β=.435) between L2 information and usage of cognitive strategy, and the relationship is statistically significant ($p<.05$). The computed F- value was statistically significant ($F= 2.684$; $p<.05$). The two statistical indices indicate factors related to the L2 reading comprehension test on the textual content and cognitive strategy are linearly related. The generated R^2 value of.189 implies that 18.9% of the total variation in cognitive strategy is linked to variance in the selected L2 reading comprehension test on textual content. Thus, we rejected the null hypothesis, stating that reading strategy has no statistically significant effect on L2 textual

Table 3. Frequency and percentage in L2 reading comprehension test on textual content

Question	Level of complexity	Full Mark	Frequency (%)					N
			4	3	2	1	0	
1	literal	3			9(34.6)	12(46.2)	5(19.2)	26
2	literal	3		3(11.5)	15(57.7)	4(15.4)	4(15.4)	26
3	literal	3		3(11.5)	20(76.9)	2(7.7)	1(3.8)	26
4	literal	3		1(3.8)	11(42.3)	1(3.8)	13(50.0)	26
5	inference	3		4(15.4)	17(65.4)	4(15.4)	1(3.8)	26
6	inference	3			11(42.3)	7(26.9)	8(30.8)	26
7	inference	2			4(15.4)	15(57.7)	7(26.9)	26
8	critical	3		1(3.8)	11(42.3)	11(42.3)	3(11.5)	26
9	critical	3			3(11.5)	11(42.3)	12(46.2)	26
10	critical	4	1(3.8)	1(3.8)	13(50.0)	7(26.9)	4(15.4)	26

content in the reading comprehension test. The researchers used the explanatory text to obtain the participants' reading comprehension scores. The explanatory text develops students' ability to determine the main ideas, content structure, and language features of a text (Sari, Susilowati & Ramdani, 2015, p. 3). The students' ability to determine the main ideas, content structure, and language features in the explanatory text is at the rate of 84%, which is in the good category (Sari et al., 2015, p. 10).

The reading comprehension questions answered by the participants are at literal, inferential, and critical levels. The literal level is the most obvious involving literal meaning (48.08%). The inference levels involve reasoning outside the text (49.04%). The reader reaches the critical level when understanding the author's ideas and information (35.77%). In this context, there is a role of schema theory in reading comprehension. Since a schema or background knowledge drives inference, the theory explains the role of inference based on past knowledge of a topic (Alptekin, 2006, p. 494). Authors like Xue (2019) mentioned a relationship between reading comprehension and reader's background knowledge. This statement is in line with the schema theory, i.e. the reader must have past knowledge to understand the meaning. Past schema or knowledge plays a role in reading comprehension.

This study shows a very significant relationship between past knowledge and reading comprehension among the participants. The finding is supported by Sylvester et al. (2020, p. 38) that the standard Malay reading skills of most non-native students are at the literal level. Highlights from the study of Imam (2017) and Xue (2019) argue that teachers who teach second language subjects must provide students with the appropriate schema that is lacking in them. Teachers should also teach students how to build a bridge between their existing knowledge and new knowledge.

Table 4. Reading strategies and L2 reading comprehension test on textual content

Paired Sample Statistics				
Variables	**Mean**	**No.**	**Standard Deviation**	**Standard error of the mean**
Cognitive strategy	4.330	26	.3806	.0746
Metacognitive strategy	4.231	26	.5013	.0983
L2 RC test on textual content	1.327	26	.3365	.0660

Table 5. Summary of the regression analysis between L2 reading comprehension test on textual content and reading strategy

Variable	**B**	**Std. Error**	**Beta**	**t**	**Sig**
(Constant)	2.853	1.062		2.685	.013
Cognitive	.407	.181	.430	2.245	.035
Metacognitive	-.243	.242	-.192	-1.004	.326
a. Dependent Variable: L2 RC test on textual content					

(R= .435, R2= .189, F= 2.684)

L2 Reading Comprehension Test on Vocabulary

To gain an understanding of L2 vocabulary data among the participants, researchers used the passage entitled "Langkah Menghasilkan Komputer Peribadi Ciptaan Malaysia" (Steps to Produce a Malaysian Invented Personal Computer) from Form Four Standard Malay Textbook (2004, p. 60). The total number of words in this passage is 367. The participants must give the meaning of the words or phrases based on their use in the passage. The correct answer bears a 1 mark and no mark for the incorrect one. Table 6 shows the frequency and percentage scores obtained by the participants based on the L2 reading comprehension test on vocabulary.

Overall, the data from 26 participants showed that questions ten and four received the most responses, namely 17 participants (65.4%) and 15 participants (57.7%) respectively. Simultaneously, questions one and eight obtained the least responses with only one participant (2.7%) and two participants (7.7%), respectively.

Table 7 displays data of the reading strategies and comprehension of the participants' vocabulary. The mean for the cognitive strategy (4.231) was lower than the metacognitive strategy (4.330). These reading strategies have a small mean difference of 0.099.

Table 6. Frequency in L2 reading comprehension test

on vocabulary Question	**Frequency (%)**		**N**
	1 (%)	**0 (%)**	
1	8 (30.8)	18 (69.2)	26
2	1 (3.8)	25 (96.2)	26
3	7 (26.9)	31 (83.8)	26
4	15 (57.7)	11 (42.3)	26
5	11 (42.3)	15 (57.7)	26
6	4 (15.4)	22 (84.6)	26
7	7 (26.9)	19 (73.1)	26
8	2 (7.7)	24 (92.3)	26
9	11 (42.3)	15 (57.7)	26
10	17 (65.4)	9 (34.6)	26

Table 7. Reading strategy and L2 reading comprehension test on vocabulary

Paired Sample Statistics					
KPT	**Variables**	**Mean**	**No.**	**Standard Deviation**	**Standard error of the mean**
	Cognitive strategy	4.231	26	.5013	.0983
	Metacognitive strategy	4.330	26	.3806	.0746
	Vocabulary	3.19	26	1.698	.333

The standard deviation of vocabulary presents the value of 1.698, which scattered further than the mean score of the group. The standard deviation value of the cognitive strategy.5013 and metacognitive strategy.3806 is closer to the mean group.

The data in Table 8 show a positive association (β=.440) between L2 vocabulary and usage of metacognitive strategy and the relationship is statistically significant (p<.05). The computed F- value is statistically significant (F= 2.762; p<.05). The two statistical indices indicate the factors related to L2 vocabulary in the reading comprehension test and the use of metacognitive strategy are linearly related. The generated R^2 value of.194 implies that 19.4% of the total variation in metacognitive strategy is linked to variance in the selected L2 vocabulary. The metacognitive strategy with a low mean has negative effects on the L2 reading comprehension test on vocabulary. Thus, we rejected the null hypothesis, stating that the reading strategy has no statistically significant effect on L2 vocabulary in the reading comprehension test.

This indicates that L2 speakers are influenced by the Malay vocabulary comprehension test's rational structure and information. The L2 speakers can calculate syntactic and semantic knowledge while reading in the same way as the Malay native speakers. The participants can use morpho-syntactic information during vocabulary comprehension but with less detail than the native speakers. To the best of the author's knowledge, this study is the first attempt to explore how the standard Malay vocabulary of Rungus tribal students relates to their reading comprehension strategies.

The regression analysis of metacognitive strategy in standard Malay vocabulary is higher than the cognitive strategy. The use of metacognitive strategy overcomes cognitive strategy. Vocabulary scores have been linked to an increase in the frequency of readers' strategies (Zuriyani & Mohamed Ismail, 2019), and the findings support the present study. The results of this study also support the investigation by Acosta (2019) which reported that participants with broader vocabulary knowledge used reading strategies more often than their peers with low vocabulary knowledge. Chou (2013, p. 187) added that 'referring to dictionaries, writing down new and foreign words, frequently re-reading passages and translating words into L1' is a strategy often used by readers when finding unfamiliar words in a text. It is quite reasonable if we consider that foreign words give rise to the use of translation strategies.

Table 8. Regression analysis summary between L2 reading comprehension test on vocabulary and reading strategy

Variable	B	Std. Error	Beta	t	Sig
(Constant)	-.688	2.939		-.234	.817
Cognitive	-.672	.502	-.256	-1.341	.193
Metacognitive	1.445	.670	.412	2.157	.042
a. Dependent Variable: L2 Vocabulary					

(R= .440, R2= .194, F= 2.762)

The results of this research indicate that readers use L2 background knowledge to aid their reading comprehension and inference of the topic and the main idea in the text to build the meaning of the words. This statement supports Zano (2020) that the use of several strategies by L2 readers indicates the presence of unfamiliar words in the text. However, the opinion does not explain why readers use more of the metacognitive strategy. Another method of presenting this behaviour is that the metacognitive strategy based on knowledge is highly dependent on linguistic competence when facing obstacles while comprehending the content of a text.

According to Fauziah (2017, p. 28), metacognitive awareness significantly contributes to L2 reading comprehension. The more participants use the top-down strategy, the better their performance is in reading comprehension tests. On the other hand, the more they use the bottom-up strategy, the less they can comprehend. Based on the schema theory (Rumelhart, 1980), the bottom-up strategy has to do with students' background knowledge and cognitive strategy (understanding, retrieving, and remembering). The top-down strategy is related to high-level knowledge and metacognitive strategies (planning, monitoring, and evaluating). The interactive model in the schema theory explains that each reading comprehension action results from a combination of bottom-up and top-down skills.

SUMMARY AND CONCLUSION

The study's main aim is to determine reading strategies in L2 reading comprehension performance by using standard Malay materials among form four Rungus tribe pupils in Sikuati II Government Secondary School, Kudat, Sabah. There is a tendency among the participants to employ translation strategies. It is so because the Rungus language is still active in their minds while trying to build meaning from the L2 passage. The cognitive strategy facilitates second language learning with the first language translation methods. The participants used the translation strategy at a high level. Most of the participants translated standard Malay into Rungus language to improve reading comprehension. This finding is not surprising as standard Malay is not an everyday language in the life of the Rungus tribe in Kudat, Sabah. Also, the participants often use the metacognitive strategy more than the cognitive strategy. Successful readers are those who monitor their learning skills through the use of metacognitive strategies. Vice versa, the low-level skilled readers choose the cognitive strategy. They do not select the metacognitive strategy since they consider it to be more challenging than cognitive strategy. The metacognitive strategies like "analysing and evaluating what is read" and "validating predictions" require additional training. Vocabulary knowledge and its role in reading comprehension are among the main focus areas in second language research. Vocabulary knowledge and reading comprehension are interrelated. This relationship is not one-way because vocabulary knowledge can help students understand the reading text and contribute to vocabulary growth. Hence, the results from the present study have provided information to L2 teachers on

the average vocabulary knowledge and reading ability of L2 students, which will allow teachers to build tests congruous to their reading ability. The researchers put forward two null hypotheses in conjunction with the research objectives. The study indicates that the L2 reading comprehension test factors on textual content and cognitive strategy were linearly related, and the relationship was statistically significant. Thus, we rejected the null hypothesis stating that reading strategy has no statistically significant effect on the L2 reading comprehension test on textual content. Also, the factors related to L2 vocabulary in the reading comprehension test and the use of metacognitive strategy are linearly related, and the relationship is statistically significant. Thus, we reject the null hypothesis stating that the reading strategy has no statistically significant effect on L2 vocabulary in the reading comprehension test.

The novelty endows in this study concerning cognitive and metacognitive strategies to improve reading comprehension performance in the second languages are apparent. Often L2 teachers are curious why some students seem to understand a written text but cannot even answer the most straightforward question. The results of this study are relevant to teachers who are often in such difficult situations. Pupils can comprehend the written text better if the teacher exposes them to instructions on how to use cognitive and metacognitive strategies effectively. This study shows that reading strategies facilitate students to understand the text, thereby improving their performance in reading comprehension tasks. In addition to demonstrating positive implications on teaching students to read a second language, the findings are essential for teaching Malay language vocabulary. The notion of schema theory is appropriate in cultivating the reading ability of L2 readers. In the schema theory, reading is an interactive process between the reader and the reading material. The meaning is not visible on the surface of the text. It depends on the readers' ability to apply their schema knowledge through predictions and inferences from the bottom-up and top-down skills. The interactive model in the schema theory explains that each reading comprehension effort is a combination of the two. The bottom-up has to do with students' background knowledge and cognitive strategies (understanding, retrieving, and remembering). The top-down relates to high-level knowledge and metacognitive strategies (planning, monitoring, and evaluating). When readers intend to understand a passage, they not only need to have bottom-up skills that help them identify words and sentences, but top-down knowledge is also important. The more they use top-down strategies, the better their performance in reading comprehension tests. On the other hand, the more they use the bottom-up strategies, the lesser their reading ability. Reading proficiency is generated from the interaction between top-down and bottom-up strategies which is consistent with the schema theory.

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