COGNITIVE SCIENCES AND HUMAN DEVELOPMENT

The Use of Think-Aloud in Assisting Reading Comprehension among Primary School Students

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ABSTRACT

Reading strategies are seldom taught to students despite their importance in aiding reading comprehension. This study aimed to examine the effectiveness of the think-aloud strategy and investigate primary school students' perceptions of using the think-aloud strategy in assisting their reading comprehension. Twenty-seven primary school students were introduced and trained to use the think-aloud strategy through teacher-modelling and reciprocal think-aloud with comprehension passages related to the relevant English curriculum. Questionnaires and interview sessions were conducted to gather information on how the students perceive the use of think-aloud in reading comprehension. Findings revealed that students have positive perceptions towards using think-aloud as a reading strategy in their reading comprehension and were keen on using the strategy in their future reading.

Keywords: think-aloud, reading comprehension, reading strategies

1 INTRODUCTION

English is the compulsory second language for all Malaysian students in the primary and secondary levels in the Malaysian education system. Given the importance of English, in 2018, the Ministry of Education (MOE) implemented the Dual Language Programme (DLP). Under this program, the schools under MOE are given the options of conducting Science and Mathematics in English.

Malaysian primary school students sit for a formal assessment, *Ujian Pencapaian Sekolah Rendah* (UPSR), at the end of their six years of schooling. The assessment serves as a checkpoint to measure students' mastery in several skills, such as reading, writing, calculating and clarity. Despite early exposure to English, not all students are proficient users of the language. In fact, in some schools, English is among one of the least performing subjects. In the UPSR examination, English is assessed in two papers, Comprehension and Writing. Based on the analysis for UPSR 2019, 14.87% of students at the national schools and 12.94% of students of the national-type schools failed to achieve the minimum passing grade in the Comprehension paper (KPM, 2019). The curriculum for primary education in Malaysia aims to prepare students with basic language skills that will enable them to communicate effectively in different contexts suitable for the students' development. As reported by AD-Heisat, Mohammed, Sharmella and Issa (2009), in the primary school English curriculum, the teaching of reading strategies was not mentioned, and the reading skills to be taught are word attack skills and reading for main ideas. It was also found that although primary school teachers know reading strategies, these are seldom applied in the teaching of reading. Reading strategies should be exposed to students to facilitate them in improving their reading comprehension and be critical in their reading.

1.1 Reading Comprehension

Reading is a process of constructing meaning from prints. It is a complex process involving word recognition, comprehension, fluency, and motivation (Leipzig, 2001). Comprehension is one of the seven key components in reading. Khalifa, Ahmed and Ismael (2020) cited Brantmeier (2004) and Yigiter and Gurses (2005) that comprehension is the most effective component in the reading process; without it, reading is meaningless. The ability to read does not ensure competency in comprehending reading materials. Prior knowledge of the reading topics, broad oral and print vocabularies, understandings of how print works, knowledge of diverse types of texts, purposes for reading and strategies for constructing meaning from texts are essential for readers to develop comprehension (Leipzig, 2001). When readers read, they visualise and build mental models with their interpretation of the texts. Students' comprehension of the reading materials is influenced by their prior knowledge, cultures, purposes for reading, and motivation (Pardo, 2004).

Students gather information from the texts during the reading process, make connections, draw inferences, and make their conclusions on the text read. Students combine their prior knowledge with the information from the text and the stances they take with regards to the text. Statistics collected by BERNAMA in 2017 showed that, on average, Malaysians read about 15-20 books in a year. The number of books read is insufficient compared to other developed countries.

In recent years, students are also exposed to online reading materials in addition to printed materials. However, students, especially those in the primary levels, are not taught the proper method to process the information, evaluate the quality and reliability of the materials, and think metacognitively about their reading (Kymes, 2005). As discussed by Carioli and Peru (2016), the combinations of symbolic expression and varieties of authoring tools used in writing make it challenging for readers to comprehend the online content. Without relevant reading strategies, students will not have the appropriate attitudes, strategies, and knowledge to handle the online materials' information. Readers are more likely to face challenges in reading comprehension without reading strategies, regardless of printed or online materials.

1.2   Reading Strategies

Reading strategies are the steps readers take for them to understand the reading materials. Afflerbach, Pearson and Paris (2008) defined these strategies as purposeful, objective-driven attempts to control and change a reader's effort to interpret, understand and create meanings from texts. Singhal (2001) reported reading strategies as to how readers perceive a task, how they make sense of what they read, and the steps taken by the readers when they do not understand. Reading strategies are essential in assisting readers in overcoming their language deficiency and obtaining better reading achievement effectively, and developing readers' self-confidence (Zhang, 1992; Oxford, 1990 as cited by Khalifa et al., 2020). High proficiency readers can decide on the suitable reading strategies to be taken according to the texts. However, lower proficiency readers lack the skills in applying relevant reading strategies while reading. Hence, they need to be introduced to various reading strategies to better understand the reading materials.

Reading strategies involve three phases that readers take before, during and after reading a text (Aarnoutse & Schellings, 2003). The first phase involves determining the goal, identifying the topic, and activating prior knowledge. In the second phase, readers try to make connections between the words and sentences. Readers monitor their understanding and identify the main ideas of the texts, besides making inferences from the texts. In the third phase, readers try to reflect on the information gathered and relate the new information with their prior knowledge. Metacognitive strategies are involved in the reading process when readers plan, guide and monitor their thoughts.

Teachers must teach the students relevant reading strategies to develop their reading competency (AD-Heisat et al., 2009). Afflerbach et al. (2008) reported that teachers need to break down productive reading into parts to enable learners to be aware of the different components, how these components function together and incorporate reading strategies into reading. Some of the approaches that teachers can take to help the students to progress to competent readers include teaching decoding skills, helping students develop fluency, building and stimulating their background knowledge, teaching vocabulary words, providing motivation and engaging them in personal responses to texts.
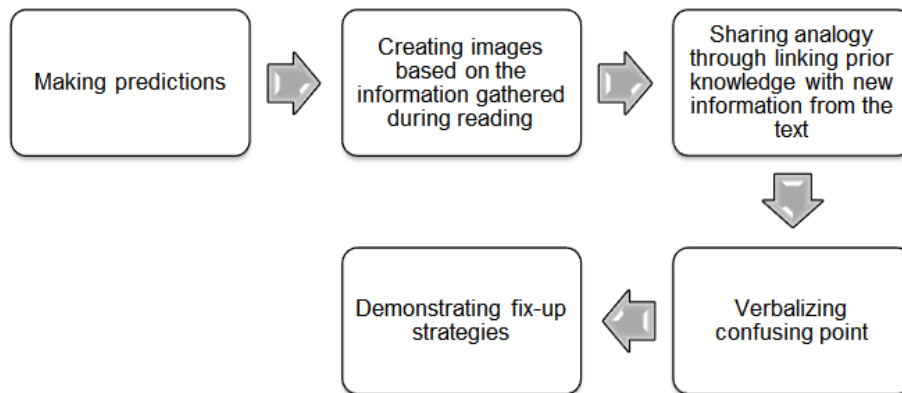
1.3   Think-aloud in reading

Think-aloud, or in other words, verbalising one's thoughts, is a reading strategy that has been used for decades (Davey, 1983). According to Block and Israel (2004), as stated by Alzu'bi (2019), think-aloud is a method for teachers to boost their students' thinking processes and understand what they are reading. This strategy can help students develop the ability to monitor their understanding of the reading materials. It enables students to apply suitable approaches to aid their understanding (Baumann, Jones and Seifert-Kessell, 1993; Davey, 1983).

Based on previous studies, this approach has effectively helped students to develop the skills necessary for reading comprehension (Migyanka, Policastro & Lui, 2005; Sönmez and Sulak, 2018). This strategy promotes metacognition as students think about their thinking while reading and what others think (Raihan, 2011). Students verbalise their thoughts during the think-aloud process while reading, solving problems, or responding to questions (Oster,2001; Raihan, 2011). Also, students can observe and understand how proficient readers comprehend the reading materials through the strategy (Wilhem, 2001 as cited by Migyanka et al., 2005). It supported the findings by Davey (1983) that it is beneficial to lower proficiency readers when they observe how proficient readers think while reading. Walker (2005) also reported that think-aloud increases struggling readers' motivation in reading and improves their self-efficacy towards reading.

There are several approaches to using think-aloud while reading. One of the approaches is through teacher-modelling. In this approach, the teacher explains and demonstrates the thinking process while reading to students. This approach is crucial as it enables students to observe how proficient readers think while reading, allowing them to learn about metacognition and analyse their thinking strategies and patterns (Kymes, 2005).

Another approach is through reciprocal think-aloud. Students work together in small groups or as a pair to think aloud (Raihan, 2011). In reciprocal think-aloud, students take turns to perform the thinking aloud process, to listen and record their partners' thoughts. Students have equal chances of practising think-aloud while observing the process as they switch roles. This approach enables students to reflect and share what works and what needs to be improved when they think-aloud. This approach is supported by Vygotsky's theory that knowledge is socially constructed (Fawcett, 1993). Students can form new knowledge or solve problems efficiently when they share their thoughts. Also, they will be able to listen and internalise others' thoughts. Students will be able to link their prior knowledge with the new information obtained to create new knowledge. The third approach is through individual think-aloud. This approach involves students conducting the reading and thinking aloud process individually.

According to Davey (1983), there are five techniques in using think-aloud (refer to Figure 1). Walker (2005) reported that self-evaluation sheets developed to help struggling readers be more active and engaged in the reading and thinking process has been effective.

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Figure 1. Five techniques in think-aloud strategy by Davey (1983)

Besides assisting students in their reading, think-aloud can also be used as assessment tools for teachers. Through verbalised thoughts, teachers can detect their students' strength and weaknesses in reading. Subsequently, teachers will plan for appropriate instructions for reading lessons and provide support and guidance for students to improve their comprehension (Baumann et al. 1993; Oster, 2001; Raihan, 2011). Raihan (2011) also reported that this strategy could also aid classroom discourse. Previous studies have shown that think-aloud in reading reported positive results in improving students' engagement and motivation in reading and learning (Alzu'bi, 2019; Ys et al., 2018; Davey, 1983). Students' attitudes towards reading and how they see themselves as readers improved using this strategy. Walker (2005) also reported that this strategy enhances students' strategy use, promotes self-efficacy and increases students' engagements.

Besides, students' impetuosity is reduced, and they can have more reflective and strategic reading (Meichebaum and Asnarow, 1979, as cited by Jahandar et al., 2012). Baumann et al. (1993) also found that this strategy effectively assists students in building a wide variety of approaches to help them understand the reading materials and tackle challenges in comprehension. Fawcett (1993) reported that for some young children, their conscious thought processes are in the zone of proximal development. Therefore, students can be assisted to use think-aloud through scaffolding. Besides that, Ortlieb and Norris (2012) suggested the use of think-aloud as a scaffolding model to develop higher thinking, in addition to the clarifications of difficult concepts or tasks. The effectiveness of this strategy is not limited to printed materials. Kymes (2005) and Carioli and Peru (2016) reported the importance of the think-aloud strategy in assisting students to tackle online reading materials. Think-aloud, when demonstrated and guided effectively, will enable readers to be active, engaged, and reflective of their online reading materials (Kymes, 2005; Carioli and Peru, 2016, 2019).

Seng (2009) conducted a study with university students on their perceptions towards the use of think-aloud in reading. It was reported from the study that students have differing views on the think-aloud strategy. Students reported having different preferences on the think-aloud approaches, where some prefer reciprocal think-aloud while others prefer to think-aloud

individually. Understanding students' preferences towards the different approaches are important as it enables teachers to plan and provide supports for the respective approaches.

Think-aloud has been used in reading comprehension for decades. Hence, it would be beneficial to study the effectiveness of the strategy in improving reading comprehension in the 21st-century learning environment. The studies conducted on the use of think-aloud in reading were mostly reported in western countries. Few studies were reported in Asian countries where the cultures are comparatively different from western culture. In some Asian cultures, children are brought up in environments where they cannot express their thoughts, especially to the elders. It would be beneficial to study how the differences in sociocultural practices influence the effectiveness of this strategy. McKeown and Gentilucci (2007) reported that there had been some conflicting findings where think-aloud was found to be less effective for students with lower proficiency. These students were also reported to be less confident in using the strategy. Furthermore, there has been a lack of studies being conducted concerning students' perception towards using the strategy in assisting their reading comprehension as most of the previous studies focused on the impact of the strategy on students' reading comprehension performances.

Hence, given these gaps, this study is conducted to examine the effectiveness of the think-aloud strategy in assisting students' reading comprehension and investigating the students' perceptions towards using the think-aloud strategy in their reading comprehension. This study attempted to answer the following research questions.

1.   Is the think-aloud strategy effective in assisting students in their reading comprehension?

2.   What are the students' perceptions towards using the think-aloud strategy in assisting their reading comprehension?

3.   What are the students' preferences on the think-aloud approaches in reading comprehension?

4.   What are the challenges that most of the students faced in reading?
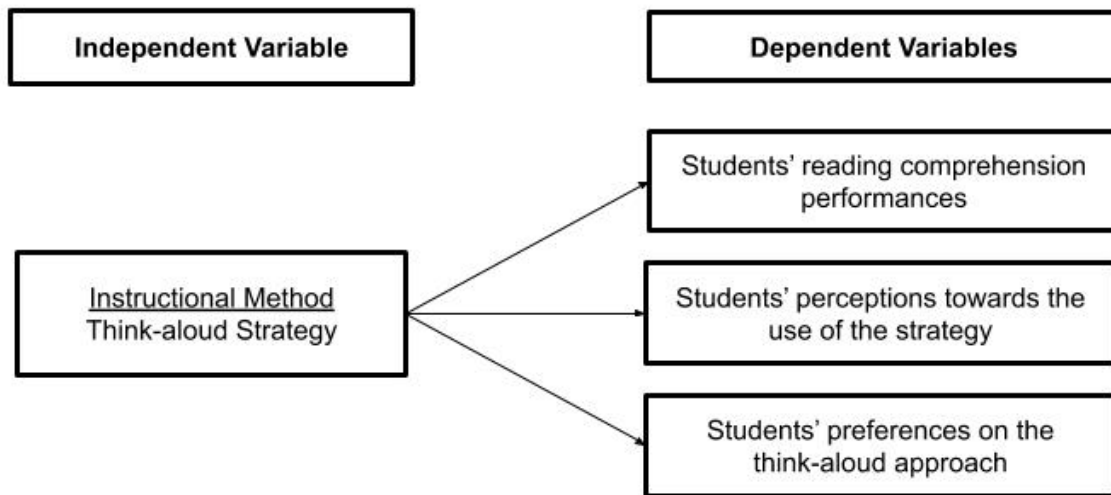
Figure 2. Conceptual Framework

Based on the conceptual framework in Figure 2, the independent variable in this study is the instructional method, which is the think-aloud strategy. There are three dependent variables in this study. This study attempted to examine the effect of introducing the think-aloud strategy on students' reading comprehension performances. In addition, this study also investigated the students' view on the use of the strategy, their preferences towards the approaches, and the strength and weaknesses of the strategy. Findings from the students' perspectives will provide insights for teachers in designing more effective strategies that suit the learners.

2   METHOD

2.1   Research Design

This study was conducted through a mixed-method design. Data was collected and analysed through quantitative and qualitative analysis. The participants' proficiency in reading comprehension was decided through a reading test. Meanwhile, a survey using a questionnaire adapted from earlier studies was designed to investigate the participants' perception of the use of think-aloud in reading. The independent variable for this study is the instructional method, which is the think-aloud strategy. The dependent variables are the participants' perception towards using the think-aloud strategy in reading and their preferences on the think-aloud approaches.

2.2   Sampling

Twenty-seven (27) primary five students from a primary school in Kuching, Sarawak, took part in this study. The participants made up of 18 male and nine female students, with an average age of 10.57 years (SD = 0.514). These participants were from an intact class and consist of moderate and low proficiency users of English. These students were chosen to be exposed to reading

materials and comprehension questions that require much higher-order thinking. Hence, these students need to be introduced to varieties of reading strategies to assist them in understanding the reading materials both explicitly and implicitly.

The instruments used in this study were a reading test and questionnaire. In the reading test, two reading comprehension passages with four questions each were given to the participants. The first passage was a linear text on sea pollution, while the second passage was a non-linear text in the form of a poster about bullying. These two passages were based on the theme in the Primary 5 English curriculum. The comprehension passages were followed by open-ended questions, multiple-choice and True-False questions. The think-aloud training was also conducted with comprehension passages based on the theme 'World of Knowledge' as in the Primary 5 English curriculum.

A 5-point Likert scale questionnaire was used to answer the second research question. The questionnaire was adapted from previous studies by Mohammed and Rashid (2019), Al Seyabi and Tuzlukova (2015), Chen, Maarof and Yunus (2016) and Seng (2009). The questionnaire was prepared in dual language – English and Bahasa Malaysia and consisted of three sections. The first section consisted of 5 questions and collect information about the participants' demographic profile. The information collected includes the students' use of English at home and how they rate their English proficiency. The second section consisted of 9 items that investigated the challenges faced by participants in reading comprehension. In comparison, the third section consisted of 13 items that investigated the participants' perceptions towards using the think-aloud strategy in assisting their reading comprehension.

Interview sessions were conducted online through Google Meet and WhatsApp, given the restrictions from the Covid-19 pandemic and the Movement Controlled Order (MCO). Seven questions were asked in the interview sessions. Information about the participants' perceptions towards the think-aloud strategy, their preferences on the form of think-aloud strategy, and their challenges when performing thinking aloud were gathered through the interview sessions.

2.3   Data Collection Procedures

Data collection for this study was conducted through three stages, as shown in Figure 3. In the first stage, participants were given a reading test. Participants answered eight comprehension questions based on the two passages given. The answers collected from the reading test were analysed using the Statistical Package for Social Sciences (SPSS). For each question, the frequencies and percentages were calculated.
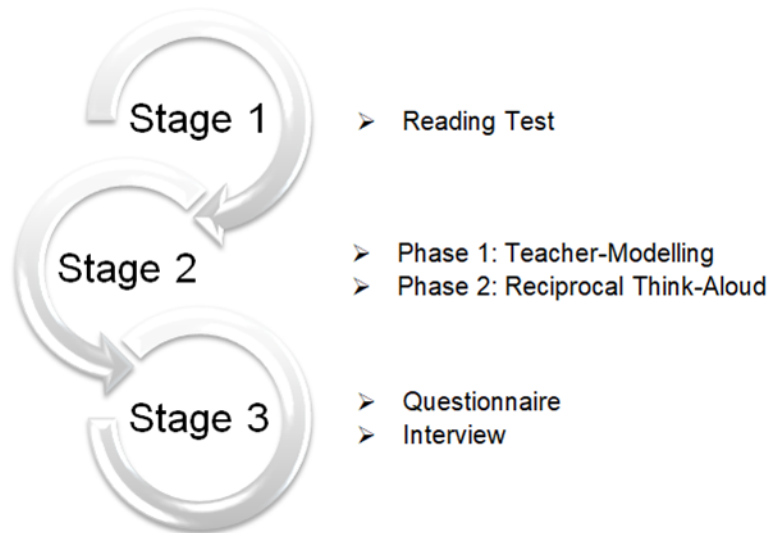
Figure 3. Data collection procedure

The second stage involved the think-aloud training sessions, which was divided into two phases. The first phase was teacher-modelling. In this phase, the researcher, as the teacher, demonstrated thinking-aloud while reading. This phase was conducted in two sessions, with each session lasting an hour. In the second phase, participants practised using think-aloud while reading with reciprocal think-aloud. Participants were paired during this session. However, this phase was only conducted through a one-hour session. Subsequent sessions could not be conducted due to the MCO implemented. The techniques reported by Davey (1983) were incorporated into the training sessions. Participants were given a set of questions adapted from "Think-aloud" (n.d.) to assist them when practising think-aloud. Participants' interactions during the think-aloud sessions were observed.

The third stage of data collection involved an online survey and interview. The survey was conducted through online questionnaires. The questionnaire was prepared in dual language - English and Bahasa Malaysia. The questionnaire was distributed to the participants through social media. Information on the participants' perception, the challenges they faced in reading comprehension and the usage of think-aloud in reading were obtained through a five-point Likert-scale, with one indicating 'Strongly Disagree' to 5 indicating 'Strongly Agree'. Interview sessions were conducted to gather more comprehensive information about the participants' perceptions of the use of the strategy. The data collected for each item was analysed through SPSS for the frequencies and percentages.

2.4   Data Analysis Procedures

The data collected from the study were analysed in both quantitative and qualitative methods. Data collected through reading tests and questionnaires were analysed through descriptive analysis for

the frequencies and percentages, while the information gathered through the interview was analysed qualitatively.

3 RESULT

This study could not be completed as planned due to the Movement Controlled Order (MCO) imposed by the government because of the Covid-19 pandemic outbreak. The training sessions were shortened to three sessions, and the post-test could not be conducted. Limited internet connectivity and technological resources among the participants prevented the continuation of the training sessions online. Hence, only the pre-test data was available in this study and was used as the benchmark on the participants' reading performances. The results of the reading test were analysed for the frequencies and percentage by using SPSS. Table 1 below shows the scores obtained by the participants for the two comprehension passages. Based on the scores, the participants did not perform satisfactorily, especially in passage 1. Only 11.1% of the participants scored two marks from a total of 7 marks for passage 1, while another 88.9% failed to score any marks. For passage 2, 14.8% of the participants did not manage to score any marks. 37% of the participants scored more than half of the total score for passage 2. Figure 4 below shows the participants' performance in both passages. Out of 14, four of the participants (14.8%) obtained 0, while the highest score was 9. The scores obtained by most of the participants were 2 and 3 from the total scores of 14. Seven participants (25.9%) obtained a score of 2, and five participants (18.5%) obtained a score of 3.

Overall, most participants managed to score some marks in the second passage compared to the first passage. It could be due to their familiarity with the theme of the second passage. Based on the participants' answers in the reading test, most of them could answer multiple-choice questions related to vocabulary knowledge (refer to Figure 5). However, most of the participants failed to answer questions that required them to make inferences.

Table 1. Scores for Reading Test

Passage	Total Score	Frequency	Per cent
1	0	24	88.9%
	2	3	11.1%
	Total	27	100.0%
2	0	4	14.8%
	1	1	3.7%
	2	7	25.9%
	3	5	18.5%
	4	3	11.1%
	5	4	14.8%
	6	1	3.7%
	7	2	7.4%
	Total	27	100.0%
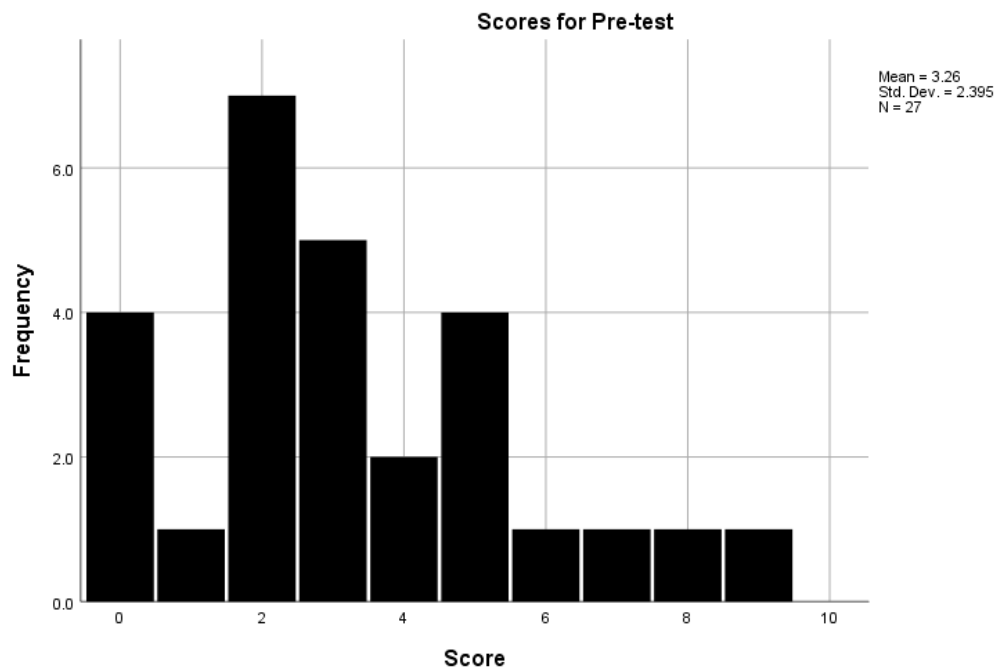
Figure 4. Total scores obtained by participants for the reading test
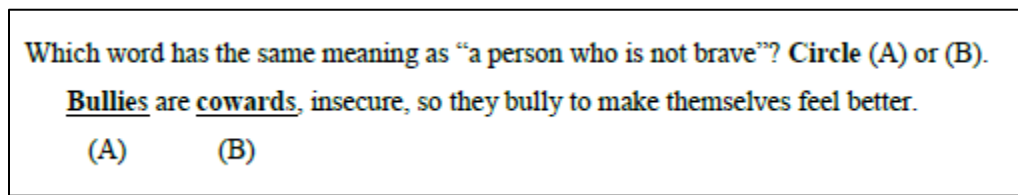
Figure 5. Example of a multiple-choice question in the reading test.

Participants' engagement during the training sessions were observed. There were some observable changes in their engagement through the three sessions conducted. In the first session, participants were passive in giving responses. Despite being prompted, only a few of the participants shared their thoughts. This situation, however, improved in the subsequent sessions. Participants' engagement increased as they were assured that they could express their thoughts in their first language when facing difficulties in expressing themselves in English.

The participants' perceptions towards using the think-aloud strategy and the challenges participants faced in reading comprehension were collected through an online survey in the form of a questionnaire. The first section of the questionnaire consisted of 5 items eliciting information on the respondents' age, gender, date of birth, English usage to communicate with their family members and their perceived level of proficiency of the language. Responses were collected from

14 respondents (N=14), where most of them were male (71.4%) and female (28.6%). The decrease in the number of respondents in the survey compared to the total number of participants originally in the study was due to the limitation of internet connectivity. The average age of the respondents was 10.57 years (SD = 0.514). Table 2 below shows the respondents' usage of English to communicate with their family members.

Table 2. Usage of English to communicate

Usage	Frequency	Per cent
Never	1	7.1%
Seldom	6	42.9%
Sometimes	6	42.9%
Always	1	7.1%
Total	14	100.0%

Table 3 below shows the respondents' perceptions of their proficiency level in English. Based on the information collected, 50.0% (N=7) of the respondents perceived themselves as moderate users of the language. Only one respondent rated 'Excellent' for the proficiency level, while two respondents rated themselves as 'Weak' users of the language.

Table 3. English Proficiency Level

Proficiency	Frequency	Per cent
Weak	2	14.3%
Moderate	7	50.0%
Good	4	28.6%
Excellent	1	7.1%
Total	14	100.0%

The second section of the questionnaire consisted of 9 items measuring the challenges faced by respondents in reading comprehension. The Cronbach's Alpha score is 0.893, indicating that the items in this section have high consistency. According to the results, most of the respondents (57.2%) found that it was difficult for them to visualise the situations described in the passage; therefore, they could not understand the reading materials. Another challenge the respondents faced includes not understanding the new vocabulary words, where 50.0% of the respondents agreed to the statement. Meanwhile, 42.8% of the respondents have difficulty in relating the new information with their background knowledge. Generally, based on the findings from the responses, respondents do not have issues with interest in reading.

Table 4. Challenges in reading comprehension

Item	Statements	SD ƒ(%)	D ƒ(%)	N ƒ(%)	A ƒ(%)	SA ƒ(%)	Total ƒ(%)
1.	I am not interested in reading.	1 (7.1)	9 (64.3)	1 (7.1)	1 (7.1)	2 (14.3)	14 (100.0)
2.	There are many new words that I do not understand.	1 (7.1)	3 (21.4)	3 (21.4)	6 (42.9)	1 (7.1)	14 (100.0)
3.	There are many words that I do not know how to pronounce	1 (7.1)	4 (28.6)	6 (42.9)	2 (14.3)	1 (7.1)	14 (100.0)
4.	The selected reading materials are difficult.	1 (7.1)	7 (50.0)	4 (28.6)	1 (7.1)	1 (7.1)	14 (100.0)
5.	The selected reading materials are not interesting.	2 (14.3)	6 (42.9)	5 (35.7)	1 (7.1)	0 (0.0)	14 (100.0)
6.	It is difficult for me to visualise the situations described in the passage to facilitate my reading comprehension.	1 (7.1)	1 (7.1)	4 (28.6)	6 (42.9)	2 (14.3)	14 (100.0)
7.	It is difficult for me to relate the new information to my background knowledge to understand the text.	1 (7.1)	1 (7.1)	6 (42.9)	5 (35.7)	1 (7.1)	14 (100.0)
8.	I do not understand why I should read.	2 (14.3)	6 (42.9)	2 (14.3)	2 (14.3)	2 (14.3)	14 (100.0)
9.	I receive little help or support from the people around me in reading.	1 (7.1)	5 (35.7)	5 (35.7)	2 (14.3)	1 (7.1)	14 (100.0)

Note. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. Adapted from "Factors Affecting ESL Reading Comprehension of Malaysian Secondary School Students," by L.L. Chen, N. Maarof, and M.M. Yunus, 2016, International Conference on Education, p. 542-547., "Investigating EFL Reading Problems and Strategies in Post-Basic Schools and University Foundation Programmes," by F. Al Seyabi and V. Tuzlukova, 2015, Malaysian Journal of ELT Research, Vol. 11(2), pp. 35-51 and "The sources of reading comprehension difficulties among Saudi EFL learners," by Q. Mohammed and R.A. Rashid, 2018, Trends in Social Sciences, 1(1), p. 7-16.

The third section of the questionnaire consisted of 13 items concerning respondents' perceptions towards using the think-aloud strategy in aiding their reading comprehension. As the training sessions were not completed, the respondents' perceptions were based on the three training sessions conducted before the MCO was implemented. This section's items are considered to have high consistency with the Cronbach's Alpha value of 0.764. The respondents' perceptions were taken

based on the training sessions they have taken part in. It can be concluded from the findings that respondents were optimistic and felt that the strategy could assist them in their reading comprehension. The majority of the respondents (92.9%) felt that using the strategy, they are more aware of how they read, and 92.8% felt that this strategy had helped them in their reading comprehension. Also, 85.7% of the respondents felt that thinking aloud has also helped them better understand the reading materials. Most of the respondents (78.5%) felt that it was difficult to use the think-aloud strategy initially but found that it became easier with practice.

Table 5. Respondents' perception towards think-aloud in reading comprehension

Item	Statements	SD f (%)	D f (%)	N f (%)	A f (%)	SA f (%)	Total f (%)
1.	It had been easy to think-aloud while reading from the very beginning.	0 (0.0)	0 (0.0)	6 (42.9)	6 (42.9)	2 (14.3)	14 (100.0)
2.	Thinking aloud is difficult in the beginning but gets easier with practice.	0 (0.0)	0 (0.0)	3 (21.4)	8 (57.1)	3 (21.4)	14 (100.0)
3.	Thinking aloud has helped me understand better the way I read.	0 (0.0)	0 (0.0)	1 (7.1)	11 (78.6)	2 (14.3)	14 (100.0)
4.	Listening to others think-aloud has helped me be aware of the different ways of handling difficulties.	1 (7.1)	0 (0.0)	4 (28.6)	6 (42.9)	3 (21.4)	14 (100.0)
5.	Thinking aloud has helped me understand better what I read.	0 (0.0)	0 (0.0)	2 (14.3)	10 (71.4)	2 (14.3)	14 (100.0)
6.	Listening to my partner, think-aloud enables me to be aware of their reading behaviour and strategies.	0 (0.0)	0 (0.0)	4 (28.6)	9 (64.3)	1 (7.1)	14 (100.0)
7.	Listening to my partner think-aloud has affected the way I read.	0 (0.0)	1 (7.1)	4 (28.6)	7 (50.0)	2 (14.3)	14 (100.0)
8.	I am confident in using think-aloud while I read.	0 (0.0)	0 (0.0)	3 (21.4)	7 (50.0)	4 (28.6)	14 (100.0)
9.	I need more help to use think-aloud while I read.	0 (0.0)	1 (7.1)	4 (28.6)	6 (42.9)	3 (21.4)	14 (100.0)
10.	I will continue to use think-aloud while I read.	0 (0.0)	0 (0.0)	3 (21.4)	8 (57.1)	3 (21.4)	14 (100.0)
11.	In general, I think the think-aloud method has helped me in my reading comprehension.	0 (0.0)	0 (0.0)	1 (7.1)	10 (71.4)	3 (21.4)	14 (100.0)
12.	Think-aloud as a pair or in a group has been more effective than think-aloud individually.	0 (0.0)	0 (0.0)	3 (21.4)	7 (50.0)	4 (28.6)	14 (100.0)

13.	I prefer to think-aloud on my own than to think-aloud in a pair or group.	0 (0.0)	4 (28.6)	3 (21.4)	5 (35.7)	2 (14.3)	14 (100.0)

Note. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. Adapted from "Using Think-aloud While Reading: What do students think about it?" by G.H. Seng, 2009, English Language Journal, Vol 3, p.125-142.

Four participants of the study who were available and agreed to participate in the interview sessions were interviewed. They comprised of two highest scorers in the reading test and two lower-performing participants. Responses were collected from the participants regarding their feelings when they were first introduced to the strategy, their perceptions of the two approaches introduced to them during training and their preferences on the think-aloud approach. Participants were also asked about their challenges during their participation in the think-aloud sessions and their opinions on what they need to learn more about the strategy. Based on the responses gathered, participants were happy and keen when they were introduced to the strategy. Three of the participants interviewed mentioned that they prefer to think-aloud individually as they were more comfortable. Out of these three participants, two of them scored the highest among all the participants in the study. Participants responded that while they like to think-aloud in pairs, they still prefer to do it individually. Feedbacks gathered have shown that most of the participants faced issues with self-confidence during the think-aloud sessions. One of the participants also said language issue as the challenge he faced during think-aloud. The participants interviewed agreed that they benefitted from the strategy and continued to use it in their reading comprehension. Interview responses also demonstrated the need to improve their self-confidence and thinking skills to use the think-aloud strategy more effectively. Participants also mentioned that they need more guidance and practice in thinking aloud.

4   DISCUSSION

In this study, 92.8% of the students (N=14) who responded to the questionnaire expressed their agreement that the think-aloud strategy has helped them in their reading comprehension. Interviews conducted also yielded similar responses. This finding is consistent with the previous studies (Seng, 2009; Alzu'bi, 2019; Ys et al., 2018; Davey, 1983) that reported the effectiveness of the strategy in assisting students in their reading. Another approach to measuring the effectiveness of the strategy in assisting reading comprehension would be through comparison of the students' scores in pre and post-test as was initially planned. However, this study could not be carried out due to the Covid-19 pandemic and the Movement Control Order (MCO) restrictions. Hence, in this study, the research question on the effectiveness of the think-aloud strategy in assisting reading comprehension could only be answered through the survey responses from fourteen (14) participants and interview findings from four (4) participants.

Regarding the second research question, it was found that students reported positive feedback towards the use of the think-aloud strategy in aiding their reading comprehension. Students were keen to learn new strategies that could be used to aid their comprehension. 78.5% of the students who responded to the questionnaire agreed that they would continue to use this strategy when they

read. This strategy was not easy for the students at the beginning of the training session. As observed during the first training session, students' engagement was low, and they were less responsive. Students had to be prompted to verbalise their thoughts. In the following sessions, they were more engaged in the process. Their engagement also increased when they were given assurance that they could verbalise their thoughts in their first language when they do not know the word or phrases in English. The use of other languages while students' think-aloud was allowed in this study to minimise limitations that students might face.

According to the responses gathered, most of the students responded that think-aloud has helped them be aware of how they read and better understand the reading materials. It is aligned with the results from a previous study by Jafarigohar, Soleimani and Soleimani (2013). It was reported that think-aloud effectively enhanced students' English reading comprehension. This strategy strengthens the students' abilities in their thinking process, enabling them to connect the meaning and understanding with the text, subsequently improving their comprehension (Jafarigohar et al., 2013). Ditzel (2010) agreed on the importance of introducing reading strategies to students to facilitate their comprehension. As they listen to how other readers think during reading, they will observe and retain the information better. Given this strategy's effectiveness in assisting students in their comprehension, teachers can further expand the use to help students be more critical and reflective in their thinking, enabling them to have a more compelling reading.

On the other hand, there were differing views on the preferences for the think-aloud approaches. While 78.6% of the survey responses showed that thinking aloud with partners had been more effective to students, some students preferred to think-aloud individually. It could be associated with the students' responses to being uncomfortable and shy when participating in think-aloud with their partners. In this study, students were randomly paired. Therefore, this could have led to students being less comfortable when thinking aloud with their partners. Seng (2009) cited Cohen (1998) and Oxford (1988) that students' attitudes, learning styles, motivation, and level of confidence in their reading and speaking abilities lead to their preference of thinking-aloud individually.

Nonetheless, the benefits of thinking aloud in groups have been widely reported. When students think-aloud as a group, they can listen to each other. This approach provides opportunities for them to give and receive help, exchange ideas and opinions, and seek clarifications to help them understand the texts read (Seng, 2009; Smith, 2006). Besides, Seng (2007) cited Afflerbach (2000) that when students engage in activities with others, they will generate understandings that are then internalised as individual knowledge and capabilities. Due to the benefits of thinking aloud with partners, in the future use of the strategy, students should be given a chance to think-aloud with partners of their choice.

For this study, training sessions for the think-aloud study were only conducted three times. As such, students did not have sufficient time to practice this strategy to use it effectively. It is reflected in their responses from both the survey and interview. 64.3% of the students responded that they need more help and practice to use the strategy effectively. It would be ideal for students to have more sessions and guidance to practice using think-aloud in their reading comprehension. As these students are seldom introduced to reading strategies, and most of them are low or

moderate proficiency users, they require more extensive guidance and support when introduced to new strategies. The guidance and support will enable them to better understand and use the strategy effectively. When students are familiar with the strategy, they will be able to expand this strategy for other learning purposes. Ortlieb and Norris (2012) recommended using think-aloud as a scaffolding model due to benefits such as developing higher thinking and learning and allowing clarifications of difficult concepts or tasks.

The second section of the questionnaire answered the fourth research question. Most of the students agreed upon were difficulty in visualising situations in the reading passages to facilitate their understanding, issues with not understanding unfamiliar words and difficulty in relating newly added information with their prior knowledge. 57.2% of the students agreed that they have difficulty visualising the reading passages' situations to facilitate their understanding. 50.0% of the students responded that their reading comprehension challenges are caused by not understanding new words encountered in the text passages. Unfamiliar vocabulary words hinder students' understanding of the reading materials. It is aligned with findings of previous studies by Chen et al. (2016), Shehu (2015) and Mohammed and Rashid (2019), where they found lack of vocabulary knowledge as one of the factors affecting students' reading comprehension. Meanwhile, 42.8% of them agreed to difficulty in relating new information to their background knowledge.

Prior knowledge plays a significant role in students' comprehension of the reading materials. Through the survey responses, it was found that students faced challenges in relating information obtained from texts with their prior knowledge. It is consistent with the results reported by Bohn-Gettler and Kendeou (2014) and Chen et al. (2016) in their studies that prior knowledge was one of the factors affecting students' understanding of the reading materials. Yazdanpanah (2007) also cited Swaffer (1988), Afflerbach (1986), Bransford et al. (1986) and Brantmeier (2003) on the influence of prior knowledge in reading comprehension. It was mentioned that familiarity with the reading texts could enhance readers' construction of ideas; without it, readers would have difficulty relating to the texts read. Veritably, the challenge in prior knowledge can be associated with students' challenges in creating images based on the text read. The lack of prior knowledge on the related topics complicates students' effort in picturing the message that the writers wanted to portray through the text, making it challenging for students to understand the reading materials. According to Nation (2019), when people read, they create a mental model with their interpretation of the text to obtain relevant information, make connections, inferences, and conclusions of the reading materials. This situation could explain the differences in the students' reading scores in the two reading passages. Students scored higher in the second passage. It could be attributed to their familiarity with the content of the passage, which was about bullying, as they could have seen or experienced the incident themselves.

On the other hand, it might be more difficult for the students to relate the content in the first passage on sea pollution as this situation might not occur directly. Stevens (1980) stressed the importance of enhancing students' prior knowledge of the related topics to improve their reading. Therefore, teachers need to explore and introduce more strategies to help students to develop their prior knowledge for them to improve themselves as readers.

Several limitations were encountered in this study. Data collection was hampered due to the Covid-19 pandemic and restrictions from the Movement Control Order (MCO). Initially, a quasi-experiment was designed for this study, where a pre and post-test was designed to answer the first research question on the strategy's effectiveness. However, only a pre-test could be conducted. The training sessions could not be completed; thus, students did not receive sufficient exposure to the strategy. An alternative to this limitation would be using technologies for the sessions to be conducted online. However, this approach was not possible in this study. Out of the 27 participants in this study, 13 had limited or no access to internet connectivity or gadgets. Hence, conducting online training sessions would not be apt. The sample size for this study is small. Therefore, the findings from this study could not be generalised to the whole student population.

Given the students' positive feedback towards the use of the think-aloud strategy, it can be concluded that students are keen and eager to be exposed to strategies that can aid them to be more critical and reflective readers. A future study could be conducted analytically to study the think-aloud strategy's effectiveness in helping lower proficiency students. It would be interesting to find out if the findings from the pre and post-test scores are similar to students' perception of the effectiveness of this strategy. As this study focused on using think-aloud with printed materials, a future study could be expanded to the use of think-aloud with online reading materials. Students' perceptions towards using the think-aloud strategy in their reading comprehension were focused on this study as their perceptions were essential to enable teachers to be aware of the advantages and disadvantages of the strategy. Think-aloud promotes metacognition; hence the use of this strategy could build on students' thinking processes, self-regulation, and self-efficacy as a reader. Findings from the study could help teachers design teaching approaches that could further enhance students' learning process. The findings could also develop more comprehensive and suitable approaches to fit the current learning environment.

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