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INFLUENCE OF READING STRATEGY USE ON UNIVERSITY STUDENTS' SECOND LANGUAGE READING PERFORMANCE

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Abstract: Findings about the role of reading strategy use in second language (L2) reading have been inconclusive. This study, therefore, examined the reading strategies that distinguish high- and low-performing L2 readers. For this purpose, 32 Vietnamese ESL university students completed a fourteen-item TOEFL reading test and a survey of reading strategies consisting of 30 items measuring L2 learners' use of global, problem-solving and support strategies. The results of independent samples t-tests revealed no significant differences in their overall use of three strategy categories between high- and low-performing L2 readers, but the two groups showed significant differences in their use of three global strategies and one problem-solving strategy. These findings suggested that certain reading strategies could contribute to proficient reading in a L2.

Keywords: second language reading, reading strategies, reading performance

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TÁC ĐỘNG CỦA VIỆC SỬ DỤNG CHIẾN LƯỢC ĐỌC ĐỐI VỚI KHẢ NĂNG ĐỌC HIỂU NGÔN NGỮ THỨ HAI CỦA SINH VIÊN ĐẠI HỌC

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Tóm tắt: Các kết quả nghiên cứu trước đây về vai trò của việc sử dụng chiến lược đọc trong ngôn ngữ thứ hai còn chưa thống nhất. Do đó, nghiên cứu này được tiến hành với mục đích xác định các nhóm chiến lược và các chiến lược đọc cụ thể giúp phân biệt người đọc tốt và chưa tốt trong ngôn ngữ thứ hai. 32 sinh viên đại học Việt Nam đã hoàn thành một bài kiểm tra đọc hiểu TOEFL gồm 14 câu hỏi và một bảng khảo sát chiến lược đọc ngôn ngữ thứ hai, bao gồm chiến lược đọc tổng quát, giải quyết vấn đề, và hỗ trợ. Kết quả của các phép so sánh t-mẫu độc lập cho thấy không có sự khác biệt về mặt thống kê giữa nhóm có điểm số bài đọc cao và nhóm có điểm số thấp. Tuy nhiên, có sự khác biệt đáng kể trong việc sử dụng ba chiến lược giải quyết vấn đề và một chiến lược tổng quát giữa hai nhóm. Từ những kết quả này, có thể thấy rằng một số chiến lược đọc nhất định góp phần vào việc đọc thành thạo trong ngôn ngữ thứ hai.

Từ khóa: đọc hiểu ngôn ngữ thứ hai, chiến lược đọc, khả năng đọc hiểu

1. Introduction

Reading comprehension plays an important role in second language (L2) learning and is considered as a prerequisite for learning all language aspects (Aebersold & Field, 1997; Mikulecky, 2008). It serves as an essential source of input for other language skills (listening, speaking, and writing). Reading is also essential to academic development, as it provides the basis for a substantial amount of learning in education (Alvermann & Earle, 2003).

However, many English as second language (ESL) students show difficulties in English reading comprehension (Kindler, 2002). A number of factors such as reading fluency, vocabulary knowledge, and working memory may be attributed to L2 readers' difficulties (Johnston & Kirby, 2006; Macaruso & Shankweiler, 2008). Besides, their reading failure might result from their lack of awareness and use of reading strategies (Grabe, 1991; Carrell, 1991; Ouellettee & Beers, 2010). Reading strategies are deliberate actions that readers use to monitor and evaluate the reading process and help them achieve their reading goals (Cohen, 1990; Mokhtari & Sheorey, 2002). A vast body of research (e.g., Anderson, 1991; Do & Le, 2021; Jafari & Shokrpour, 2012; Kamran, 2012; Madhumathi & Ghosh, 2012; Okyar, 2021; Zhang & Wu, 2009) has been done to identify the role of reading strategies in L2 reading. Nevertheless, current findings of the relationship between L2 readers' strategy use and reading performance are seemingly controversial and require further research. This study, therefore, aimed to identify the reading strategy types and the individual reading strategies that distinguish low and high L2 reading performance among university students. Specifically, the following research questions were addressed in the study:

1. Is there a significant difference in reading strategy use between low- and high-performing L2 readers?

2. What individual reading strategies are used differently between low- and high-performing L2 readers?

2. Literature Review

2.1. Reading process and reading strategies

Reading can be defined as the process of understanding the written language. Any literate human being can read, nevertheless, the process of reading is far more complex than one might think. Since the 1970s, throughout the development of psycholinguistic and cognitive learning theories, reading research has shown that reading is an interactive process involving the application of both higher order and lower order processing in relation to the reader's background knowledge and features of the text itself (Hudson, 2007). Lower order (bottom-up) processing involves decoding (i.e., readers' ability to automatically process the symbol-sound correspondence) (Gough, 1972) and understanding literal and supporting information/details in the text. Higher order (top-down) processing is driven by readers' expectations and predictions about the content of the text. Readers begin with predictions and hypotheses derived from background knowledge about the topic or situation as suggested by the title or by skimming the text and then sample the text to confirm or disconfirm and correct their initial hypotheses (Goodman, 1967; Smith, 2004). Higher order processing is important for readers' understanding of main ideas and inferential information in the text. According to Rumelhart (1985), lower and higher order processing happen simultaneously and interact with each other in a parallel manner. Stanovich (1980) elaborates that the two types of processing complement and compensate each other when one is weaker than the other. Other factors such as contexts, reading purposes, and social and political status may also affect readers' process of constructing meaning from written materials (Hudson, 2007).

In addition, strategic reading is considered to be a key component of proficient reading (Grabe, 1991, 2012). In the process of interacting with the text and constructing meaning, the reader's ability to self-regulate their reading behaviour and invoke appropriate strategies to avoid comprehension failures plays an important role (Anderson, 1991; A. Cohen, 1990). A. Cohen (1990) defines reading strategies as those mental procedures that readers deliberately prefer to employ in accomplishing reading tasks. The use of reading strategies indicates how readers understand a reading task, what they think they can do to achieve their goal, and what action they decide to take to tackle comprehension difficulties. Therefore, the term *strategies* places a greater emphasis on the reader's active participation and should be used differently from the term *skills*, because *skills*, as Carrell (1989) notes, "may suggest only passive abilities which are not necessarily activated" (p. 129).

There are various classifications of reading strategies in the literature. Reading strategies are generally categorized into cognitive and metacognitive strategies (Garner, 1987; Theobald, 2021). Cognitive strategies are those used to construct meaning of text as a framework for understanding, while metacognitive strategies are those used to monitor understanding and take action when necessary. While reading, one normally employs numerous cognitive activities, for example, repetition, note taking, translation, grouping, and imagery. Metacognitive strategies include planning, setting goals, self-monitoring, self-management, and self-evaluation.

Barnet (1988) categorized reading strategies into two types: text-level and word-level strategies. Text-level strategies are those related to the reading passage as a whole and include activating prior knowledge, predicting and reading with a purpose. Word-level strategies

involve guessing word meanings, identifying grammatical category of words, and recognizing word meaning through context. Anderson (1991) proposed 47 strategies and grouped them into five categories: supervising strategies (e.g., formulating a question), support strategies (e.g., skipping unknown words), paraphrasing strategies (e.g., translating a word or a phrase into the L1), strategies for establishing coherence in text (e.g., using background knowledge), and test-taking strategies (e.g., guessing without any particular consideration).

Developing the Survey of Reading Strategies (SORS) to examine L2 readers' strategy use, Mokhtari and Sheorey (2002) identified three categories of reading strategies as follows: global, problem-solving and support strategies. Global strategies are metacognitive strategies and defined as "intentionally, carefully planned techniques by which learners monitor or manage their reading" (Mokhtari & Sheorey, 2002, p. 4). These strategies are aimed at setting the stage for reading, for example, having a purpose in mind for reading and reviewing text characteristics before reading. Problem-solving strategies are cognitive strategies and "localized" and used when problems occur when the text becomes difficult to read, for example, re-reading and visualizing information in the text. Support strategies are supportive tools to aid comprehension such as the use of outside reference materials.

Some strategies are overlapped in the aforementioned taxonomies of reading strategies. Apparently, all these taxonomies include metacognitive and cognitive strategies that help readers monitor their reading and achieve comprehension. However, while Barnet's classification may be more text-driven and Anderson's is more elaborate with a large number of strategies, Mokhtari and Sheorey's seems to incorporate many strategies that are identified in other classifications, avoids overlaps between strategy categories and is simplified to be more appropriate with L2 readers. Given that Mokhtari and Sheorey's classification is specifically developed to examine reading strategy use in a L2 and has been used extensively in L2 reading research (e.g., Alhaqbani & Riazi, 2012; Chumworatayee, 2017; Do & Le, 2021; Jafari & Shokrpour, 2012; Kamran, 2012; Madhumathi & Ghosh, 2012; Okyar, 2021; Malcolm, 2009; Poole, 2005, 2010; Sheorey & Baboczky, 2008; Sheorey, Kamimura, & Freiermuth, 2008; Yüksel & Yüksel, 2012; Zhang & Wu, 2009), their classification was used in the current study.

2.2. Strategy Use by Good and Poor Readers in L2 Reading

L1 reading research has documented that strategic awareness and behavior differs between poor and good readers (e.g., Baker & Brown, 1984; Cantrell & Carter, 2009; Mokhtari & Reichard, 2004). Proficient readers are more purposeful when reading and more aware of the reading process, enabling them to effectively monitor and evaluate their reading behavior. They are likely to use more cognitive and metacognitive strategies to increase comprehension of a text, whereas younger and less skilled readers may employ less strategies or may focus on strategies which mainly deal with the decoding or the local level of the text (Baker & Brown, 1984; Garner, 1980). Compared to L1 reading, reading in a L2 is often more challenging and may require an even more active role of L2 readers (Grabe, 1991). A large body of L2 research has attempted to examine the relationship between L2 readers' strategy use and reading performance and provided mixed findings.

A number of studies have shown a positive link between L2 reading strategy use and reading performance (e.g., Barnett, 1988; Do & Le, 2021; Hosenfeld, 1977; Jafari & Shokrpour, 2012; Kamran, 2012; Madhumathi & Ghosh, 2012; Okyar, 2021; Zhang, 2001; Zhang & Wu, 2009). Barnett (1988) examined text-based and word-based reading strategies used by the college-level French learners of English and the relationship between their strategy use and their reading performance. In this study, participants were required to read an

unfamiliar passage and write in English what they remembered. Then, they completed a set of background knowledge questions before doing a reading comprehension test. Finally, they answered a survey which assessed their perceived use of 17 reading strategies. Barnett found that the participants' strategic awareness and reading performance were significantly correlated. The participants who remembered the content of the passage to a greater extent and performed better on the reading test utilized more strategies than did their lower-performing counterparts. The better readers also tended to use more text-based strategies (e.g., using context to predict the upcoming content) to monitor their reading process.

Based on the metacognitive framework of reading strategy classification (Garner, 1987; Theobald, 2021), Zhang (2001) investigated L2 reading strategy use on a sample of 10 Chinese students. The data obtained through the retrospective interview showed that Chinese ESL learners with high reading ability in English indicated higher awareness of the appropriateness of applying metacognitive strategies than did the learners with low reading ability. For example, strategies like re-reading, guessing meaning from context and cooperating with the text were used considerably more often by the more efficient readers than their lower counterparts. On the other hand, translating into L1 and using a dictionary for meaning tended to be avoided by the higher scorers because they knew that these techniques would potentially slow down their comprehension speed. Zhang thus suggested that training L2 readers how to invoke appropriate strategies and use them effectively to complete reading tasks should be part of classroom instruction.

By the means of the SORS (Mokhtari & Sheorey, 2002), some studies have found a significant relationship between L2 learners' use of all strategy types and their reading ability (e.g., Alhaqbani & Riazi, 2012; Okyar, 2021; Yüksel & Yüksel, 2012). In a study of Indian ESL learners, Madhumathi and Ghosh (2012) categorized good and poor readers based on their performance on a TOEFL reading test and found that good ESL readers employed all three types of reading strategies more frequently than did poor ESL readers. In addition, good readers tended to often make use of reference materials and avoid time-consuming strategies such as *translating*, while poor readers regularly *paid closer attention* and *re-read* when text became difficult. Similar results were also observed among ESL learners of Turkish (Okyar, 2021; Yüksel & Yüksel, 2012) and Arabic (Alhaqbani & Riazi, 2012) as their L1. A significant correlation was also observed between L2 readers' use of three strategy types as categorized in the SORS and their self-perceived reading ability. Sheorey and Mokhtari (2001) found that ESL learners' overall use of reading strategies and use of global, problem solving and support strategies were positively correlated with their self-rated reading ability. Compared to the ESL learners who perceived themselves as poor readers in English, those who had higher self-rated reading ability appeared to use a number of reading strategies at a higher frequency, for example, *previewing the text, taking notes during reading, and visualizing information.*

In other studies which also employed the SORS (Mokhtari & Sheorey, 2002) as the measure of L2 reading strategy use, significant results were limited to one particular type of reading strategies only. For example, a significant correlation was observed only between global strategies and reading ability of Hungarian (Sheorey & Baboczky, 2008) and Vietnamese ESL learners (Do & Le, 2021), while in the case of Filipino college students, it was for problem-solving strategies only (Ilustre, 2011).

On the contrary to the findings of the influence of strategy use on L2 reading performance in the aforementioned studies, other studies have found no relationship between L2 learners' reading strategies and reading performance (Anderson, 1991; Sheorey et al., 2008).

For example, Anderson (1991) found no significant differences in strategy use between good and poor readers. Both groups of the readers used similar strategies, but good readers seemed to have better evaluation of their strategy use. Sheorey and colleagues (2008) found no relationship between Japanese ESL university students' use of reading strategy measured by the SORS and their reading ability.

There are a number of other factors that are also found to impact the use of reading strategies in a L2, for example, L2 proficiency and gender. Apparently, high proficiency learners are more likely to use a variety of reading strategies purposefully and properly, whereas low proficiency learners use less strategies and are more struggling in the attempt to attain an effective use of strategies (e.g., Carrell, 1989; Malcolm, 2009; Zhang & Wu, 2009). In order for learners to skilfully employ reading strategies in L2 reading, a level of language proficiency must be ensured (Razi & Grenfell, 2012). Female readers tend to use more reading strategies when reading in a L2 than do their male counterparts (Do & Le, 2021; Okyar, 2021; Poole, 2005, 2010).

In summary, evidence about the relationship between L2 readers' strategy use and reading performance appears to be inconclusive. Some studies revealed that good and poor L2 readers differ in their use of all or one type of reading strategies, while other found no differences between these two groups of readers. However, all the aforementioned studies primarily reported statistical analysis for the difference between good and poor L2 readers on the overall use of three strategy types but not the use of individual strategies. What might be more important is to identify which individual strategies distinguish good and poor L2 readers. The question of what individual strategies are associated with successful L2 reading and should be taught to L2 learners to help them improve their L2 reading performance requires further research. Therefore, the present study was carried out to shed some light on these issues. The study would replicate the methodology of the previous studies that used the SORS as the measure of L2 reading strategy use and a standardized measure of L2 reading performance such as TOEFL.

3. Methods

3.1. Participants

The participants in this study were selected using convenience sampling from a cohort of English Language Teaching majors at a public university in the central region of Vietnam. Although convenience sampling may not accurately reflect demographic characteristics of the entire L2 reader population and may result in limited representativeness, it was adopted considering the researcher's time constraints and accessibility as well as participants' availability. Therefore, a rather small participant sample including 32 students were recruited to take part in the study. There were 2 males and 30 females aged 20 and 21. All participants started learning English at either grade 3 or grade 6, and at the time of the study, they were enrolled in the first semester of their third-year study. In their undergraduate program, every semester from year 1 to year 3, they were required to take 3 credit hours for each language skill (i.e., listening, speaking, reading and writing), and at the time of the data collection, their English was considered to be at intermediate level. During language skill courses, they were introduced to international standardized language tests such as TOEFL iBT and IELTS, which was considered as an advantage considering time constraint for data collection. As mentioned earlier, this study aimed to use a standardized reading measure (TOEFL) and there was no time needed to familiarize the participants with this kind of the language tests.

3.2. Materials

3.2.1. Reading Comprehension Test

To measure participants' reading performance, a passage and its questions from the Reading section of a TOEFL iBT Preparation Guide was used. The selected TOEFL reading test was developed and published by the ETS, the owner and organizer of the TOEFL iBT and some other standardized language proficiency tests. The readability statistics of the reading passage are represented in Table 1. Flesch Reading Ease and Flesch Kincaid Grade Level (40.5 & 11.3, respectively) show that the passage is appropriate for native speakers in their 11th and 12th year at high school or first year of college (Flesch, 1948; Kincaid, Fishburne, Rogers, & Chissom, 1975). Although Flesch-Kincaid scales are designed to measure text readability for students who are native English speakers, the readability level of the TOEFL reading passage was deemed appropriate for university level ESL students whose English proficiency was expected to be at an intermediate level and above and who had spent at least nine years studying English at both secondary and tertiary level.

Table 1

Summary of Readability Statistics of the TOEFL Reading Passage

Number of words	688
Words per sentence	18.5
Number of Sentences	37
Number of Paragraphs	6
Percentage of Passive sentences	18%
Flesch Reading Ease	40.5
Flesch Kincaid Grade Level	11.3

There were 14 reading comprehension questions that followed the passage. The questions assessed readers' detail literal comprehension, main idea literal comprehension, and inferring as well as summarizing skills. Questions 1 to 13 were in multiple-choice format with four options per question, while Question 14 asked participants to choose three statements from six options to complete a short summary of the passage. Following the scoring instruction of the TOEFL iBT test, one point was assigned to each correct answer to Questions 1 through 13 and 2 points to Question 14.

3.2.2. Survey of Reading Strategies

In order to assess L2 readers' use of reading strategies, the SORS developed by Mokhtari and Sheorey (2002) was used. The SORS included 30 items categorized into three subscales: global, problem-solving, and support strategies. Global strategies consisted of 13 items which "are those intentional, carefully planned techniques by which learners monitor or manage their reading" (Mokhtari & Sheorey, 2002, p. 4), for example, having a purpose in mind, previewing the test as to its length and organization. Problem-solving strategies included eight items and were "localized, focused techniques" (Mokhtari & Sheorey, 2002, p. 4) that the reader used to tackle comprehension problems while working directly to the text, for instance, adjusting the reading speed when the material became difficult or easy, guessing the meaning of unknown words, and rereading the text. Support strategies consisted of nine items and were defined as "basic support mechanisms intended to aid the reader in comprehending the text such as using a dictionary, taking notes, underlining, or highlighting textual information (Mokhtari & Sheorey, 2002, p. 4). The frequency of L2 readers' strategy use was measured on a five-point

Likert scale available after each statement, ranging from 1 ("I never or almost never do this") to 5 ("I always or almost always do this"). According to the scoring and interpreting instruction provided by Mokhtari and Sheorey (2002), the frequency of strategy use was grouped as follows: 3.5 or higher = High; 2.5 – 3.4 = Medium; 2.4 or lower = Low.

This study used the original version of the SORS as this instrument has been tested for validity and reliability in a number of studies (e.g., Alhaqbani & Riazi, 2012; Kamran, 2012; Madhumathi & Ghosh, 2012; Malcolm, 2009). Mokhtari and Sheorey field-tested the SORS on a large population of ESL students studying in the US and reported its internal reliability at .89, "indicating a reasonable degree of consistency in measuring awareness and perceived use of reading strategies among non-native students of English" (Mokhtari & Sheorey, 2002, p. 4). The SORS has been used in a vast body of reading strategy research and considered as a valid measure of L2 reading strategy use.

3.3. Data Collection

The data collection was carried out after obtaining permission from the administrator of the university where participants studied and participants' written consent. The whole procedure lasted up to 55 minutes. First, participants were given a brief overview of the study, a short description of the survey, and instructions about how to complete the reading comprehension test and the survey within 10 minutes. Then, participants were asked to complete the reading comprehension test within 20 minutes. After finishing the test, participants were asked to complete the SORS within 25 minutes.

3.4. Data Analysis

The Statistical Package for the Social Science (SPSS, version 29.0) was used to analyze the data. Scores of the reading comprehension test were used to divide the sample into two groups of low- and high-performing readers. For the purpose, all participants' scores were rank-ordered and the scores at the 50^{th} percentile were used as the cut-off point between the two groups. To examine the relationship between L2 reading strategy use and L2 reading performance, multiple independent samples t-tests were employed to identify whether low-and high-scoring readers employed different types of reading strategies and different individual reading strategies. In all statistical analyses, measures were taken to control for Type I error by performing Bonferroni adjustments. There were 13, 8, and 9 independent samples t-tests carried out for global, problem-solving and support strategies, respectively, and accordingly, .004, .006, and .006 were the adjusted p-values for the three strategy subtypes . In addition, effect sizes (*d*) were considered in interpreting the magnitude and practical importance of the observed differences between the lower and higher performing groups, following J. Cohen's (1988) reference values of .2, .5, and .8 for small, medium, and large effects, respectively. Both *p* and *d* values were two criteria used to designate the significant differences when comparing the use of reading strategies between the high- and low-performing L2 readers.

4. Results

Examining the reported use of reading strategies of the whole group, it was found that none of the three types of reading strategies was reported with a low frequency of use, with support strategies (M=3.59, SD=.36) being used most frequently, followed by global (M=3.48, SD=.36) and problem-solving (M=3.43, SD=.47) strategies. Global and support strategies were used more than 50% of the time, approaching the point of "often" used, while problem-solving strategies had medium use. None of the individual reading strategies were used at low frequency

and 14 had high usage, according to the interpretation proposed by Sheorey and Mokhtari (2002).

In order to investigate the relationship between L2 readers' use of reading strategies and their reading performance, the sample was first divided into two groups based on their scores on the TOEFL reading comprehension test. Of a total possible score of 15, the maximum score achieved was 9 (60% correctness) and the minimum was 1 (6% correctness). After participants' scores were rank-ordered, a cut-off point was set at the 50th percentile which coincided with the score of 4 (27% correctness). Coincidentally, the 50th percentile split the sample into two equal groups of 16 participants each. The scores of the low performing group ranged between 1 and 4, and the scores of the high performing group ranged between 5 and 9. The results of the independent samples t-test comparing the two groups' reading scores was significant, $t(30)=-7.51$, $p<.001$, $d=2.65$. This statistically significant result coupled with the very high value of the effect size *d* (J. Cohen, 1988) confirmed that the grouping of the low- and high-performing L2 readers in this study was supported by systematic difference in their reading performance.

Table 2 presents the results of independent samples t-tests to compare the high- and low-performing L2 readers' use of global strategies. Neither the overall use of global strategies nor the use of any individual global strategies was significant at the adjusted *p* value of .004; however, items 15, 21, and 23 were significant at $p=.05$ and had large effect size values of .93, .76, and .8, respectively (J. Cohen, 1988). A large effect size signifies that the difference between variables is of practical importance, and in view of Cumming's (2012) new approach to interpreting statistical significance based on effect size values rather than on p-values, it seemed reasonable to conclude that the two groups significantly differed in their use of these three strategies. The high-performing group used *tables, figures, and pictures in the text* (Item 15) significantly less frequently than did the low-performing group, $t(30)=2.64$, $p=.01$, $d=.93$. While the high achieving group used this strategy only *occasionally*, the low group used this strategy *about 50% of the time*. On the other hand, the high performing group had a more frequent use of *critical analysis and evaluation of the information presented in text* (Item 21) than did their low-performing counterpart, $t(30)=-2.13$, $p=.04$, $d=.76$. Similarly, the high performing group had a more frequent use of *checking their understanding of new information* (Item 23) than did the low performing group, $t(30)=-2.26$, $p=.03$, $d=.80$. While the low scorers indicated that they *sometimes* used this strategy, the higher scorers *usually* used it.

Although statistically non-significant, two other global strategies (Items 3 and 20) obtained medium effect size values of .57 and .58, respectively (J. Cohen, 1988), suggesting that the difference in the use of the high- and low-performing group may be attributed to a systematic variation rather than chance. Specifically, Item 3 "*I think about what I know to help me understand what I read"* elicited a higher mean among the higher performing group (M=3.97), as compared to the low performing group (M=3.37). On the other hand, the low performing group (M=3.63) *used typographical features like bold face and italics to identify key information* more frequently than the higher performing group (M=3.06). For the remaining eight global strategies (see Table 2), both groups generally reported a similar degree of use ranging from *sometimes* to *usually*. In addition, the total mean scores of each group for global strategies suggested that both high- and low-reading achievers used global strategies at a similar and medium frequency when reading in English.

Table 3 summaries the results of independent sample t-tests to compare the high- and low-performing L2 readers' use of problem-solving strategies. The high- and low-performing group showed no difference in their overall use of this strategy category, however, the high-performing group did use one problem-solving strategy (Item 7, "*I read slowly and carefully to*

make sure I understand what I am reading"), significantly more frequently than their low-performing counterpart, $t(30)=-3.308$, $p<.001$, $d=1.18$. The very high effect size value ($d=1.18$) testified the practical importance of this statistically significant result. There were no significant differences in the use of the remaining seven problem-solving strategies between the two groups. Yet, the descriptive statistics revealed some interesting trends and differences between the high performing and low performing groups. For example, the most preferred problem-solving strategy by both groups was *rereading* and both groups *usually* used this strategy, while s*topping from time to time while reading* was least frequently used by both groups. For the other problem-solving strategies, the two groups reported a medium degree of use, ranging from *sometimes* to *usually.*

Table 4 presents the results of independent samples t-tests to compare the high- and low-performing L2 readers' use of support strategies. There was no statistically significant difference between the two groups in their overall use of support strategies as well as their use of any individual support strategies. Both groups reported relatively high frequency of support strategy use (more than 50% of the time). They both indicated the highest and very frequent use of the strategy "*I underline or circle information in the text to help me remember it"*. On the other hand, both groups used the strategy of *reading aloud when the text became difficult* at the lowest frequency and approximately 50% of the time.

Table 2

Results of Independent Samples T-Tests for the Differences in Global Strategy Use Between High and Low L2 Readers

Item Nº	Global Strategies	Groups	N	Mean	SD	t(30)	p	d
1	I have a purpose in mind when I read.	low	16	4.19	.75	-.46	.65	.16
		high	16	4.31	.79			
3	I think about what I know to help me understand what I read.	low	16	3.37	1.02	-1.63	.11	.57
		high	16	3.93	.93			
4	I take an overall view of the text to see what it is before reading.	low	16	3.50	1.37	.15	.88	.05
		high	16	3.44	.96			
6	I think about whether the content of the text fits my reading purpose.	low	16	3.44	.89	.18	.86	.07
		high	16	3.38	1.02			
8	I review the text first by noting its characteristics like length and organization.	low	16	3.06	1.12	.38	.72	.12
		high	16	2.94	.77			
12	When I read, I decide what to read closely and what to ignore.	low	16	3.63	1.08	.00	1.00	.00
		high	16	3.63	0.62			
15	I use tables, figures, and pictures in text to increase my understanding.	low	16	3.00	1.37	2.64	.01*	.93
		high	16	1.94	.85			
17	I use context clues to help me better understand what I am reading.	low	16	3.25	1.44	.98	.33	.35
		high	16	2.81	1.05			
20	I use typographical features like bold face and italics to identify key information.	low	16	3.63	.96	1.63	.11	.58
		high	16	3.06	1.0			
21	I critically analyse and evaluate the information presented in the text.	low	16	3.06	.77	-2.13	.04*	.76
		high	16	3.63	.72			
23	I check my understanding when I come across new information.	low	16	3.31	1.25	-2.26	.03*	.80
		high	16	4.19	.91			
24	I try to guess what the content of the	low	16	3.94	1.12	-.69	.50	.24

	text is about when I read.	high	16	4.19	.91			
27	I check to see if my guesses about the text are right or wrong.	low high	16 16	3.88 3.88	.96 .89	.00	1.00	.00
	Total mean score of global strategies	low high	16 16	3.48 3.49	.45 .26	-.04	.97	.03

Note. Groups: high and low-perming L2 readers based on their scores of the TOEFL reading test; SD: standard deviation; d: effect size value; *: significant at *p*=.05; The effect size of the difference between the low- and high-performing groups for strategies in bold were medium to large.

Table 3

Results of Independent Samples T-Tests for the Differences in Problem-Solving Strategy Use Between High and Low L2 Readers

Item Nº	Problem solving Strategies	Groups	N	Mean	SD	t(30)	p	d
7	I read slowly and carefully to make sure I understand what I am reading	low high	16 16	3.00 4.13	1.15 .72	-3.31	.002*	1.18
9	I try to get back on track when I lose concentration.	low high	16 16	3.06 3.31	.93 .70	-.86	.398	.30
11	I adjust my reading speed according to what I am reading.	low high	16 16	3.00 3.31	1.10 1.08	-81	.422	.28
14	When text becomes difficult, I pay closer attention to what I am reading.	low high	16 16	3.50 3.38	1.03 1.09	.33	.741	.11
16	I stop from time to time and think about what I am reading.	low high	16 16	2.63 2.69	1.15 1.08	-.16	.875	.05
19	I try to picture or visualize information to help me remember what I read.	low high	16 16	3.25 3.31	1.18 1.01	-.16	.874	.05
25	When text becomes difficult, I re-read it to increase my understanding.	low high	16 16	4.19 4.13	.91 1.09	.18	.861	.06
28	When I read, I guess the meaning of unknown words or phrases.	low high	16 16	3.81 4.13	1.22 .89	-.83	.414	.30
	Total mean score of problem-solving strategies	low high	16 16	3.30 3.55	.50 .42	-1.48	.149	.54

Note. Groups: high and low-perming L2 readers based on their scores of the TOEFL reading test; SD: standard deviation; d: effect size value; *: significant at *adjusted p* = .006

Table 4

Results of Independent Samples T-Tests for the Differences in Support Strategy Use Between High and Low L2 Readers

Item Nº	Support Strategies	Groups	N	Mean	SD	t(30)	p	d
2	I take notes while reading to help me understand what I read.	low high	16 16	3.89 3.81	.81 .83	.22	.83	.09
5	When text becomes more difficult, I read aloud to help me understand what I read.	low high	16 16	3.00 2.81	1.50 1.42	.37	.72	.13
10	I underline or circle information in the text to help me remember it.	low high	16 16	4.50 4.56	.73 .51	-.28	.78	.10
13	I use reference materials (e.g., a	low	16	3.44	1.26	.47	.65	.18

	dictionary) to help me understand what I read.	high	16	3.25	1.00			
18	I paraphrase (restate ideas in my own words) to better understand what I read.	low high	16 16	3.56 3.25	.96 .77	1.01	.32	.36
22	I go back and forth in the text to find the information presented in the text.	low high	16 16	3.63 3.80	1.02 .93	-.36	.72	.12
26	I ask myself questions I like to have answered in the text.	low high	16 16	3.30 3.50	.93 .89	-.78	.45	.27
29	When reading, I translate from English into my native language.	low high	16 16	3.50 3.81	1.03 .98	-.88	.39	.30
30	When reading, I think about information in both English and my mother tongue.	low high	16 16	3.50 3.69	.89 1.08	-.54	.60	.19
	Total mean score of support strategies	low high	16 16	3.58 3.60	.34 .40	-.16	.87	.05

Note. Groups: high and low-perming L2 readers based on their scores of the TOEFL reading test; SD: standard deviation; d: effect size value

5. Discussion

This study aimed to examine whether low- and high-performing L2 readers differ in their use of the three categories of reading strategies, namely, global, problem-solving and support strategies and identify the individual reading strategies that are used differently between the two groups of L2 readers. In view of the three categories of reading strategies, this study revealed no significant difference in the overall use of global, problem-solving and support strategies between high- and low-performing L2 readers. This finding was in line with prior findings of no significant difference in the use of reading strategies between good and poor L2 readers (Sheorey et al., 2008). The results of this study also aligned with Anderson's finding of no significant difference between good and poor readers' in their use of reading strategies which were classified into five categories: supervising, paraphrasing, support, establishing coherence, and test-taking strategies (Anderson, 1991). On the other hand, these results were not consistent with the findings of other studies showing a statistically substantial association between L2 learners' strategy use and their reading achievement (e.g., Jafari & Shokrpour, 2012; Kamran, 2012; Madhumathi & Ghosh, 2012; Okyar, 2021; Yüksel & Yüksel, 2012).

When considering the difference in the use of individual reading strategies between low- and high-performing L2 readers, the results showed that the higher performing group used three strategies significantly more frequently, including *critically analyzing and evaluating information* (a global strategy), *checking my understanding* (a global strategy), and *reading more closely and carefully* (a problem-solving strategy). The high-performing L2 readers in this study appeared to fit the profile of strategic readers in general. As shown in previous studies (Baker & Brown, 1984; Garner, 1980; Sheorey & Mokhtari, 2001), strategic readers are more purposeful when reading, better at monitoring the reading process and are more able to invoke appropriate strategies when comprehension breaks down, for example, *using existing knowledge to understand the text better*, *critically analyzing and evaluating information*, and *reading slowly and carefully*. On the other hand, the low-performing L2 readers reported to use tables, figures, and pictures to increase understanding more often than did the high-performing L2 readers. This might not be a surprise as poorer L2 readers may actually need to rely more on advance organizers (e.g., pictures, tables) accompanying texts to assist them better in understanding the content of the text.

However, the results of this study must be considered with caution. The study used a very small sample (32 participants) with no balance of genders (2 males and 30 females). The results of this study might be representative of Vietnamese female university students rather than male ones. Besides, participants were majoring in the English Teaching undergraduate program, and therefore, as the result of the teacher training courses as well as extensive exposure to written materials in English, they may have shown a relatively high level of strategic awareness and may not show a difference in strategy use in relation to their reading performance. Besides, the study included only 14 reading questions, which are a relatively small number of questions in measuring L2 readers' reading ability. Furthermore, the generally low level of participants' reading performance on the TOEFL reading test and the lack of a truly high achieving group may be the reason for the lack of significant differences between the low- and high-performing L2 readers in their use of the three types of strategies and most of the individual strategies. None of the participants got the highest score of 15 on the reading test, and the highest score attained was 9, accounting for only 67% of success on the test. Therefore, future research could include a bigger and more gender-balanced sample of participants who are regular ESL learners (rather than pre-service ESL teachers) and use measurements that are able to distinguish reading proficiency levels.

In addition, successful and unsuccessful readers may employ the same strategies, but the effectiveness of their strategy use is different (Anderson, 1991). This study compared high- and low-performing L2 readers on the frequency of their strategy use reported via a survey. Thus, another possibility is that, although both high- and low-performing L2 readers reported a similar frequency of use for the three strategy categories, the efficiency of their strategy use might be different and affect their performance. Future research may try to triangulate data from different instruments such as interviews, observations and think-aloud protocols for a more accurate account of L2 learners' reading strategy use.

These results show that low- and high-performing L2 readers differ in the use of certain reading strategies, although they may not differ in their overall use of global, support, and problem-based strategies. Obviously, this fact points at the need for further empirical comparisons between good and poor L2 readers on the use of individual reading strategies. It might be more important to identify those individual strategies (rather than the overall use) that are associated with good readers over and above differences in L1s, educational, and cultural backgrounds.

The process of reading involves an interaction between lower order and higher order processing, which results in the local and global comprehension of a text (Hudson, 2007; Rumelhart, 1985). Depending on the types of reading questions that may require different levels of processing (i.e., lower and higher ordering reading questions), readers may need to employ different strategies. Therefore, it might be important to identify which reading strategies facilitate L2 readers' performance on reading questions requiring high order and lower order processing. Due to the very small sample size and a small number of reading questions included, it was not statistically sound for the current study to look into this issue. Future research could extend the investigation of the effects of L2 readers' strategy use on their reading performance by examining the association between L2 readers' strategy and their performance on lower and higher ordering reading questions.

6. Conclusions

This study revealed systematic differences in the use of three global and one problem-solving strategies between high- and low-performing ESL readers. As discussed above, the

effect size values for those strategies testify to the practical significance of the differences between the two groups. High-performing L2 readers critically analyze and evaluate information and check their understanding during reading more frequently. They also read more closely and carefully, whereas their low-performing L2 readers tend to check tables and figures presented with texts more frequently to assist their reading. These seem to suggest that more efficient L2 readers utilize strategies that help them monitor their reading better and make less use of strategies that might be considered as time-consuming (i.e., checking visual organizers accompanying texts).

The results of the current study have implications for language learners, encouraging them to become more conscious about their own strategy use. L2 teachers should raise L2 learners' awareness of the importance of using the strategies that can help improve their reading competence. Learners should have a clear understanding of the use of each strategy so that they can use them effectively to accomplish reading tasks and goals.

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