

Scrutinizing EFL learners' online reading strategy use across proficiency levels

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DOI: 10.18355/XL.2020.13.04.14

Abstract

This study aimed at investigating the difference in online reading strategy use between EFL students with high and low English proficiency level and knowing the relationship between online strategy use and reading comprehension. Ninety-six university students were involved in this research, and they were distributed into two groups; high and low proficiency levels based on English proficiency test scores. SORS was administered to collect the data after completing three reading sessions. Analyses of the data, using the Chi-square test to see the differences and the Spearman test, to check the relationship between strategy use and reading achievement. The results showed that the reading strategy that was most frequently used by the EFL learners was a problem-solving strategy, and the least frequently used one was a socio-affective strategy. Additionally, there was no significant difference in the online reading strategy use between students in high and low proficiency levels. Therefore, there was a negative relationship between strategy use and reading achievement. The more strategies they used, the lower score they got.

Key words: EFL students, online reading strategy, reading strategy use, proficiency level

Introduction

Recently, there has been increasing interest in reading comprehension research. In 2018, it was informed by OECD PISA that students' means of reading comprehension achievement is the lowest score compared with mathematics and science. It displays that reading should be more emphasized for students. For this reason, many studies have investigated and bolstered the concept that strategic approaches are an essential function of the reading comprehension process (Joh, Plankans, 2017; Cai, Kunan, 2019; Reyes, Bishop, 2019; Arya, 2020; Teng, 2020). In addition, the effective use of reading strategies has been recognized as a crucial means to enhance reading comprehension (Zhang, Seepho, 2013; Fitriasia, 2015; Ahmadian, Passand, 2017; Yen et al., 2017; Habok, Magyar, 2019; Fathi, Afzall, 2020). Previously, Block and Israel (2004) highlighted that strategic approaches during reading refer to the way readers visualize the text in their mind, the textual cues they attend to, how they make sense of the text content, and how they compensate when understanding is incomplete. This view argues that a reader should know what suitable strategies to help them comprehend the texts.

Research on reading strategy has been mostly restricted to limited comparisons of proficiency levels. Many studies of reading strategies used by L2 readers have found evidence of a reasonably robust relationship between reading proficiency and strategy use, with higher proficient readers employing strategies more than less proficient readers do. Lin and Yu (2015), Ghavamnia (2019), and Jian (2019) found that high proficient students inclined to use more varied strategies than students with low proficiency levels. However, this study reveals that there is no significant difference in students' reading achievement between high and low groups.

Research conducted by Ashton (2016), Wang (2016), Kung (2019), and also confirms that high proficient readers tend to use more strategies rather than their counterparts. In contrast with Lin and Yu's findings, he discovers that students' reading achievement between both groups is significant. Nevertheless, the result of

this research seems to be biased as students with high English proficiency levels outperform the low proficient students.

Much literature has denoted that researchers incorporate the importance of reading strategies to students for improving their reading achievement. Recently, Salmeron, Llorens (2018) and Rogiers et al. (2020) categorize the reading strategies into three strategies: overt cognitive, covert cognitive, and covert metacognitive strategies. The overt cognitive strategies contain the activities of summarizing, schematizing, and highlighting the text. The covert cognitive strategies consist of many strategies (i.e., rereading, paraphrasing, and studying titles and pictures). The covert metacognitive strategies let the students monitor their understanding of the text and intentional approach. Based on students' self-report of strategies they used while reading texts, it describes that the most frequently used strategy is an overt cognitive strategy, and the least frequently used is covert metacognitive strategy.

Other studies use different terms to classify reading strategy use. Unlike strategies proposed by Salmeron, Llorens (2018) and Rogiers, et al. (2020), dissimilar explorations label the strategies into three types: global, problem-solving, and support strategies (Taki, 2015; Barrot, 2016; Park 2017; Shang, 2017; Bang; 2020). Global reading strategies let readers plan, regulate, and evaluate their reading, such as setting a reading purpose, enabling prior knowledge, and verifying whether the content related to the purpose. Improving students' understanding and minimize difficulties are classified as problem-solving strategies. Examples of such strategies include adjusting the speed of reading, paying close. When readers do not achieve the comprehension by using problem-solving strategies, there is another strategy that will aid them to understand the text more, namely, support strategy. In this strategy, readers can take notes, paraphrase text information, and use a dictionary.

As explained above, the preponderance of prior studies focuses only on students' skills while understanding the text and neglecting interaction and affective control, such as; asking questions and playing music to manage students' emotions (Huang, Yang, 2015; Lien, 2016; Okkinga et al., 2018; Shih, Huang, 2018; Miyamoto et al., 2019). Oxford and Nyikos (1989) formerly suggested that listening to music was an effective way to release tensions during the reading process. Although these strategies are categorized somewhat differently by each scholar, they are all designed to help students to be actively engaged in reading.

Presently, the research on reading strategy is more explored in examining the strategies utilized by EFL learners in comprehending online text. Furthermore, reading on the web has gotten one of the generally utilized wellsprings of information for students, particularly those in the academic settings. In line with Oxford's finding, Huang (2014) researched analyzing reading strategies used by Taiwanese university students in reading paper-based text and digital-based text. He involved students' socio-affective strategy as one of the categories. The result of this finding shows that five out of eight students liked the music and discussion board in the online socio-affective module because these functions lowered their level of anxiety and increased the quality of collaboration and interaction in real-time. Nevertheless, in his study, he did not consider moderate variables that might also contribute to the result of the study.

Informed by the inconclusive findings on online reading strategies, the present study aims to investigate the perceived use of online reading strategies utilized by EFL learners across proficiency, to explore the difference in EFL students' online reading strategy use between high and low proficiency students, and to discern the relationship between strategy use and reading achievement.

Methods

This study employed a survey research design. This design is classified as quantitative, which is aimed at finding out the reading strategy use occupied by EFL students and knowing the degree of relationship between strategy use and reading achievement. There were ninety-six students, male and female, from a university in Indonesia. Out of the total number, fifty-one students were of high proficiency level, and forty-four students were of low proficiency level.

In the instructional sessions, these students were divided into some groups based on the scores of the reading proficiency test. Each group consisted of 3 to 4 students. Thus, there are five groups in each level. To widen the gap between the high and low proficiency groups, the research principle was followed by selecting the students based on their TOEFL scores. There were 129 participants, and thirty-three students got omitted, whose score in the middle. Therefore, participants in this study were divided into more proficient and less proficient groups. Their scores ranged from 470 to 403 and from 380 to 347, respectively.

A mobile application, Whatsapp, was used to facilitate the students in the discussion of the texts. Three online reading texts were chosen from passages in English proficiency test (TOEFL). Each text consists of 3 paragraphs. It took 50 minutes for the students to read the texts and discuss them with members of the group. Then they had to work collaboratively to answer four comprehension questions. After submitting the answers to the questions, they had to do a 10-question quiz individually at the end of each session.

A questionnaire for Survey of Reading Strategies (SORS) was distributed to the students to see their reading strategy use. The questionnaire was adapted from SORS proposed by Taki (2015). SORS is based on a reading strategy overview formed for local speakers of English, namely the Metacognitive-Awareness-of-Reading-Strategies Inventory (Mokhtari & Sheorey, 2002). Equally, the SORS is a five-point Likert scale survey utilized to diagnose online reading strategies. Initially, there are thirty-eight items in SORS, which fall into three categories of strategies: global, problem-solving, and support. However, in this study, six items on socio-affective strategy were added; consequently, there are 44 items altogether.

Data were collected in four meetings. In the first meeting, the students were asked to do a TOEFL test. The score of the test was used to categorize the students into two proficiency level as it was noted earlier. This session was conducted online using Webex Meeting (an online meeting application).

In the second, third, and fourth meetings, Reading Sessions 1, 2, and 3 were held separately. In each session, the students were asked to read a passage adopted from an English proficiency test. While reading the text, a live group discussion on Whatsapp was used to discuss the text collaboratively. At the end of each meeting, the students were asked to do an online test from quizizz.com. There were ten questions to be answered individually in each quiz. Each session for reading online academic text lasted for 50 minutes while the quiz completion took 20 minutes. The average scores from meeting two to meeting four, that the students obtained from the quizzes, were considered as the students' reading comprehension achievement.

To scrutinize the most frequently used strategy, the data were analyzed descriptively. Then, the chi-square test was used to investigate whether there is any significant difference in the reading strategy use between students of high and low proficiency levels. Finally, the relationship between students' strategy use and their reading achievement was analyzed by using the Spearman correlation. The data were analyzed using SPSS version 20.

Results

The Most and Least Frequently Used Online Reading Strategies

The means (M) and standard deviation (SD) from the computation of the students' scores are shown in Table 1. These scores were interpreted using the following range (Mokhtary, Sheorey 2002): 0-2.49 (low), 2.50-3.49 (moderate) and 3.50-5.00 (high).

Table 1: The overall mean and SD for online reading strategy use

Group Level	Global		Problem-solving		Support		Socio-affective	
	M	SD	M	SD	M	SD	M	SD
High proficiency	3.37	0.54	3.59	0.69	3.18	0.71	2.92	0.66
Low proficiency	3.45	0.57	3.53	0.70	3.22	0.63	3.21	0.78
Average	3.41	0.56	3.56	0.69	3.20	0.67	3.06	0.73

As Table 1 displays, the problem-solving strategy is the most frequently used, as shown in the average score (3.56). Additionally, the strategy that is the least frequently used is socio-affective (3.06). It is interesting to note that for all of the categories, both levels demonstrate slightly similar numbers. The students are categorized as high-strategy users in terms of problem-solving strategies and moderate-strategy users in terms of global, support, and socio-affective strategies.

The Difference in Online Reading Strategy Use of Students across Proficiency Levels

To investigate the difference in reading strategy use between students of high and low proficiency levels, the scores of the two groups were compared by using the chi-square test. The result of the comparison for each strategy is presented in Table 2.

Table 2: The difference in online reading strategy use between groups

Categories	Value	Asymptotic Significance (2-sided)
Global Strategies	37.438	.314
Problem-solving Strategies	25.028	.404
Support Strategies	26.323	.824
Socio-affective Strategies	13.506	.410

Table 2 shows that Asymptotic Significance (2-sided) of global strategy (.314), problem-solving strategy (.404), support strategy (.824), and socio-affective strategy (.410) are higher than the significance level (.05). Thus, there is no significant difference in EFL students' online reading strategy use across high and low proficiency levels.

The Relationship between Strategy Use and Reading Achievement

To investigate the relationship between strategy use and students' reading achievement, the Spearman correlation was used. The correlation coefficients for four reading strategy use are shown in Table 3.

Table 3: Summary of the relationship between strategy use and reading achievement

Categories	Correlation Coefficient	Sig. (2-tailed)
Global strategy	-.064	.536
Problem-solving strategy	-.023	.824
Support strategy	-.147	.152
Socio-affective strategy	-.205	.045

As shown in Table 3, three of the correlation coefficients of the four strategies do not show significance, on the other hand, a relationship is revealed by the only one strategy, namely, socio-affective strategy. The Sig. (2-tailed) is .045, which is smaller than .05 (Significance Level).

Discussion

The first research question in this study is investigating the most frequent strategy that was used by the participants. The result of the analysis shows that the online reading strategy most frequently used by the students was problem-solving. This strategy covers rereading the text, adjusting reading rate, and visualizing information. The students tended to use them while reading online. This is not in line with some previous studies (Huang et al., 2009; Barrot, 2016; Reyes, Bishop, 2019), which showed that support strategy was the most frequently used strategy. Ahmadian and Pasand (2017) disclosed that problem-solving strategies were also found as the most frequently used reading strategies applied by their subjects of the study.

On the other hand, support strategy is known as the strategy, which is the least frequently used. Unlike the results of the previous research, this study uncovers that socio-affective strategy is the slightest strategy used by the EFL students. This is in line with the theory stating that the majority of the reading strategies can be classified as cognitive, compensatory and memory-related strategies (Oxford, Nyikos, 1989).

The result of the analysis in this study exposes that students with low proficiency levels tend to use online reading strategies more often than high proficient students. The result of this study differs from the studies on students' proficiency levels. Different from some previous studies (Huang et al., 2009; Lin, Yu, 2015; Wang, 2016), in this present study, it is discovered that low proficient students are indicated as higher strategy users than students with high proficiency level. It might be because of the socio-affective strategy applied in this research. It is supported by Taheri et al. (2020). They argue that students with low-level proficiency tend to utilize social strategies more frequently than other strategies. It can be seen that low proficient students tend to be active in the discussion group compared with high proficient students. By involving this strategy, it lets students with low proficiency levels discuss their understandings of the text. They can also teach one another which appropriate strategies used to comprehend the text.

However, the difference of frequently-used strategy between them is not significant, as reported in Table 3. It shows that low proficient students get mean scores of each strategy higher than 3.50. As stated by Mokhtary and Sheorey (2002), 3.50 or greater can be considered as high, and a mean score of 2.50-3.40 is interpreted as a medium. In this data result, high group students appear to be medium-strategy users in terms of reading strategy use (i.e., support and socio-affective strategy). It can be interpreted that low proficient students are indicated as higher strategy users than students with high proficiency level.

Another result of the difference in EFL learners' strategy use is also satisfying to be discussed. Based on four categories, statistical analyses reveal no significant difference in students; reading strategies between both groups. This result might be

due to two main reasons: a) the simple structure of the online text chosen for the study, and b) the fact that learners (presumably) cope with the difficulties inherent to the online text (Juan, Madrid, 2009). As explained earlier that there was an additional strategy that became as classification, namely socio-affective strategy, this strategy also did not seem to have a significant difference.

During the process of reading comprehension, the students were allowed to communicate with their group members. High group students were more individual when reading online than their counterparts. They did not use a live chat very much during the reading session. On the other hand, the low proficient students often used this feature to help them understand the text better. They frequently did sharing, asking, and confirming their understanding. It might be caused by their confidence, which is not as high as the students with high proficiency level.

The last research question is to explore the relationship between strategy use and students' reading achievement. From four categories of strategy use, there is only one strategy that has a significant relationship between the use of reading strategy and reading achievement. Nevertheless, there was no data that supported the strong relationship between them. The correlation coefficients in this study ranged from $-.064$ to $-.205$. It shows a negative relationship between strategy use and reading achievement. It is interpreted that the more strategy the students use, the lower achievement they would get. Additionally, it confirms that the socio-affective strategy helps the students to comprehend an online text. It is supported by Huang (2014), he examines that the students, in online reading, felt that they could ask questions more freely and in ways that could not be achieved as certainly as in the paper-based module.

Huang et al. 's (2009), Zhang and Seepho's (2013), Lien (2016), and Brevik (2019) studies found a significant and positive correlation between strategy use and reading achievement. In their studies, they involved more than a hundred students as the research subjects. They also divided the subjects into some levels of proficiency; however, the participants in both studies were undergraduate students who were considered as advanced learners of English. It is different from this study, which involved students varying from beginners to those at the intermediate level of English, and this study involved less than a hundred students. It might be the reason why there is no strong correlation between strategy use and reading achievement.

Conclusion

This study revealed that the reading strategies used more frequently was the problem-solving strategy, whereas the socio-affective strategy was the least commonly used. Furthermore, statistical analysis revealed that no strategy has a significant difference in students. Another finding also shows that based on four categories; global, problem-solving, support, and socio-affective strategies, only one of those strategies disclosed a significant relationship between strategy use and reading achievement. Overall, it can be concluded that patterns for the use of EFL reading achievement and strategy are not directly related. When analyzing the relationship between the use of strategy and reading test results, it can be assumed that the students did not consciously apply the reading process-related strategies.

For future research, it is suggested to give the students more time in reading sessions to see if they would use more or fewer strategies to read online texts. Another limitation is related to the categorization of strategies. Since this study relied solely on the outcome of SORS, further research is needed to take more in-depth findings empirically into account. By using the method to gather data such as a semi-structured interview or think-aloud protocols, it can be granted by tapping into the reasons why learners use and avoid other specific online reading strategies. Furthermore, practices

on a specific strategy use to increase students' understanding of the strategy is recommended for further studies.

Acknowledgements

We would like to thank Tim Percepatan Publikasi (Center for Scientific Publication) Universitas Negeri Malang for proofreading our manuscript. The first author of this study also sends special thanks to Lembaga Pengelola Dana Pendidikan/LPDP (Indonesia Endowment Fund for Education), Ministry of Finance, Republic Indonesia (grant number: 201905212014510) for providing financial support for her doctoral study at Universitas Negeri Malang, Indonesia.

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Words: 5637

Characters: 35 568 (19.76 standard pages)

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Appendixes

Appendix 1: Survey of Online Reading Strategies (SORS)

The purpose of this survey is to collect information about the various strategies you use when you read academic materials online. After reading each statement, click in the box which applies to you. Note that there are no right or wrong responses to any of the items on this survey. Please, save the changes when you close the file at the end.

Strategies	Never or almost never	Only occasionally	Sometimes	Usually
	Always or almost always			

Global Strategy

I have a purpose in mind when I read online
I critically evaluate the online text before choosing to use the information I read online
I check the online text to get a basic idea of whether it will serve my purposes before choosing to read it.
I think about what I already know to help me understand what I read online.
I first scroll through the online text to see what it is about before reading it.
I use context clues to help me better understand what I am reading online.
I analyze whether the content fits my reading purpose.
When I read online, I guess the meaning of unknown words or phrases.
I review the online text first by noting its characteristics like length and organization.
I check to see if my guesses about the online text are right or wrong.
I understand the value of a hyperlink before clicking it.
I read pages on the internet for academic purposes.
When reading online, I decide what to read closely and what to ignore.
I check my understanding when I come across new information.
I critically analyze and evaluate the information presented in the online text.
I use typographical features like bold face and italics to identify key information.
I use tables, figures, pictures in the online text to increase my understanding
I read pages on the internet for fun.

Problem-solving strategy

When online text become difficult, I reread it to increase my understanding.
I adjust my reading speed according to what I am reading online.
I try to picture or visualize information to help remember when I read online.
I try to get back on track when I lose concentration.
I read slowly and carefully to make sure I understand what I am reading online.
When online text becomes difficult, I pay closer attention to what I am reading.
I stop from time to time and think about what I am reading online.
I try to guess what the content of the online text is about when I read.
I can distinguish between fact and opinion in online texts.

Support strategy

I use reference materials (e.g., an online dictionary) to help me understand what I read online.
I ask myself questions I like to have answered in the online text.
I take notes while reading online to help me understand what I read.
I print out a hard copy of the online text the underline or circle information to help me remember it.
When online text becomes difficult, I read aloud to help me understand what I read.
I go back and forth in the online text to find relationships among ideas in it.
When there are hyperlinks (links to other sites) in the text, I click on them to see what they are.
I annotate the online text by highlighting certain parts or leaving comments in the text to identify key information.
When reading online, I look for sites that cover both sides of an issue.
I paraphrase to better understand what I read online.
I adjust the settings like the text size, the margins of the pages, or the color for better concentration.
When reading online, I think about information in both English and my mother tongue.

When reading online, I translate from English into my mother tongue.

Socio-affective strategy

I play a music while reading online.

I verbalize my thought in the group discussion when I read online.

I understand the topic before I verbalize my thought when I am reading.

I participate in live chat with other language learners (my group members) to solve my problem.

*Adapted from TAKI, S. 2015. Metacognitive online reading strategy use: Readers' perceptions in L1 and L2. In: Journal of Research in Reading, vol. 39, n. 4, pp. 409-427. ISSN: 1467-9817

Appendix 2: The Scores of Students' Reading Comprehension Achievement and their Online Reading Strategy Use

No Levels	Proficiency Scores of Reading Achievement Online Reading Strategy Use						
1	High	82	151	49	High	40	138
2	High	86	155	50	High	50	140
3	High	51	174	51	High	37	158
4	High	73	101	52	Low	73	159
5	High	93	143	53	Low	72	156
6	High	93	158	54	Low	49	193
7	High	62	99	55	Low	44	124
8	High	69	112	56	Low	43	109
9	High	73	152	57	Low	63	115
10	High	77	157	58	Low	55	155
11	High	87	153	59	Low	42	114
12	High	79	134	60	Low	32	132
13	High	79	125	61	Low	70	146
14	High	65	137	62	Low	38	172
15	High	78	147	63	Low	45	177
16	High	74	89	64	Low	80	161
17	High	92	156	65	Low	62	137
18	High	93	157	66	Low	32	173
19	High	85	132	67	Low	62	151
20	High	76	152	68	Low	78	131
21	High	59	101	69	Low	51	138
22	High	97	127	70	Low	70	162
23	High	82	163	71	Low	62	152
24	High	82	146	72	Low	53	132
25	High	61	166	73	Low	39	139
26	High	84	104	74	Low	86	125
27	High	62	140	75	Low	53	96
28	High	95	150	76	Low	56	133
29	High	94	165	77	Low	36	143
30	High	88	155	78	Low	32	178
31	High	93	184	79	Low	37	139
32	High	93	148	80	Low	67	154
33	High	62	165	81	Low	41	157
34	High	69	170	82	Low	79	158
35	High	57	150	83	Low	62	143
36	High	73	149	84	Low	37	150
37	High	47	165	85	Low	73	157
38	High	43	130	86	Low	47	155
39	High	43	130	87	Low	40	182
40	High	47	167	88	Low	33	195
41	High	73	173	89	Low	30	109
42	High	60	140	90	Low	47	149
43	High	33	176	91	Low	70	179
44	High	37	135	92	Low	33	128
45	High	33	186	93	Low	40	147
46	High	47	160	94	Low	33	155
47	High	43	120	95	Low	13	166
48	High	47	172	96	Low	27	198