EXPLORING CORRELATION BETWEEN METACOGNITIVE ONLINE READING STRATEGY USE AND ONLINE READING COMPREHENSION OF EFL STUDENTS

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ABSTRACT

The study sought to explore the correlation between the use of Metacognitive Online Reading Strategies (MORS) and the Online Reading Comprehension (ORC) of Indonesian university students learning English as a Foreign Language (EFL). Specifically, it investigated three issues: (1) the levels of MORS use and ORC of the students majoring in languages, social sciences, and sciences, (2) the correlation between the MORS use and the ORC, and (3) whether the overall MORS use and category MORS use serve as predictors of the ORC. By using purposive sampling technique, 602 students were taken as the research sample. The Online Survey of Reading Strategies (OSORS) and an ORC test were used as the research instruments. Data were analyzed using descriptive statistics, Pearson correlation coefficient (r), and simple and multiple linear regression. The results showed that the overall MORS, the problem-solving strategies, and the support strategies were used highly, while the global reading strategies were used moderately by students from the three majors. A significant correlation was only found between the overall MORS use and the ORC, and between the problem-solving strategy use and the ORC among the students from language major. The overall MORS use and the global reading strategy use predicted the ORC of the students majoring in languages. These results should be interpreted with caution since the strategy use was not assessed based on classroom observations but based on self-reports.

Keywords: Academic majors, EFL students, metacognitive online reading strategies, online reading comprehension.

INTRODUCTION

Reading skills need to be mastered by students to ensure success in their English as a Foreign Language (EFL) learning. In higher education context, students' success in learning EFL is highly dependent on their reading ability, because they are required to read learning materials to acquire content, procedural knowledge, and areas of specialization (Anderson, 2003; Ghaith & El-Sanyoura, 2019; Mokhtari & Sheorey, 2002). However, the rapid development of internet technology has had a significant impact on teaching and learning activities. This technology has shifted the current teaching and learning processes from traditional face-to-face using printed materials to online learning activities using digital materials. The use of internet in learning is seen as providing educational advancement for students, especially in higher education (Azmuddin et al., 2017; Ozturk, 2018). In this learning environment, the use of online materials has become a common practice, where students are required to access and read them effectively to understand and synthesize them. However, many researchers warn that in online learning activities, students must have strategies and skills that play an important role in supporting their learning success. (Anderson, 2003; Broadbent & Poon, 2015; Coiro & Dobler, 2007). More specifically, in EFL classes, online learning provides students opportunities to experiment with transformative learning experiences (Cheng, 2016). Online learning activities tend to be viewed positively by EFL university students because of several benefits such as affordability of learning materials at all times and user-friendly learning features (Rianto, 2020b).

In an online reading process, readers are required to have certain strategies and abilities to navigate the materials to achieve their reading comprehension. This is due the structure of the online materials which is usually complex hypertext and related to problem solving (Azmuddin et al., 2017). Reading involves metacognitive awareness allows readers to check and evaluate their reading process (Akyel & Ercetin, 2009). Here, metacognitive awareness is associated with techniques to plan, organize, and manage online reading to help readers achieve their reading goals (Anderson, 2003; Ramli et al., 2011; Sheorey & Mokhtari, 2001). Students who are trained in using metacognitive strategies such as setting goals, making plans, assessing information, monitoring, and evaluating themselves show much better learning outcomes than those who are not trained (Bannert et al., 2009). Given the crucial role of online reading strategies in supporting the success of EFL learning, research on the strategy use and its correlation with reading achievement among EFL learners needs to be further investigated. More specifically, research aimed at exploring possible relation between metacognitive online reading strategies and online reading comprehension is considered vital because these strategies are believed to assist students achieve their reading goals.

The current study, which investigated the relationship between metacognitive online reading strategy use and online reading comprehension achievement of Indonesian EFL university students, is significant and necessary because it provides numerical evidence on the levels of use of these strategies and reading comprehension achievement of students with various academic majors, particularly in higher education. Additionally, this research is significant because it adds to the theoretical framework of the relationship between metacognitive online reading strategies and online reading achievement in an EFL setting. Furthermore, this study adds to the body of research on the subject of whether the usage of metacognitive strategies in general or in specific categories like global strategies, problem-solving strategies, and support strategies might predict students' online reading performance.

LITERATURE REVIEW

This research is framed in metacognitive awareness theory in reading comprehension. An important aspect of reading skills is awareness of readers to monitor their reading comprehension. This is known as metacognition, which is defined as the strategic awareness of a person's cognitive abilities when engaged in reading tasks, and a mechanism used to control and regulate text comprehension (Sheorey & Mokhtari, 2001). Metacognitive strategies have a crucial function in language learning because they supervise, organize, and direct tasks and involve thinking about the learning process (Rianto, 2021; Marboot et al., 2020). More importantly, these strategies can improve students' language learning because once they understand how to organize their learning by using these strategies, the learning will take place at a faster rate (Anderson, 2003). The present study assumes that through metacognitive knowledge readers are able to generate critical reflections and evaluate their thinking which can lead to specific changes in the way they read. In order to achieve maximum reading comprehension, readers must be metacognitively aware of what they are doing. For example, when engaging in an online reading task, readers should have a metacognitive awareness by linking their strategy to their online goals. Phakiti (2008) claims that these strategies can predict learners' reading comprehension because they know the means used to achieve their reading goals.

To assess metacognitive reading strategies among native English speaking students, Mokhtari and Reichard (2002) created an instrument called Metacognitive Awareness of Reading Strategies Inventory (MARSI). Then, Mokhtari and Sheorey (2002) developed an instrument called Survey of Reading Strategy (SORS) to measure metacognitive awareness for EFL/ESL students. MARSI and SORS are specifically intended to measure metacognitive awareness of offline reading strategies. Furthermore, Anderson (2003) modified SORS to be Online Survey of Reading Strategies (OSORS) to assess readers' metacognitive online reading strategies. Metacognitive strategies consist of three categories: global reading strategies, problem-solving strategies and support strategies. Global reading strategies such as judging what to read, paying attention to text features, and guessing the reading topic are commonly used to set the reading stage activities. Problem-solving strategies are usually employed when readers face problems in understanding textual information. Some examples of these strategies are rereading, returning to previous sections, and taking pauses. Support strategies such as underlining words, paraphrasing, and going back and forth are typically used to sustain a response to a reading.

Research on metacognitive reading strategies has been conducted over the past two decades, both in the offline and online reading contexts. In many offline reading studies, researchers examined the use of these strategies among EFL students and analyzing differences in the strategy use based on several different variables (Aziz et al., 2019; Deliany & Cahyono, 2020; Ismail, 2016; Marboot et al., 2020; Mokhtari & Sheorey, 2002). In addition, other researchers examined the correlation between the strategy use of EFL learners and their reading comprehension achievement (Dardjito, 2019; Fitrisia et al., 2015; Kutluturk & Yumru, 2017; Miller, 2017; Mohseni et al., 2020; Takallou, 2011; Usman et al., 2017; Wahyuni et al., 2012). More interestingly, several other researchers focused their investigations the strategy use among students with special learning needs (Chevalier et al., 2017; Cox-Magno, 2018; Girli & Ozturk, 2017). In general, the researchers believe that readers are required to have metacognitive awareness to help them reach their reading objectives more effectively.

In the online reading context, research investigating the metacognitive strategy use among ESL and EFL learners was initiated by Anderson (2003) by using the Reading Strategy Online Survey (OSORS) as the data collection instrument. The study revealed that there was no significant difference in the use of global reading strategies and support strategies between the ESL and EFL learners. However, problem-solving strategies were used more frequently by EFL learners than by ESL learners. Meanwhile, other research among EFL students in Iran revealed that problem-solving strategies were used more often than support and global reading strategies (Ahmadian & Pasand, 2017; Marboot et al., 2020; Taki & Soleimani, 2012). In addition, Azmuddin et al. (2017) found that Malaysian ESL students used problem-solving strategies most frequently followed by global and support strategies. Other researchers investigating these strategies among EFL students in the Middle East also found that problem solving was the most widely used strategy (Darwish, 2017; Mukhlif & Amir, 2017; Omar, 2014). Ramli et al. (2011) who investigated adult ESL students in Malaysia reported slightly different results that the global reading strategies were favored over the problem solving strategies and the support strategies.

Regarding the strategy use and reading comprehension correlation among EFL students, studies in the international context have shown less conclusive results. For example, a study involving EFL students in Lebanon found that problem-solving strategies related to and predicted high-level literal reading comprehension (Ghaith & El-Sanyoura, 2019). Other studies involving engineering students in India (Madhumathi & Ghosh, 2012), preparatory year students in Saudi Arabia (Meniado, 2016), and EFL students in Iran (Tavakoli, 2014) found a significant relationship between the strategy category use and the reading comprehension. In contrast, studies involving Indonesian EFL students found that there was no significant correlation between metacognitive reading awareness and reading comprehension of academic English (Dardjito, 2019; Wahyuni et al., 2018). Meanwhile, another study involving EFL students in Iran found a significant relationship between the use of problem-solving strategies and global reading strategies and the reading comprehension, but no significant relationship was found between the support strategy use and the reading comprehension (Karbalaee Kamran, 2013). The regression analyses of the study showed that the use of overall reading strategies and the global reading strategies was found to be a predictor of reading comprehension test scores. In addition, a study involving Yemeni EFL students found a significant relationship between problem-solving strategies and global strategies and reading skills, but found no relationship between support strategies and reading skills (Al-sohbani, 2013).

Previous studies on metacognitive reading strategies have generally emphasized the fundamental role of reading skills in enhancing EFL learning. However, most studies in this area tend to focus on EFL students with general characteristics and in settings different from Indonesia. In fact, studies that focus on the correlation between the reading strategy use and the online reading comprehension among Indonesian EFL university students with different majors have not been revealed. Therefore, this study was carried out to explore the correlation between the metacognitive online reading strategy use and the online reading comprehension achievement of Indonesian EFL university students from three different majors, namely languages, social sciences, and sciences. In this connection, this study specifically aimed at determining levels of the strategy use and the reading comprehension achievement, examining the strategy use and the online reading comprehension correlation, and investigating whether the overall and category use of the strategies predict the reading comprehension achievement. Therefore, three research questions below are presented to address the research objectives:

1. What are the levels of Metacognitive Online Reading Strategy (MORS) use and Online Reading Comprehension (ORC) of Indonesian EFL students majoring in languages, social sciences, and sciences?
2. Does the students' MORS use correlate significantly with their ORC?
3. Does the students' overall MORS use and category MORS use predict their ORC?

METHOD

Design

This study followed a quantitative paradigm, in that it systematically explored phenomena using quantitative data and statistical techniques. It made use of survey and correlational research methods (Fraenkel et al., 2012). The survey method was used to ask questions related to the use of online metacognitive reading strategies to a sample of respondents using an online questionnaire. The correlational method was used to correlate the use of those online strategies with the online reading ability of the respondents. The study's findings were presented in numerical form.

Participants

The participants were selected using a purposive sampling technique. Since the aim of this study was to explore the correlation between the metacognitive online reading strategy use and the online reading comprehension achievement of Indonesian EFL students majoring in languages, social sciences, and sciences, the researcher determined specific criteria as population requirements, namely the students taking a compulsory English course that was taught through blended learning. The use of this sampling technique allows researchers to target certain groups of individuals to become research participants so that the data collection process can continue until the required number of samples is met (Cohen et al., 2007). The selection of target participants was carried out by inviting students from the majors of languages, social sciences, and sciences at the University of Borneo Tarakan to take part in the study. The researcher also sent requests to faculty and department staff to distribute the online survey in their social media groups as part of targeted sampling. The students were told that participation was voluntary and had no impact on academic performance. A total of 602 students participated in this study that consisted of 160 participants from the language major, 135 from the social science major, and 307 from the science major. Based on gender, the research participants consisted of 426 women and 176 men.

Instruments

The Online Survey of Reading Strategies (OSORS) adopted from Anderson (2003) and a reading comprehension section taken from the university's English test were used as the research instruments. OSORS was employed to assess the participants' awareness and use of metacognitive online reading strategies. Since this study involved Indonesian EFL students, slight modifications were made to items 37 and 38 of the support strategies. Item 37 was changed from 'When reading online, I translate from English to my native language' to 'When reading online, I translate from English to Indonesian' and item 38 from 'When reading online, I think of information in English and my native language' to 'When reading online, I think of information in English and Indonesian.' Overall, OSORS in this study consisted of 39 items, which were divided into three categories, namely global reading strategies (17 items), problem-solving strategies (12 items), and support strategies (10 items). These strategies were measured using a 5-point Likert scale ranging from 1 (Never or almost never do this) to 5 (Always or almost always do this). In this study, the reliability coefficient values for the strategy categories and the overall strategy were as follows: global reading strategy ($α = 0.892$), problem-solving strategy ($α = .849$), support strategy ($α = .808$), and overall strategy ($α = α = .935$). These values indicate that the instrument can be relied upon to measure the strategy use.

Procedures

Data for the strategy use were collected through the Google Form application with the help of the English lecturers who shared the form link with their students. The questionnaires were completed outside of class hours. In the first part of the questionnaire, the students were asked to fill out background questions. In the next part, they were asked to respond to each strategy item by clicking on one of the numbers 1-5. For the online reading comprehension achievement, data were taken from the scores of the reading comprehension section of the online English test conducted by the Language Center of the University of Borneo Tarakan. The test, which was compulsory for every student, was adopted from the TOEFL ITP model. In this study, only reading comprehension scores were taken for analysis. In the reading comprehension section, the students were tested to understand, interpret, and analyze the reading passages. In addition, they were also tested on knowledge of English vocabulary. More specifically, the reading comprehension section consisted of 50 items, with questions about implied details, main ideas, idea organization, references, specific information, stated details, vocabulary, and transitions. The students took this test according to the schedule provided by the Language Center. Overall, this test was carried out for 120 minutes.

Data Analysis

To address the first research question, analyses of descriptive statistics were performed for the strategy use and for the reading comprehension achievement. Levels of the strategy use were determined through a mean rank order. According to Mokhtari and Sheorey (2002) scores of the strategy use are categorized into three levels: 3.5 - 5.0 (high level), 2.5 - 3.4 (moderate level), and 2.4 - 1 (low level). Meanwhile, scores of the reading comprehension were grouped into the following levels: 31-47 (elementary level), 48–55 (lower intermediate level), 56–62 (upper intermediate level), and 63–67 (advanced level). Data regarding the second research question were analyzed using Pearson correlation coefficient (r). The third research question data were analyzed using simple and multiple linear regression, where scores of the online reading comprehension were as used the dependent variable, and scores of the overall and category use of the strategies served as the predictors.

RESULTS

The first research question was aimed at finding out the levels of Metacognitive Online Reading Strategy (MORS) use and Online Reading Comprehension (ORC) of Indonesian EFL students majoring in languages, social sciences, and sciences. Table 1 illustrates the results of descriptive statistics for the MORS use and the ORC. Students from the three majors experienced a high level of MORS use (Language major: M = 3.58, SD = .54; Social science major: M = 3.56, SD = .56; Science major: M = 3.50, SD = .57). By category, problem-solving strategies and support strategies were used highly, while global reading strategies were used moderately by the students from the three majors. Students from the three majors used most frequently the problem-solving strategies (Language major: M = 3.77; Social science major: M = 3.77; Science Major: M = 3.69), followed by the support strategies (Language major: M = 3.61; Social science major: M = 3.59; Science major: M = 3.53), and the global reading strategies (Language major: M = 3.43; Social science major: M = 3.38; Science major: M = 3.31). Meanwhile, the students' ORC level was categorized elementary (Language major: M = 36.99; Social science major: M = 34.28; Science major: M = 34.42). The maximum ORC score for the students from the three majors was 66 and the minimum score was 24 for language students, 18 for science students, and 17 for social science students.

The second research question data were analyzed using the Pearson correlation coefficient (r). Results of the analysis are illustrated in Table 2. For the students majoring in languages, a significant correlation was found between the overall MORS use and the ORC (r = .211, p = .014), and between the global reading strategy use and the ORC (r = .25, p = .003), at a significance level of .05. However, no significant correlation was found between the problem-solving strategy use and the ORC (r = .129, p = .136) and between the support strategy use and the ORC (r = .141, p = .102). In contrast, for the students majoring in social sciences and in sciences, no significant correlation was found between the MORS use and the ORC.

Table 1. Results of descriptive analyses of MORS use and ORC

Major			N	Min	Max	Mean	SD	Level
Languages	MORS	Global	135	1.71	4.71	3.43	.61	Moderate
		Problem-solving	135	2.50	5.00	3.77	.58	High
		Support	135	1.90	5.00	3.61	.66	High
		Overall	135	2.31	4.72	3.58	.54	High
	ORC		135	24	66	36.99	8.22	Elementary
Social Sciences	MORS	Global	160	2.00	5.00	3.38	.61	Moderate
		Problem-solving	160	2.33	5.00	3.77	.59	High
		Support	160	1.80	5.00	3.59	.73	High
		Overall	160	2.18	5.00	3.56	.56	High
	ORC		160	17	66	34.28	6.00	Elementary
Sciences	MORS	Global	307	1.59	5.00	3.31	.65	Moderate
		Problem-solving	307	1.75	5.00	3.69	.62	High
		Support	307	1.40	5.00	3.53	.70	High
		Overall	307	1.74	5.00	3.50	.57	High
	ORC		307	18	66	34.42	7.26	Elementary

Table 2. Results of Pearson correlation between MORS use and ORC

Major			Global Strategy	Problem-Solving Strategy	Support Strategy	Overall Strategy
Languages	Pearson Correlation	ORC	.251**	.129	.141	.211*
	Sig. (2-tailed)		.003	.136	.102	.014
	N	135	135	135	135	135
Social Sciences	Pearson Correlation	ORC	-.013	-.110	-.090	-.073
	Sig. (2-tailed)		.867	.168	.260	.361
	N	160	160	160	160	160
Sciences	Pearson Correlation	ORC	.087	.038	.019	.062
	Sig. (2-tailed)		.128	.503	.744	.278
	N	307	307	307	307	307

Correlation is significant at the 0.05 level (2-tailed).

The third research question was meant to investigate whether the students' overall MORS use and the category MORS use predicted their ORC. To address the question, the simple and multiple linear regression analyses were performed. The analysis results for the simple linear regression are reported in Table 3, and for the multiple linear regression are in Table 4. As seen in Table 3, for the students majoring in languages, their overall MORS use was significantly correlated with their ORC (F = 6.173, p = .014). It was revealed that the students' overall MORS use explained 4.4% of the variance (R^2 = .044, F = 6.173, p = .014), and served as the predictor of their ORC (β = .211, p = .014). In contrast, for the students majoring in social sciences and in sciences, their overall MORS use was not significantly correlated with their ORC (social science major: F = .839, p = .361; science major: F = 1.183, p = .278). It was revealed that the overall MORS use of the students majoring in social sciences explained only 0.5% of the variance (R^2 = .005, F = .839, p = .361), and did not serve as the predictor of their ORC (β = -.073, p = .361). In addition, the overall MORS use of students majoring in sciences explained only 0.4% of the variance (R^2 = .004, F = 1.183, p = .278), and did not serve as the predictor of their ORC (β = -.062, p = .278).

Table 3. Summary of simple regression analyses for overall MORS use predicting ORC

Major	Variable	Online Reading Comprehension (ORC)				
		R^2	F	β	t	p
Languages	Overall MORS use			.211	2.485	.014*
	Model	.044	6.173			.014*
Social Sciences	Overall MORS use			-.073	-.916	.361
	Model	.005	.839			.361
Sciences	Overall MORS use			.062	1.088	.278
	Model	.004	1.183			.278

*p <0.05

Furthermore, the multiple regression analyses were performed to examine whether the students' category MORS use (global, support, and problem-solving strategies) predicted their ORC. As shown in Table 4, for the students majoring in languages, their category MORS use was significantly associated with their ORC (F = 3.036, p = .031). It was revealed that the global strategy use explained 6.5% of the variance (R^2 = .065, F = 3.036, p = .031), and served as the predictor of the ORC (β = .288, p = .015). However, the problem-solving strategies and the support strategies were excluded as predictor variables of the ORC (Problem-solving: β = -.060, p = .636; Support: β = .003, p = .979). In contrast, the category MORS use of students from social science and science majors was not significantly correlated with their ORC (social science major: F = .994, p = .398; science major: F = .898, p = .443). Thus, the use of the three strategy categories did not predict the ORC (Social science major: Global: β = -.108, p = .312; Problem-solving: β = -.145, p = .243; and Support: β = -.048, p = .677; Science major: Global: β = -.115, p = .139; Problem-solving: β = -.015, p = .870; and Support β = -.033, p = .687).

Table 4. Summary of multiple regression analyses for category use of MORS predicting ORC

Major	Variable	Online Reading Comprehension (ORC)				
		R^2	F	β	t	p
Languages	Global strategies			.288	2.463	.015*
	Problem-solving strategies			-.060	-.474	.636
	Support strategies			.003	.026	.979
	Model	.065	3.036			.031*
Social Sciences	Global strategies			.108	1.014	.312
	Problem-solving strategies			-.145	-1.172	.243
	Support strategies			-.048	-.417	.677
	Model	.019	.994			.398
Sciences	Global strategies			.115	1.483	.139
	Problem-solving strategies			-.015	-.164	.870
	Support strategies			-.033	-.403	.687
	Model	.009	.898			.443

*$p < 0.05$

DISCUSSION

This study discovered that when reading online texts, Indonesian EFL students employed a variety of metacognitive strategies to control, analyze, and enhance their reading comprehension. This implies that the students were generally metacognitively aware when reading English texs online. Several prior research have found that metacognitive awareness helps students become more strategic readers, and that employing these strategies helps students make considerable advances in reading comprehension (Marboot et al., 2020; Mukhlif & Amir, 2017; Rianto, 2020a). Furthermore, in dealing with the online EFL learning environment, the students in this study seemed to realize the importance of developing more effective strategies to achieve their reading comprehension. This supports Taki's (2016) assertion that in online reading activities, students must learn to build effective techniques using high-level digital and cognitive capabilities. This scholar also suggests that higher-order cognitive abilities must be included into reading curricula since digital competence is more than simply technical knowledge.

Regarding the first research question, it was found that the overall strategies were used at a high level by Indonesian EFL students from all three majors (languages, social sciences, and sciences). By category, the problem solving strategies and support strategies were used highly, while the global strategies were used moderately. These findings also indicate that the students had metacognitive awareness to plot, organize, and set online reading to help achieve their reading goals. Related to the problem-solving strategies that were used with the highest frequency, this was very likely due to the high awareness of the students towards the complex structure of the online reading. Reading in this way required the students to have certain strategies such as adjusting the speed of reading, reading again the complex parts, and guessing the new word meaning to reach their reading comprehension. This is in line with the claim made by researchers that the structures of online materials are usually complex hypertext which requires readers to have certain strategies and the ability to online navigation (Azmuddin et al., 2017). The results also corroborate the findings of previous studies which revealed that the problem-solving strategies were most frequently used and the support strategies were least frequently used (Ahmadian & Pasand, 2017; Darwish, 2017; Ghaith & El-Sanyoura, 2019; Marboot et al., 2020; Mukhlif & Amir, 2017; Omar, 2014; Taki & Soleimani, 2012). The results of the present study imply that the problem-solving strategies play a significant role in helping readers achieve their reading goals. The students were indicated to use this strategy category when working directly with text and to perform several focused techniques such as rewording, slow reading, noticing, rereading, and making reading speed adjustment when facing problems in understanding textual information.

In relation to the problem-solving strategies that were utilized most frequently by the students in the present study, this differs slightly from the findings of previous research on reading strategies in offline settings (Coiro & Dobler, 2007; Leu et al., 2004; Sheorey & Mokhtari, 2001). According to these studies, EFL readers used support strategies more than problem-solving strategies in offline contexts, and one of the causes might be the learning environment (offline/online). Online reading is considered as a problem-based inquiry (Leu et al., 2004) that entails a process in which readers build texts in their heads (Coiro & Dobler, 2007), necessitating new abilities and techniques. As a result, it is reasonable that EFL students utilize more problem-solving strategies while reading online. It is also supported by prior studies (Coiro & Dobler, 2007; Leu et al., 2004), which assert that online reading comprehension is possibly more difficult and sophisticated than offline reading comprehension, and that there are some variations in reader preferences and strategy usage frequency. Furthermore, as Pookcharoen (2009) points out, online readers require additional strategies to deal with their online reading process in addition to those utilized in offline contexts. Similarly, the present study's larger usage of problem-solving strategies may corroborate Alhaqbani and Riazi's (2012) finding that readers of L2 Arabic academics considered problem-solving techniques more useful than support strategies.

Concerning the second research question, the existence of a significant relation between the overall MORS use and the ORC emphasizes that these strategies play an important role in helping EFL Indonesian readers achieve better comprehension while reading online. It was revealed in the previous study that EFL students who faced problems achieving reading comprehension were helped by these strategies (Karbalaee Kamran, 2013). The present study also revealed that the correlation between the strategy use and the online reading comprehension was only found in students majoring in languages. In addition, compared to the students from social science and science majors, the students from the language major had higher mean scores both for the problem-solving strategy use and for the online reading comprehension. This finding can be interpreted that readers with a higher reading comprehension level tend to use problem-solving strategies and those with lower level tend to employ global and support strategies in their efforts to achieve reading objectives. This finding is supported by the finding of previous research that EFL students with lower reading comprehension prefer to use supporting strategies such as taking notes, rewording, and using reference tools. Meanwhile, students with higher reading comprehension prefer to use problem-solving strategies such as reading slowly, guessing unusual word or phrase meaning, visualizing understanding, and paying more attention to difficult texts (Tavakoli, 2014).

The analysis results of the third research question showed that a significant correlation was found between the global reading strategy use and the ORC and that the global strategies served as predictors of the ORC. This finding was most likely related to the function of the global strategies in the reading process that is to set the stages for reading activities. Global reading strategies such as having a goal in mind while reading, thinking about background knowledge, looking at the entire passage before reading, and using context clues were commonly used by the students to achieve general understanding of text comprehension. A global understanding of a text is believed to be the first step towards achieving a comprehensive understanding of the text (Karbalaee Kamran, 2013). Another previous study also revealed that the higher students used global reading strategies, the more they improved their reading comprehension (Ramli et al., 2011). Regarding the support strategies that were not significantly related to the students' reading comprehension achievement, this was most likely caused by students who did not take advantage of these strategies. In fact, these strategies are very important to implement because they serve as a basic support mechanism to help students understand the text through the activities such as underlining important words, taking notes, and translating to L1 while reading (Mokhtari & Sheorey, 2002).

The findings of this study have three important pedagogical implications. First, all parties involved in EFL learning are encouraged to become more aware of the strategies and take advantage of them as they can lead to better achievement in reading comprehension. Second, the results of the study showed that the strategy use was correlated with reading comprehension level, indicating that students with higher reading comprehension scores tend to use problem-solving strategies to process online text compared to the other two strategy categories. In addition, it was noted that problem-solving strategies were most often used by students from the three majors. These results imply that although EFL students with higher online reading proficiency levels are more likely to benefit from implementing problem-solving strategies, students with lower reading comprehension will also be helped in their reading comprehension if they are aware

of the strategy use. The students' online reading comprehension can be improved through training on the problem-solving strategy use as these strategy categories serve as a mechanism to improve self-monitoring especially when reading challenging online texts. Proven to be more widely used by the students and effective in helping students read more difficult texts, problem-solving strategy instruction should be included in the official curriculum of EFL learning and textbooks. Third, problem-solving strategies will also be very useful if they are integrated into EFL teacher development programs because they will support the teachers in improving students' reading comprehension through intellectual development and conscious efforts to control their reading processes.

CONCLUSION

The study was carried out to explore the correlation between the metacognitive online reading strategy use and the online reading comprehension achievement of Indonesian EFL students majoring in languages, social sciences, and sciences. Regarding the first research question, it was found that the overall strategies were used at a high level by the students from the three majors. By category, the problem solving-strategies and support strategies were used highly, while the global strategies were used moderately. The problem solving strategies were used more often than the support strategies and the global strategies by the students from the three majors. The students' level of online reading comprehension was elementary. The analysis results of the second research question found a significant relation between the overall strategy use and the online reading comprehension, and between the problem-solving strategy use and the online reading comprehension of the students from the language major. Analysis of the third research question showed that the overall strategy uses and the global reading strategy use predicted the online reading comprehension of the students from the language major. Since the strategy use in this study was not based on classroom observations, the results should be interpreted with caution.

SUGGESTION FOR FURTHER RESEARCH

The results of this study suggest the need for further research on the interaction between the category use of the strategies (global, problem solving, and support) and the types of online texts. More specifically, research of this kind would answer the question of whether these strategy categories could be applied effectively according to students' reading comprehension levels and the text types they read. More broadly, further research needs to be done to address the question of whether the use of these strategies predicts other language skills such as listening comprehension or grammar knowledge.

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