



## **Gender Gap on the Selection of Metacognitive Online Reading Strategies by EFL College Students**

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### **Introduction**

Students have been exposed more to hypertext than printed text (Schmar-Dobler, 2003). As a teacher, having a comprehensive understanding on how students deal with their hypertext reading will give additional value to the teaching learning process in both higher or lower education (Schmar-Dobler, 2003). In curating this issue, current research on gender issues mainly shows that female students are better than male students in employing online reading strategies (Tsai & Tsai, 2010; Logan & Johnston, 2010), the reading comprehension of printed texts (Mokhtari, Dimitrov, & Reichard, 2018; Sheorey & Mokhtari, 2001), and engaging in online reading (Asgarabadi, Rouhi, & Jafarigohar, 2015; Lee, 2012; Wu, 2014). Yet, limited studies in EFL colleges have been conducted to describe the gender gap. Thus, to fill this void, this research aims at investigating quantitatively; 1) if there is a gender gap in the selection of online reading strategies?; and 2) to what extent does gender contribute to the selection of online reading strategies?

### **Literature Review**

Conceptually, Kymes (2007) differentiated between online and printed texts based on their interactivity with readers. Hypertexts on online platforms are more unpredictable due to their high technical demand and wide range of reading genres. Thus, readers were required to have more affective and cognitive skills when they read online texts (Coiro, 2011; Coiro & Dobler, 2007). Amer, Al-Barwani, and Ibrahim (2010) and Taki (2016) suggested that affective aspects such as readers' goals and attitudes toward reading strategies and awareness could influence how they employ cognitive reading strategies. Therefore, metacognitive strategies are important parts in online reading strategies. Hypertexts require readers to play a more active role in determining the coherence of the texts they read (Coiro, 2011). Such an active role involves the ability to integrate processes needed for decoding and interpreting images and pictures. Consequently, readers find various explicitness and intertextuality that may distract them both cognitively and physically. Somehow, the demand to play such a role may result in high cognitive load, distraction, and frustration since to some extent being literate nowadays is defined as being able to read online (Leu et al., 2007; Schmar-Dobler, 2003). This implies that the employment of strategies in online reading is essential.

The concept of online reading strategies is well elaborated on by Anderson (2003) through an instrument of online reading strategies that he developed based on Sheorey and Mohktari's SORS instrument (2001). The instrument encompasses the theoretical framework of metacognition. Anderson (2002) found that Metacognition is divided into 5 primary components: (1) getting ready and designing for effective reading, (2) deciding to use explicit reading strategies, (3) knowing a way to monitor reading strategy use, (4), learning a way to orchestrate varied reading strategies, and (5) evaluating reading strategy use. From these 5 components, Sheorey and Mokhtari (2001) formulated three main reading strategies; global reading strategies, problem-solving strategies, and support strategies. Global reading strategies are those intentional, rigorously planned techniques by which readers monitor or manage their reading; it is like having a purpose in mind, previewing the text through its length and organization, or making use of trade aids and tables and figures. Problem-solving strategies consist of the actions and procedures that readers use when operating directly with the text. These are localized techniques used once issues develop in understanding subject matter information; For example, adjusting one's reading speed once the materials become tough or simple, guessing the meaning of unknown words with the support of the context, and rereading the text. Support strategies comprise basic support mechanisms meant to help readers in comprehending the text like paying attention to lexicon, taking notes, and underlining the necessary information. In online reading strategies, Anderson (2003) adapted these ideas by adding some variables with online terminologies.

Practically, Leu et al. (2007) provided a comparative study of readers' experiences in reading online and printed texts. The case study found that the least proficient reader had better reading strategy employment. For example, he could use effective keywords to search information, and to download related documents. Even though he was weak in critical evaluation, the skills and strategies in online reading comprehension have helped him reach the highest score. The study suggested that readers struggling with printed texts might have an opportunity to comprehend online texts better as long as they were skillful in using the strategies. Another study examined how ethnographical issues affected online reading skills (Huang, Chern, & Lin, 2009). In this study, EFL students were generally found to have a lower use of metacognitive strategies than ESL students, and it might be caused by familiarity with technology, access to online text, and an education system that supports their needs.

Previous studies have covered various topics related to reading strategies, such as gender representation in reading texts (Starčić, Cotic, Solomonides, & Volk, 2016), gender influence in reading comprehension (Logan & Johnston, 2010), and gender influence on reading strategies (Poole, 2005). Flynn (1983) found that female readers were qualitatively more competent in giving responses to reading, especially in critical reading activities. Furthermore, female readers were less judgmental when they had to analyze a character in a narrative text because of their habit of associating themselves with what happened to each character in the text. Otherwise, male readers tended to have less affection for reading and less positive reading attitude, resulting in the findings that female readers had outperformed males in critical reading assessment results. These findings were in accordance with those of Logan and Johnston (2010) and Okuma (2014), who found female readers to be more motivated than males.

However, Lee (2012), Logan and Johnston (2010), and Poole (2005) pointed out different results. Apparently, gender did not significantly influence the selection of reading strategies and the comparison of the means showed a wide gap of selection (Poole, 2005). The study found that although female readers have two higher strategies, male readers also performed well by employing 60% of all strategies. Attention span, instead of the strategies, was the issue. Young and Oxford (1997) and Clark, Osborne, and Akerman (2008) suggested that both male and female readers might use the same number of strategies; however, female readers were more skillful at applying the strategies extensively. This could be caused by: 1) more reading choices that were available for both genders which tended to support reading fluency for both male and female readers (Torppa et al., 2018); and 2) supporting tools such as visuals, which made it easier for male and female readers through the use of graphics and phonics (Logan & Johnston; 2010).

Supporting findings of the gender gap in online reading strategies were also found in the following studies. In terms of reading assessment, Logan and Johnston (2010), Amer, Al-Barwani, and Ibrahim (2010), and Omar (2014) explained that there was no significant influence of gender in accomplishing micro-genre texts. Thus, whether it was descriptive or narrative text, both gender groups performed with similar results. Dörnyei (2005) and Al-Shumaimeri (2006) agreed that male readers had better understanding in reading both familiar and unfamiliar texts. Rosén (2001) was more neutral in elaborating gender influence in reading performance and reading strategies. She suggested that different tasks, in this case document reading, and different cultures would reflect on different gender influences. Thus, it is not easy to generalize whether or not gender is influential to either reading strategies or reading performance since gender is influenced by culture and the types of task that are performed by readers. However, in the latest discussion, to achieve good reading performance, most of the studies suggested that female readers tended to use more strategies than males. Thus, I chose to give credence to the hypothesis that there is a gender gap in the employment of online reading strategies.

## Method

There were 300 participants who were students of a private university in Indonesia. They were chosen based on two criteria to fulfill the research objectives: (1) intermediate learners who had been given online reading tasks and (2) first year students who had experienced online reading activities. The participants consisted of 159 male students and 141 female students, with age ranging from 18 to 21 years old. Referring to Prensky's (2001) definition, all participants were considered to be digital natives as they were born between 2000 and 2004.

To describe the participants' selection of online reading strategies, I employed the Online Reading Strategies Inventory or ORSI (Kymes, 2007) as the adaptation of Online Survey of Online Reading Strategies or OSORS (Anderson, 2003). The items in OSORS were reduced to 23 in the ORSI. The domains referred to Metacognitive Awareness of Reading Strategies or MARS (Mokhtari & Reichard, 2002; Sheorey & Mokhtari, 2001), which were global reading strategies (items 1, 2, 4, 12, 17, 18, 20, 21, 22), problem-solving strategies (items 3, 5, 8, 9, 11, 14, 16, 19), and support strategies (items 6, 7, 10, 13, 15, 23). The validity of this questionnaire was 0.78, which was correlated with MARS.

The data were collected through several steps. First, several departments were purposively selected so that the selected departments represented six faculties in the university to avoid bias. Then, after gaining the approval from each of the departments, the questionnaire was distributed. The head of each department recruited several students as participants according to their major. Assistance was given to any students who had any questions or difficulties in filling out the questionnaire. 300 participants were selected as the sample from a total of 16,900 undergraduate students in the university. Such a sample size was based on 0.05 margin of error.

The data were analyzed with a *t-test* and one-way ANOVA to find the influence of gender on the selection of online reading strategies. Microsoft Excel and SPSS 13.0 were used to analyze the data and a *t-test* was run.

## Results and Discussion

The survey results are provided in Table 1:

TABLE 1  
*Gender as a Contributing Factor*  
**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.357 <sup>a</sup>	.127	.107	.37495	.127	6.413	1	44	.015

Table 1 shows that the P value was 0.015 with the alpha value of 0.05 and the confidence level of 95%. Since the  $p$  value  $< p$  alpha,  $H_0$  was rejected. Therefore, there was an influence of gender on online reading strategies. The contribution of gender as a variable to influence the selection of online reading strategies was concluded based on the R-Square score of 12.7%, and the other 87.3% was the other contributing factor that was excluded from this study. This result was in accordance with Rosén (2001), who considered gender as a dummy variable. This means that although the contribution might be small, gender appeared in almost all types of cases in reading issues. The finding was different from that of Lee (2012), who found that there was no influence of gender on reading strategies. Thus, it could be concluded that the gender gap was frequent in the EFL context. The 12.7% contribution was analyzed separately in each domain of metacognitive online reading strategies. The results revealed that male and female readers were significantly different in terms of selection of strategy ( $p < 0.05$ ). According to Mokhtari and Shoerey (2002), there were three categories of mean indicators. If the mean was higher than 3.50, it signified high frequency use of the strategy. Meanwhile, the value between 2.5 and 3.4 signified medium frequency, and the value lower than 2.5 indicated low frequency. Although both male and female readers showed highly frequent use of the strategy, female readers were shown to employ more strategies than the males when the analysis was conducted in more detail for each domain.

Different from the previous studies that implied pessimism to male readers' skill in using metacognitive strategies (Lee, 2012; Logan & Johnston, 2010; Wu, 2014), this study revealed that male readers had a high preference for global reading strategies without disadvantaging female readers' high preference for similar strategies. As explained by Mokhtari and Reichard (2002), global reading strategies are related to the intention of a reader to plan their reading practices. Readers who are good at these strategies tend to be able to have better resources for the information that they search for (Leu et al., 2007; Taki, 2016). The results of this survey are presented in Table 2:

TABLE 2  
*Gender Gap in the Selection of Global Reading Strategies*

	Male	Female	Statement	Category	
				Male	Female
Global1	4.13	4.26	I have a purpose in mind when I read online	High	High
Global2	4.13	4.26	I think about whether the online text fits with my purpose for reading	High	High
Global3	3.12	3.31	I review the online text, looking at length and organization	Moderate	Moderate
Global4	3.7	4.1	I read information on the internet for school purposes	High	High
Global5	3.21	3.8	I use the typographical features of the text (bold, italics, eadings, colors, and fonts) to identify im	Moderate	High
Global6	3.43	3.56	I critically analyze and evaluate the information I find in online text	High	High
Global7	3.79	3.98	I check to see if I understand when I read new information	High	High
Global8	3.81	4	I think about what I already know to help me understand what I am reading online.	High	High
Global9	3.49	3.74	I look at the overall view of the text before I start reading online	High	High

Table 2 shows that there were only two statements where the means comparison was significantly different. The most significant one ( $p < 0.05$ ,  $p = 0.00$ ) was item number 4 (“I read informational text from the Internet for academic purposes”). This result corroborated those of Summers (2013) who revealed that male readers tended to have less preference for reading topics than female readers. In their study, through random sampling, male participants came up with only three topics, namely adventure, humor, and science fiction. In this study, the participants were EFL students and the data were collected mostly after they had a class. Thus, they associated online texts mostly with the tasks given by their lecturers. There were no other genres that the participants mentioned in the survey results. Female readers in this study were considered skillful in global reading strategies. However, the mean indicated that the

texts they read were not specifically for academic purposes, so there might be other genres. The next gender gap was found in item number 5 (“I used typographical features of the text (bold, italics headings, colors, and fonts) to identify important information”). This result was in accordance with those of Logan and Johnston (2010) who suggested that male readers rarely used typography to identify information. They tended to be less critical in assessing a text; instead, they went directly to what was asked in the task description. In regards to reading comprehension, it was necessary to use certain instructions to assist readers to be more critical in finding information.

In the problem-solving strategies, a gender gap was not found to exist. Both female and male students employed problem solving strategies with high frequency. However, by considering the range of *mean* differences, the most significant one was found in item number 1, with a *p* value of 0.004 that was lower than 0.05 (“I read slowly and carefully to understand what I read online”). The results are presented in Table 3:

TABLE 3  
*Gender Gap in the Selection of Problem Solving Strategies*

	Male	Female	Statement	Category	
				Male	Female
Problem1	3.82	4.17	I read carefully and slowly to understand what I read online	High	High
Problem2	3.96	4.1	I retry to focus when I loose concentration while I am reading online text	High	High
Problem3	3.57	3.88	I switch my reading speed as what I read when online	High	High
Problem4	3.7	3.9	When reading online text, I decide to read as careful as possible	High	High
Problem5	3.63	3.84	When the online text is difficult, I tried to pay attention closely	High	High
Problem6	3.68	3.94	I stop once and rethink about the previous text	High	High
Problem7	3.91	3.97	I visualize or imagine anything that I read online	High	High
Problem8	3.76	3.92	I scroll up and down in onlnie text to remember and connect some information	High	High

Many scholars have suggested that female readers were more careful and elaborative in not only understanding a text but also in interpreting it (Flynn, 1983; Huang, Chern, & Lin, 2009; Leu et al., 2007; Logan & Johnston, 2010). However, this study indicated that male readers tended to pay more attention when reading a text. This result was different from the experiences of understanding online texts as found in Leu, et.al (2007), in which male readers, both the least and the most proficient, tended to fail when they had to deal with critical assessment. This study indicated more progress of male readers in using problem solving strategies.

Several studies proved that support strategies were used more in the EFL context compared to the other two metacognitive reading strategies (Lee, 2012; Rosén, 2001; Wu, 2014). However, such strategies were the least used in the current study, although a gender gap was most frequently found in those strategies. There were three significant differences in support strategies as shown in Table 4.

TABLE 4  
*Gender Gap in the Selection of Support Strategies*

	Male	Female	Statement	Category	
				Male	Female
Support1	2.58	3.17	I print the online text so that I can rewrite and take notes	Low	Moderate
Support2	2.73	3.25	I take notes when I read online in order to help me understand what I read	Low	Moderate
Support3	3.83	4.06	I use reference link (i.e. online dictionaries) to help me when I don't know the meaning of the wo	High	High
Support4	3.43	3.6	I use pictures and graphs from other sites to help me understand what I am reading	Moderate	High
Support5	3.42	3.76	I paraphrase (using my own words) about what I have read online	Moderate	High
Support6	2.7	3.4	I read aloud when the online text is difficult to understand	Low	Moderate

The first was item number 1 ( $p = 0.00$ ) (“I print the online text so that I can rewrite and take notes”), in which female readers had higher frequency of use ( $M = 3.17$ ) while male readers had lower frequency of use ( $M = 2.58$ ). The second was item number 2 ( $p = 0.00$ ) (“I take notes when reading online to help understand what I read”). Female readers demonstrated medium frequency of use ( $M = 3.25$ ) while male readers had low frequency of use ( $M = 2.73$ ). The last was item number 6 ( $p < 0.05$ ,  $p = 0.00$ ) (“I read aloud when the online texts are confusing or difficult to understand”). It was revealed that attention did not contribute much in gender differences in online reading strategies selection. Significant differences

were mostly found in support strategies, which required more affective-psychomotor skills such as using hyperlinks, paraphrasing, printing, and note-taking. Male readers demonstrated affective skills of using hyperlinks ( $p = 0.17$ ), as suggested by several studies on the importance of intertextuality and hyperlinks to support online reading (Coiro, 2011; Coiro & Dobler, 2007; Schmar-Dobler, 2003). However, male readers were shown to take advantage of less psychomotor support, such as taking notes, printing, and reading out loud to help them understand the text.

## Conclusion

The findings of this study indicate that gender has proven to influence the selection of metacognitive online reading strategies. Although the contribution was only 12.7%, there were several points of consideration. In terms of the selection of metacognitive online reading strategies, a gender gap was mostly found in the selection of support strategies and less in problem-solving strategies. However, by considering the overall *mean*, the result showed that female readers were more skillful in using support strategies, especially in comparing online texts with printed ones. Based on previous studies, most printed text readers had better reading comprehension and critical analysis skills. Thus, it might explain why female readers tended to outperform the males. Male readers demonstrated high frequency of use in most global reading strategies, although this result did not outweigh female readers' frequency of use in the same strategies. Similarly, both female and male readers demonstrated high frequency of use in problem-solving strategies. Although the credence that there was a gender gap in the selection of online reading strategies was proven with female readers being more skillful at using all strategies. It was assumed that a gender gap in the selection of online reading strategies was lower in the EFL context. Moreover, results imply that both male and female readers are improving in their use of online reading strategies.

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