Journal on English as a Foreign Language
2021, Vol. 11, No. 2, 275-296
Journal homepage: http://e-journal.iain-palangkaraya.ac.id/index.php/jefl

Male and female Indonesian EFL undergraduate students' metacognitive strategies in academic reading: planning, monitoring and evaluation strategies

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Article history: Received: 29 June 2021 Available online: 5 September 2021
Accepted: 1 September 2021 Published regularly: September 2021

Abstract

Metacognitive strategies have been investigated as helping tools for students' reading comprehension, but their use may vary between males and females. Though gender is an essential factor in language learning, few studies highlighted the influence of gender on the metacognitive reading strategy use by Indonesian students. To fill in the gap, this study investigated the use of metacognitive strategies during academic reading from a gender perspective. A mixed-method was adopted, with open-ended and close-ended questionnaires and a semi-structured interview used to gather the data. From the quantitative data analysis, the students used most metacognitive strategies to a high degree. The only significantly different strategy use was guessing meaning ($F=0.232$, $p<0.05$), where male students used it more often. From the qualitative data analysis, the female students used more strategy variations than the male students (20 and 18 strategy variations respectively). The students shared some similar and some different reasons to use metacognitive reading strategies. The results suggested the gender influence on male students to make predictions. The findings from this research will prompt English teachers to introduce metacognitive strategies in reading through appropriate instructions and guidance to enable the students to implement and develop their metacognitive strategies in academic reading.

Keywords: academic reading; gender difference; metacognitive strategies; undergraduate thesis

To cite this article: Andriani, E., & Mbato, C. L. (2021). Male and female Indonesian EFL undergraduate students' metacognitive strategies in academic reading: planning, monitoring and evaluation strategies. *Journal on English as a Foreign Language, 11*(2), 275-296. https://doi.org/10.23971/jefl.v11i2.3006

To link to this article: https://doi.org/10.23971/jefl.v11i2.3006

Introduction

EFL students often face challenges in their academic reading. Students read academic literature to enrich themselves about the topic, for example before conducting a study (Creswell, 2012). Students often face difficulties in their academic reading, as it requires a complex process to decode and infer the meaning of the passages (Singh, 2017). While reading, a complex process happens as students try to decode the words and infer meaning from the text using their background knowledge (Singh, 2017). Students with metacognition can regulate their thinking process (Roebers, 2017), hence, metacognition helps their meaning-construction process.

Implementing metacognition in students' learning process involves metacognitive strategies. Their strategies are deliberately selected actions to help facilitate the learning process (Rahman, 2020a; Roebers, 2017). Metacognitive strategies are the strategies used to monitor and regulate students' learning processes (Rahman, 2020b). The students decide the strategies before, during, and after engaging in a task. In this case, metacognitive strategies are divided into planning, monitoring, and evaluation strategies (Cao & Lin, 2020; Mbato, 2013; Mokhtari & Sheorey, 2002). Planning is the preparations done before reading; the monitoring phase keeps students focused and engaged in reading and helps them to comprehend the passage; while the evaluation phase is done after the reading process to conclude the new information (Thuy, 2020). In academic reading, students encounter a more complex text type. Journals, books, or other academic references are a more formal and complex type of reading (Singh, 2019), that can be used to enrich students' knowledge on a topic in their learning or research process. Nonetheless, the ultimate goal of this academic reading is comprehension. This goal is achieved if the students can muster their background knowledge to

interpret the passage within the proper context (Muñoz & Valenzuela, 2020; Singh, 2019). However, even young adults sometimes have difficulties in comprehending complex passages (Ahmed et al., 2016). In that complex comprehension process, metacognitive strategies are effective in assisting the students to be engaged in the process, monitor their understanding, and solve challenges in understanding the passage (Alami, 2016; Rahman, 2020b). Students' metacognitive strategies help them to control or regulate their reading process and to address comprehension issues during reading. Students can integrate metacognitive strategies in their reading (Rahman, 2020b) to monitor and control their reading process to reach their objectives (Cao & Lin, 2020; Mbato, 2013; Mokhtari & Sheorey, 2002). Studies show that the implementation of metacognitive strategies gives a significant improvement in reading (Rahman, 2020b; Thuy, 2020).

Many studies have been conducted to investigate metacognitive strategy use. They show that students use them in their academic reading (Bećirovic et al., 2017; Rahman, 2020a, 2020b). Research on postgraduate students in reading for their courses indicates high use of metacognitive strategies, but they experienced problems "in identifying, selecting, and practicing appropriate reading strategies" (Thuy, 2020, p. 165). Similarly, another study shows that all students used planning strategies, but had differences between high and low readers (Wahyudi, 2020). On the contrary, Kazi et al. (2020) showed that "metacognitive strategy use for the Pakistani readers was not highly prevalent" (p. 49), and the students failed to maintain focus during reading. Though the students implement strategies in their reading, the success of their reading may be affected by other factors.

Students' language learning is affected by various factors, such as learning styles or attitudes, including gender. The students' gender influences their language learning, as they tend to have different linguistic styles (Simaki et al., 2016). It also influences the attitude towards language learning (Paradewari & Mbato, 2018). The gender differences are prominent in the nature of their learning. For example, female students are more social, as they perform social interactions and discussions well (Mahmud & Nur, 2018). The male students, on the other hand, are more dominant in discussion and perform and learn better if they experienced enthusiasm, liability, and insurance (Dörnyei, 2005). Those differences lead to different choices of strategies by each gender. There are studies conducted to explore the language learning strategy use related to gender. Puteh et al. (2016) emphasized the attention to gender aspect in language learning, as it also affects engagement and achievement. Prior studies

suggested the influence of gender in the choice of learning strategies (Mahmud & Nur, 2018; Sumarni & Rachmawaty, 2019). Mahmud and Nur (2018) conducted a study on male and female choices of strategy forms, which resulted in female's tendencies to choose cognitive, compensation, and affective strategies, while male students' tendencies to choose memory, metacognitive, and social strategies. Especially in metacognitive strategy use, Alami (2016) stated that Omani students were quite aware of metacognitive strategies, but female students had higher use than male students. Similarly, Bećirovic et al. (2017) showed a significant difference in the metacognitive reading strategy use by male and female students in Bosnia-Herzegovina. On the other hand, Abusaeedi and Khabir (2017) showed an insignificant difference in metacognitive reading strategy use by Iranian male and female students. In Indonesia, Rosnaningsih (2017) showed that there was an insignificant difference in the use of metacognitive strategies by male and female students. Similarly, Deliany and Cahyono (2020) shared that both male and female students used metacognitive strategies to a high degree and there was an insignificant difference in the male and female students' metacognitive reading strategy use. However, Nazurty et al. (2019) showed that male students used more metacognitive reading strategies more than female students.

In confronting comprehension problems and keeping students' focus on their reading activity, metacognitive strategies are often used. Many undergraduate students lack the experience in implementing reading metacognitive strategies for undergraduate thesis writing as it requires a more elaborated process compared to other research they may have done before. Some studies already explored EFL students' metacognitive reading strategy use (Daguay-James & Bulusan, 2020; Thuy, 2020). The use of metacognitive strategies may also be affected by gender. Previous studies had highlighted the role of gender in EFL students' learning, including their learning style (Simaki et al., 2016), attitude (Paradewari & Mbato, 2018), and strategy uses (Mahmud & Nur, 2018). A few studies were also conducted on gender's influences on metacognitive strategy uses by EFL students (Alami, 2016; Bećirovic et al., 2017; Abusaeedi & Khabir, 2017).

In Indonesia, some studies showed a significant difference in metacognitive reading strategy use by male and female students, and some showed an insignificant difference (Deliany & Cahyono, 2020; Nazurty et al., 2019; Rosnaningsih, 2017). Though the gender aspect is essential in language learning, a gap remained as to the best of researchers' knowledge, only a few highlighted the influence of gender in metacognitive reading strategy uses by

Indonesian students. Therefore, researchers aimed to fill in the gap regarding the metacognitive reading strategy use in gender perspective by conducting a study on the implementation of metacognitive reading strategies for their undergraduate thesis completion by the male and female undergraduate students at a private university in Yogyakarta, Indonesia. The research question is as follows, "How did male and female ELESP students implement metacognitive strategies in the academic reading for the completion of their undergraduate theses?" This study can help teachers to promote metacognitive reading strategies in their teaching while minding the gender differences to tailor to students' needs.

Method

Research design

To compare the use of metacognitive strategies by undergraduate male and female students of the English Language Education Study Program (ELESP) in their undergraduate thesis-making process, the researchers used a mixed-method design. Mixed-method combines both quantitative and qualitative data to present the strategies that the students used and the conditions they used those strategies (cf. Creswell, 2012). For this study, both quantitative and qualitative data provided triangulation of the results and a deeper understanding of students' metacognitive reading strategy use. This design was employed by previous studies in the educational field to triangulate the results and provide validity (Mbato, 2013; Thuy, 2020). The quantitative research was used to find out to what degree male and female students used the metacognitive reading strategies, and the qualitative data was used to explore the individual's use of their metacognitive reading strategies and in what condition they used those strategies.

Participants

The participants were the ELESP students who had already graduated by November 2020 and made an undergraduate thesis as the final report. Their age was between 21 to 24 years old. The students were given two options for their final reports, either a research paper or an undergraduate thesis. The participants of this study were those who made an undergraduate thesis as

their final report. Due to the COVID-19 pandemic, there were limitations in gathering the participants, who were able and willing to join, because some students had inadequate facilities and gadgets. Therefore, convenient sampling was used (cf. Creswell, 2012). Ten males and fourteen females expressed their willingness and were able to participate in this study, and two male and three female students agreed to be interviewed.

Table 1. Demographic information of the Participants

Demographic items	Details	Frequency	Percentage (%)
Gender	Male	10	41.7
	Female	14	58.3
Age	23-24	5	20.8
	21-22	19	79.2
Academic year	2016	24	100

Data collection

The frameworks for the instruments were reading metacognitive strategies adapted from Chamot et al. (1999) and Survey of Reading Strategies (SoRS) by Mokhtari and Sheorey (2002). Other studies used it to assess students' metacognitive reading strategy use (Thuy, 2020) and Mbato (2013) used the adapted questionnaire in conducting a study on Indonesian EFL students' metacognitive reading strategy use. This research used close-ended and open-ended questionnaires for the survey and a semi-structured interview guideline to gather the data.

The questionnaires had fifteen close-ended questions with a Likert scale from 1 (rarely used) to 5 (almost always used) and three open-ended questions, while the semi-structured interview guidelines had three main questions. The close-ended questions consisted of three phases of metacognitive reading strategies, including four items for planning, six items for monitoring, and six items for evaluation strategies. The open-ended questions for the questionnaire and semi-structured interview had three main questions about the additional strategy use in planning, monitoring, and evaluation phases. Due to the COVID-19 pandemic, both the questionnaire and interview participants were gathered at the same time. Before collecting the data, the researchers contacted students who made theses and graduated from February to November 2020, and 24 students agreed to participate. The open-ended and close-ended questionnaires were collected through Google Form, while those who agreed to

also join the interview were interviewed after they submitted the questionnaires. The interviews were done through WhatsApp call and lasted around 45 to 60 minutes. The interviews were recorded and transcribed.

Data analysis

In analyzing the quantitative data, the researcher used regression analysis with SPSS to compare the mean score of both variables using an independent sample t-test. The results from the close-ended questionnaire were tabulated and categorized into high (3.68-5), moderate (2.34-3.67), and low (1-2.33), in accordance with Astriningsih and Mbato (2019). Then, the data were presented in tables of mean comparison and t-test score. In analyzing the qualitative data, the participants were coded into M01 to M10 and F01 to F14. The qualitative data from the interview and the open-ended questionnaire were tabulated based on the planning, monitoring, and evaluation strategy themes for the additional strategy types and support, problem-solving, and global categories to identify the reasons. The qualitative data then were presented descriptively to compare the male and female students' strategy use.

Findings

This research investigated how male and female students used metacognitive reading strategies. This section presents the findings from the quantitative data (Tables 2, 3, and 4) and supported by the qualitative data for the planning, monitoring, and evaluation strategy themes. Table 2 summarizes the use of metacognitive reading strategies by male and female students.

There were differences in metacognitive strategy use by male and female students. In Table 2, the most used metacognitive reading strategy by male students was guessing meaning (Q9; M=4.7) and connecting to prior knowledge (Q3) by female students (M=4.43). In contrast, male students' least used strategy was setting reading outcomes (Q1, M=2.6), while female students used critical reflection and evaluation the least (Q13, M=3.29). They indicate the different strategy preferences as the strategies that male and female students used the most and the least are different. They also suggest that male students used metacognitive strategies by guessing more often, while female students related to their knowledge more often.

Table 2. Mean score and standard deviation on metacognitive reading strategies

Q	Statement	Mean score		Std. deviation	
		Male	Female	Male	Female
Overall strategy use: 3.9					
Planning strategies: 3.9					
1	I set reading outcomes before I start reading.	2.60	3.43	.966	1.222
2	I skim through the passage and check if the content is suitable with my topic domain.	4	4.29	.816	.611
3	I connect my prior knowledge with the topic of my reading.	4.20	4.43	.422	.646
4	I try to make predictions of what the passage will be about.	4.30	4	.483	.877
Monitoring strategies: 4.1					
5	While reading, I regularly pause and check whether the text makes sense to me.	4.10	4.29	1.287	.825
6	I visualize the information by imagining or drawing things.	3.50	3.93	1.509	1.072
7	I use features (tables, charts, section titles, etc.) or typographical aids (italics, bold, different word colors, etc.) available in the text to assist my reading activity.	3.90	3.71	1.101	1.383
8	I try to maintain my focus during reading.	4.20	4.14	.422	.949
9	I try to guess the meaning of unfamiliar words by contextualizing them (using familiar words, pictures, other sentences, etc.).	4.70	4.14	.483	.663
10	I use reference materials (dictionary, textbook, etc.) to resolve conflicting information and comprehension problems.	4.50	4.29	.707	.726
Evaluation strategies: 3.7					
11	I summarize or paraphrase (written or mentally) the key information.	3.80	3.79	1.229	.699
12	After reading, I check if my predictions are true.	3.90	3.57	.738	.852
13	I assess my understanding by reflecting and critically evaluating the information I got.	3.30	3.29	.483	.914
14	If I do not understand the passage enough, I re-read the passage for better understanding.	4.60	4.29	.516	.611
15	I judge if my strategies work or if there are other strategies that may work better.	3.30	3.36	.823	.633
16	I check whether I have accomplished my reading objectives.	3.60	3.43	.966	.646

Table 2 shows that there are some differences in how male and female students used metacognitive reading strategies. The researchers did an independent t-test to figure if those differences are significant. Table 3 shows the independent t-test results with gender as the grouping variable.

Table 3. Independent sample test

Q	Statement	F	P
Planning strategies			
1	I set reading outcomes before I start reading.	.691	.089
2	I skim through the passage and check if the content is suitable with my topic domain.	.286	.337
3	I connect my prior knowledge with the topic of my reading.	5.661	.339
4	I try to make predictions of what the passage will be about.	3.481	.339
Monitoring strategies			
5	While reading, I regularly pause and check whether the text makes sense to me.	.520	.670
6	I visualize the information by imagining or drawing things.	1.615	.423
7	I use features (tables, charts, section titles, etc.) or typographical aids (italics, bold, different word colors, etc.) available in the text to assist my reading activity.	2.222	.728
8	I try to maintain my focus during reading.	4.662	.861
9	I try to guess the meaning of unfamiliar words by contextualizing them (using familiar words, pictures, other sentences, etc.).	.232	.034
10	I use reference materials (dictionary, textbook, etc.) to resolve conflicting information and comprehension problems.	.008	.478
Evaluation strategies			
11	I summarize or paraphrase (written or mentally) the key information.	1.671	.971
12	After reading, I check if my predictions are true.	.650	.336
13	I assess my understanding by reflecting and critically evaluating the information I got.	2.744	.965
14	If I do not understand the passage enough, I re-read the passage for better understanding.	.089	.200
15	I judge if my strategies work or if there are other strategies that may work better.	1.317	.849
16	I check whether I have accomplished my reading objectives.	.117	.607

Table 3 shows that there is a significant difference in the metacognitive reading strategy use by the male and female students in the guessing meaning strategy ($F=0.232$, $p<0.05$). From Table 3, the p-values for other strategies indicate that there is no significant difference in the other strategy uses by the

male and female students. Though the differences are not significant based on the t-test results, the mean score and the qualitative data results show the distinctions of metacognitive reading strategy use by male and female students.

The use of planning strategies

Four items (Q1-Q4) in Table 2 indicate planning strategies. The students used metacognitive strategies by employing a planning strategy to moderate use (male M=2.6, female M=3.43) and other planning strategies to high use (M=4-4.43). However, the strategies that they used in high uses were different. Male students used metacognitive strategies by predicting the passage's topic (Q4) more often compared to using prior knowledge (Q3) and skimming (Q2), though the use of those strategies was high. In contrast, female students used metacognitive strategies by connecting to prior knowledge (Q3) more often compared to skimming (Q2) and making predictions (Q4). It is also confirmed that male and female students sometimes set their reading outcomes (Q1) before they read.

The students confirmed their planning strategy uses in the open-ended questionnaire and semi-structured interview responses. M02 mentioned during the interview how he did his planning strategies and why he used them.

> Thinking about what's the topic might be about when I read the title, and then I skimmed through the paper I did them before reading mainly to sort journals that I might need. (M02)

From the open-ended questionnaire and semi-structured interview results, the participants also shared other planning strategies they used. M02 mentioned that he used metacognitive reading strategies by reading the paper title. Some of the students mentioned more than one strategy and similar strategies with other participants. F12 also mentioned in the open-ended questionnaire response that she used metacognitive reading strategies by reading the titles.

> I read title, skimmed the text, and decided if I wanted to use it or not. (F12)

The additional strategies are presented in Table 4. The additional planning strategies shared by male and female students were reviewing titles, brainstorming, and sorting literature by finding the best sources. The additional planning strategies shared by male students were predicting topic range, predicting information location, sorting the latest literature, and using CTRL+F.

The additional planning strategies shared by female students were finding note-taking media, reading abstracts, reading conclusions, scanning, and gathering reading willingness.

Table 4. Additional metacognitive reading strategies

No	Male and female	n	Male	n	Female	n
Planning strategies						
1	Reviewing title	6	Predicting topic range	1	Note-taking	1
2	Brainstorming/ discussion	3	Predicting information location	1	Reading abstract	1
3	Finding the best sources	2	Finding latest paper	1	Reading conclusion	1
4			Using CTRL+F	2	Scanning	1
5					Gathering reading will	1
Monitoring strategies						
6	Highlighting	8	Deep reading	1	Making questions	1
7	Skimming	4	Making a mind-map	1	Using prior knowledge	1
8	Translating	3				
9	Reading aloud	2				
10	Adjusting reading speed	4				
Evaluation strategies						
11	Making conclusion	3	Visualizing information	1	Making a mind-map	1
12	Discussion	4			Reviewing information	1
13	Using other references	3				

The participants also specify the reasons they used their strategies. M02 mentioned the use of planning strategies for selecting the journal to read. In contrast, F14 skimmed the text to save time.

> Before I read, I set reading goals or objectives, then skim the passages and check whether the content is suitable with my topic that I want to read or not. I always skimmed so I would not waste my time in reading the wrong journal. (F14)

Both reasons, sorting journals and saving time, were mentioned by male and female students, including getting a second opinion. The reasons shared by male students were to predict the time he might need, to get the latest journal,

and to skip unnecessary parts. The reasons shared by female students were to help them remember and to feel motivated to read.

The use of monitoring strategies

Six items (Q5-Q10) in Table 2 indicate monitoring strategies. Male and female students used metacognitive strategies by employing monitoring strategies to different degrees. Female students used six monitoring strategies to a high degree (M=3.71-4.29) while male students used visualizing strategy (Q6) on moderate use (M=3.5) and other strategies to a high degree (M=3.9-4.7). Male students used metacognitive strategies by guessing meaning (Q9) more often compared to the other strategies. In contrast, female students used the guessing meaning (Q9) less often compared to pausing regularly (Q5) and using reference materials (Q10), though they used the guessing strategy more often than visualizing (Q6) and using typographical aids (Q7). In addition, female students used the pausing strategy as often as using reference materials and guessing meaning as often as maintaining focus.

The quantitative data results were supported by their open-ended questionnaire and semi-structured interview responses. M01 mentioned in the semi-structured interview response how he used visualizing strategy.

> I visualized the information, especially on fundamental concepts for my undergraduate thesis because it helped me to understand better. So, I often imagined the situations where certain things happen and how or why that happen, and how critical thinking can assess that, for example. (M01)

The participants also shared other strategies in the open-ended questionnaire and semi-structured interview responses. M09 mentioned his metacognitive reading strategy use by translating parts of the texts.

> I sometimes translate sentences to Bahasa Indonesia whenever I don't understand. (M09)

Table 4 presents the additional monitoring strategies shared by the students. Some strategies were shared by both male and female students, including highlighting, translating, skimming, reading aloud, and adjusting reading speed. Some strategies were shared only by the male students (deep reading and making mind map), and some others were only shared by female students (questioning themselves and using prior knowledge).

The participants had their distinct reasons for using monitoring strategies. F07 in the semi-structured interview response specified how the use of bold (typographical aid) aided her in finding something important.

> I sometimes used text features, especially bold because it's usually important. Sometimes the texts are too long, but things on bold are the main ideas. (F07)

Other students also shared how they used monitoring strategies. The reasons shared by male and female students were to help them when they had comprehension problems and understand the language and context better. The reasons shared only by male students were to help them understand the whole concept and to track their ideas. The reasons shared only by female students were to point out important parts and to reflect their existing knowledge with the new information.

The use of evaluation strategies

Six items (Q11-Q16) in Table 2 indicate evaluation strategies. Similar to planning strategies, male and female students used metacognitive strategies by employing most evaluation strategies to moderate use (male M=3.3-3.6, female M=3.29-3.43) and other evaluation strategies to high use (male M=3.8-4.6, female M=3.79-4.29). In addition, the strategies they used in both moderate and high uses were different. In particular, male students used more evaluation strategies on high degree compared to female students. Male students used re-reading (Q14), checking prediction (Q12), and summarizing (Q11) on high intensity. Female students only used re-reading (Q14) and summarizing (Q11) to a high degree, while checking prediction (Q12), checking reading objective accomplishment (Q16), judging strategies (Q15), and making reflection and evaluation (Q13) were used on a moderate degree. However, it is worth noting that both male and female students used the re-reading strategy the most.

The quantitative data results were supported by their open-ended questionnaire and semi-structured interview responses. F02 shared how she used metacognitive reading strategies.

> Checked the answer that I found in the passage, re-read if I can't understand well. (F02)

Students also shared the additional evaluation strategies in the open-ended questionnaire and semi-structured interview results. M01 shared the use of discussion and other reading sources during the interview.

> After I read, sometimes I read other paper to get more info, or if I get confused, I discussed it with other students that study similar topic with me or with the lecturer. (M01)

The additional evaluation strategies shared by the students were presented in Table 4. The other evaluation strategies shared by both male and female students were making conclusions, discussing the literature, and using other references. The strategy shared only by the male students was visualizing the information, strategies shared by female students were making mind maps and reviewing the information.

In the open-ended question and interview responses, the students shared the reasons they used evaluation strategies. F02 shared her metacognitive reading strategy use by re-reading if she did not understand the passage.

> Checked the answer that I found in the passage, re-read if I can't understand well. (F02)

Similar to F02, other students shared the conditions to use evaluation strategies. Male and female students used evaluation strategies to recapitulate the information they got and recheck things they did not understand.

The findings of this study show the differences and similarities in how male and female students used metacognitive reading strategies. The t-test results show that only the use of the guessing meaning strategy is significantly different. However, students utilized reading strategies differently, especially during planning and monitoring phases. Male students used metacognitive reading strategies by using the guessing strategy the most during the planning phase, while female students activated their background knowledge more often. Similarly, male students used the guessing strategy the most during the monitoring phase, while female students paused regularly and used other reference strategies the most. This may suggest the gender influence that male students are more risk-taker and confident than female students, as male students opted for guessing while female students opted for playing safe and being careful. Despite those differences, male and female students also showed similarities in metacognitive strategy use, mainly in the evaluation phase. They used the re-reading strategy the most and used evaluation strategies for the same purposes.

Discussion

This study explored the undergraduate students' metacognitive reading strategies in their academic reading using a mixed-method design. Metacognitive strategies are divided into planning, monitoring, and evaluation strategies (Mbato, 2013). The results indicated that students could recognize their strategy uses by judging each strategy use and sharing additional strategies that they used. In addition, they could mention the purposes and conditions when they used certain strategies. It is in line with the study by Rahman (2020a, 2020b) and Thuy (2020) regarding metacognitive reading strategy awareness. Results showed that the metacognitive reading strategy use by male and female students had a significant difference in guessing meaning strategy, while there was not any significant difference in the rest of the strategy uses. This result contradicted the results from Alami (2016) as a significant difference was found in this study with male students' higher use of guessing meaning strategy.

In the planning strategies, there was a slight difference in strategy use by male and female students. Male and female students used metacognitive reading strategies by using most planning strategies to a high degree (M=3.43-4.43). It can be inferred that the students actively used metacognitive strategies before their academic reading activity (Wahyudi, 2020). The researchers highlighted that during the planning stage, male students used metacognitive reading strategies by employing guessing the text contents the most, while female students used metacognitive strategies by activating their prior knowledge the most. This finding may suggest the influence of gender in choosing learning strategies, especially regarding taking risks. As mentioned by Jamiah et al. (2016), male students have more confidence, are often more active and logical, and seek excitement in learning, as also suggested by Dörnyei (2005), hence the risk-taking tendency in choosing the guessing strategies to make educated predictions.

From the open-ended and interview questions, the participants shared twelve additional planning strategies. Three participants mentioned discussion or brainstorming to get second opinions as planning strategies, though it is a support strategy to aid comprehension during reading (Mokhtari & Sheorey, 2002). In addition, brainstorming was done by both male and female students. It contradicts the notion that female students are more social (Mahmud & Nur, 2018). Though they used the strategies frequently, some participants were unsure of what counted as reading strategies during the interview. That contradicts the finding from Thuy (2020) about strategy awareness. F05

mentioned gathering the will to read to increase motivation. Motivation is one of the challenges in reading (Sofiana, 2018). The interviewed male participants both shared the use of CTRL+F as one of their strategies to avoid being overwhelmed with excessive information in journals or books. It shows the gender influence that male students are logical (Jamiah et al., 2016) as they were aware and actively used the features that could assist them. This integration of technology in reading to help comprehension is supported by Capodieci et al. (2020).

Male and female students used metacognitive reading strategies by employing most monitoring strategies to a high degree (M=3.5-4.7). T-test results show that guessing meaning has significantly different use by male and female students. Guessing meaning is a problem-solving strategy. Based on the results, the students used the guessing strategy to solve comprehension problems, in line with Mokhtari and Sheorey (2002) and Rahman (2020b) regarding problem-solving strategy use to solve comprehension problems. The significant difference in using guessing meaning strategy also supports the indication of gender influence in choosing learning strategies, as male students showed higher tendencies toward risk-taking, as shown in both planning and monitoring strategies.

The participants also shared nine other monitoring strategies. In addition to the high use of problem-solving strategies, the self-reported strategies, reading aloud, making pauses, and translating, were used only when students had comprehension problems (Mokhtari & Sheorey, 2002; Rahman, 2020a). On the other hand, a female participant activated her prior knowledge during reading. It indicates the use of cognition, which female students employ more often (Mahmud & Nur, 2018). Students also mentioned skimming during reading to spot important parts. It is notable as using prior knowledge and skimming are usually done before reading (Chamot et al., 1999; Mokhtari & Sheorey, 2002).

Male and female students used metacognitive reading strategies by employing most evaluation strategies to a moderate degree (M=3.3-4.6). Despite the contrast in planning and monitoring strategy uses, male and female students had similar use in evaluating strategies. Both male and female students used the re-reading strategy the most. The students used the re-reading strategy if had not fully understood the text. It can be inferred that it was their preferred strategy. As re-reading is a problem-solving strategy, it is in line with Mokhtari and Sheorey (2002) that problem-solving strategies are used the most.

The lower use of evaluation strategy was supported by the qualitative data results, as the participants shared only five additional strategies. Compared to additional planning (12 variations) and monitoring (9 variations) strategies, the number of shared additional evaluation strategies was the fewest. Some strategies, such as making a mind map, visualizing, and using other references, were used by some participants after they read, even though those are usually monitoring strategies (Chamot et al., 1999). They did this after they made sure the acquired information was important for their research. The participants also mentioned discussions after reading if they had comprehension problems, although not every time they had problems they would discuss. A discussion is a problem-solving strategy (Mokhtari & Sheorey, 2002), and it helps reading comprehension (Sofiana, 2018).

The findings of this study suggested that male and female students used metacognitive reading strategies by implementing planning, monitoring, and evaluation strategies throughout the reading process. They used the strategies by employing some strategies on moderate use (M=2.6-3.6) and the other strategies on high use (M=3.71-4.7). Despite the t-test results that show only one significantly different strategy use by male and female students, this study still shows how metacognitive reading strategy use by male students compare to female students' use. Specifically, this study indicates the gender influence in learning strategy choices, especially from the findings in planning and monitoring strategy use by male and female students regarding guessing strategies. Male students often seek excitement and are more confident and logical in the learning process, as supported by Jamiah et al. (2016), which leads to guessing and predicting tendencies. In addition to the contrast, male and female students also shared similarities, especially in evaluation strategy use. Ultimately, EFL teachers need to promote metacognitive strategies that tailor students' needs and individual differences. This will enable students to become more familiar with and make use of the metacognitive strategies on their own (Al-husban, 2019; Irawati, 2019; Nimasari, 2016).

Conclusion

This research was conducted to explore the male and female students' metacognitive strategy uses in their academic reading for the completion of their theses. The students used metacognitive reading strategies by employing planning, monitoring, and evaluation metacognitive reading strategies in their academic reading for the completion of their theses to a high degree, with

exceptions of some strategies on moderate uses. From the t-test result, guessing meaning is the only significantly different strategy use. However, male and female students showed differences in how they utilize metacognitive reading strategies and they shared some additional reading strategies. While some of the shared additional strategies were similar, male and female students also shared some distinct reading strategies. It shows that the male and female students had awareness and preferences in their strategies. That preferences may indicate the gender influence in students' learning strategy choices, particularly in how male students tend to make predictions compared to female students. Preference towards guessing is especially apparent in planning and monitoring strategies from the close-ended questionnaire and self-reported strategy results. Students also shared similarities in evaluation strategy use, particularly in their high use of re-reading strategy. Similarly, the students shared similarities and differences in their reasoning, as the students shared some different and some similar reasons in using metacognitive reading strategies.

The implication of this study is for the lecturers to promote and offer more instructions about various metacognitive reading strategies that tailor to their learning nature. Despite the encouraging results, this research was still limited to a small number of participants and involved only one study program. Future researchers may use a larger number of participants from different study programs to increase the external validity of the findings or investigate how metacognitive strategy use may impact the quality of students' research reports.

Acknowledgements

We would like to acknowledge the ELESP students who agreed to be the participants of this study. We would like to express our gratitude for their time, experience, and contribution for this research.

Disclosure statement

No potential conflict of interest was reported by the authors.

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