

# Assessing Saudi EFL Learners' Metacognitive Awareness of Reading Strategies: A Cross-Sectional Study

Tarek A. Alkhaleefah

Department of English Language and Literature, College of Languages and Translation, Al Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia

**Abstract**—With extant studies producing inconclusive findings regarding English as foreign language (EFL) readers' metacognitive strategies, researchers are yet to investigate the perceived metacognitive awareness and use of reading strategies among tertiary EFL learners with varying proficiency levels, an area that has not fully received attention in the Saudi context. Hence, this study investigated differences in the metacognitive reading strategies that Saudi students learning English as a foreign language used when reading English texts to determine whether metacognitive awareness varied across proficiency levels (low, intermediate, and high). The study adapted and administered the Survey of Reading Strategies questionnaire to 260 Saudi English majors and analyzed the data using independent-samples ANOVA across the three proficiency groups, and found how participants varied in their perceived use of reading strategies across global, problem-solving, and support strategy categories. Overall, EFL learners with high-proficiency reported global and problem-solving strategies more often than intermediate- and low-proficient groups did, while low-proficiency group reported using support strategies more often than high- and intermediate-proficiency groups did. The study results also revealed how problem-solving strategies were most frequently reported by study participants, followed by support and global strategies. Subsequently, two major pedagogical implications are discussed: the need for Saudi EFL readers to be exposed to diverse reading strategies to help facilitate their reading comprehension of English texts, as well to reading-strategy instruction, which should emphasize global, problem-solving, and support strategies for Saudi EFL learners with varying reading abilities across different reading tasks.

**Index Terms**—metacognition, reading strategies, survey of reading strategies (SORS), language proficiency groups

## I. INTRODUCTION

English is the primary instructional language in most international educational systems worldwide. In academic settings, courses based on English as a foreign language (EFL) often require advanced reading comprehension skills to help language learners process challenging content in a variety of academic textbooks and text types (Alderson, 2000; Huang, 2006). It is not surprising then that research has already asserted how reading is one of the most demanding academic skills required for efficient learning in second language (L2) or foreign language contexts (Grabe, 2008; Grabe & Stoller, 2013). But since reading is established as a complex activity involving mental operations ranging from lower- to higher-level processes, EFL readers find it necessary to develop their reading comprehension skills and strategies to help them confront reading difficulties in various reading tasks and conditions.

However, reading researchers and practitioners have long recognized that it can be challenging to develop reading abilities in L2/FL reading contexts because of the various text-based, context-specific, and reader-related factors in operation, including lexical and/or structural difficulties of texts, readers' background knowledge, and cognitive and metacognitive abilities. Hence, language learners may continue to encounter obstacles in reading comprehension, particularly for academic texts, despite of displaying satisfactory language proficiency skills. Furthermore, in language learning contexts, reading remains a primary means of developing L2 aptitude and a strong determinant of academic success (Alderson, 2000; Grabe, 2008; Huang, 2006).

Defined as “thinking about thinking” (Flavell, 1987), metacognition, a concept developed in cognitive psychology, is the cornerstone of L2 reading comprehension and thus is relevant to academic literacy. Metacognition is the knowledge that individuals possess over their cognitive abilities. In reading contexts, it refers to how readers consciously engage with the text through self-regulatory actions such as planning, evaluating, and monitoring (Zhang, 2018). Developing metacognitive knowledge allows readers to use various cognitive strategies (e.g., word-guessing using contextual clues, translating, summarizing, or making inferences) to help them obtain successful comprehension (Meniado, 2016). Accordingly, metacognitive awareness is critical, as readers in language learning contexts are required to possess a repertoire of reading strategies (Alderson, 2000; Grabe, 2008; Huang, 2006; Zhang, 2018). EFL readers need to consciously select a set of reading strategies to facilitate their reading comprehension in reading tasks. Hence, by developing metacognitive awareness, FL readers recognize the cognitive abilities that help them regulate, monitor, and

evaluate the success or failure of the reading strategies employed to process a given text (Pressley & Gaskins, 2006). With that in mind, the present study aimed to assess the metacognitive awareness and use of reading strategies among Saudi university-level students, and examine variations in reading strategy use across various language proficiency levels.

In essence, metacognitive awareness comprises two aspects: metacognitive knowledge and metacognitive regulation. “Metacognitive knowledge” is an individual’s knowledge of their cognitive processes, which are influenced by their beliefs, understanding of a given task, and perceptions about strategies that facilitate learning. Conversely, “metacognitive regulation” is a decision-making process based on learners’ metacognitive knowledge and management of cognitive processes when engaged in a learning task (Schraw & Dennison, 1994; Zhang, 2018). Therefore, improving metacognitive awareness requires learners to plan, monitor, and evaluate their cognitive processes to attain optimal learning outcomes (Veenman et al., 2006). In FL reading, metacognitive awareness is significant for reading tasks that require strategic processing to address reading comprehension difficulties.

Over the years, there has been extensive research on reading strategies in various language learning and academic contexts regarding EFL learners’ metacognitive reading strategies and reading comprehension (Alkhaleefah, 2017; Bilici & Subaşı, 2022; Hong-Nam & Leavell, 2006; Malcolm, 2009; Park, 2010; Sheorey & Mokhtari, 2001) which has yielded a variety of, and sometimes overlapping, definitions and classifications of reading strategies (Alkhaleefah, 2016). For instance, Mokhtari and Reichard (2002) classified reading strategies as global, problem-solving, and support strategies. “Global strategies” are used to prepare readers for targeted reading tasks. They include skimming, scanning, setting a purpose for reading, previewing text characteristics, predicting, and activating prior knowledge. “Problem-solving strategies” are frequently used to solve reading problems encountered in a text (e.g., adjusting reading pace, reading aloud, word guessing, re-reading, and reading on). Finally, readers can resort to “support strategies” (e.g., using a dictionary, paraphrasing, note-taking, and help-seeking) to facilitate their comprehension of the text content.

Methodologically, existing reading strategy studies on various reading tasks and conditions have been conducted using varied introspective and retrospective instruments. These included inventories/questionnaires, recalls, and think-aloud protocols (Alkhaleefah, 2017; Al-Nujaidi, 2003; Al-Qahtani, 2020; Al Rasheed, 2014; Green & Oxford, 1995; Muhid et al., 2020; Prichard, 2014; Zhang & Wu, 2009). Most studies on EFL reading strategies have relied heavily on Survey of Reading Strategies (SORS) (Mokhtari & Sheorey, 2002), originally constructed to measure language learners’ metacognitive awareness and use of reading strategies. This line of research has consistently focused on looking into language learners’ perceived use of metacognitive reading strategies and reading comprehension in a variety of global contexts (Malcolm, 2009; Sheorey & Mokhtari, 2001). Using quantitative designs, numerous studies computed the frequency of metacognitive strategy use among EFL learners for reading comprehension (Ahmadian & Pasand, 2017; Al-Nujaidi, 2003; Al-Qahtani, 2020; Al Rasheed, 2014).

Despite this growth in past research examining the quantity and frequency of language learners’ reading strategies in various contexts, the results have been inconclusive and, sometimes, conflicting. For instance, Meniado (2016) found correlations between global, problem-solving, and support metacognitive strategies and reading comprehension among Saudi EFL readers in a preparatory year program. Other studies found that EFL readers reported support strategies as the most frequently used reading strategies, followed by global and problem-solving strategies (Jafari & Shokrpour, 2012; Meniado, 2016; Pammu et al., 2014; Tavakoli, 2014). Conversely, studies using similar designs reported that EFL readers used problem-solving strategies more frequently than support and global strategies (Al-Sobhani, 2013; Hong-Nam & Leavell, 2006; Yüksel, 2012). Furthermore, Ahmadian and Pasand (2017) concluded that global strategies were more frequently used than problem-solving or support strategies.

Given this increase in research on EFL metacognitive reading strategies in various language learning contexts involving participants with varying proficiency and other reader-related variables (e.g., gender, age, and motivation), findings regarding EFL learners’ metacognitive reading strategies remain inconclusive. Researchers have yet to investigate the perceived metacognitive awareness and use of reading strategies among Saudi EFL university learners with varying proficiency levels. Thus, the present study aimed to bridge this research gap by examining the frequency at which language learners reported using different reading strategies, and whether significant variations in reading strategy use could be detected across proficiency levels. Hence, the present study aimed to answer the following research questions:

1. How often do Saudi EFL learners use different reading strategies when reading English texts?
2. Which reading strategies do Saudi EFL learners use most and least frequently?
3. Are there any significant differences in the frequency of reading strategy-use among high-, intermediate-, and low-proficiency EFL learners?

## II. METHODS

### A. Design

This study is cross-sectional in design aimed to explore Saudi EFL learners’ frequency of perceived use of metacognitive reading strategies across three language proficiency groups (high, intermediate, and low) via data collected at a single point in time. Hence, Mokhtari and Sheorey’s SORS questionnaire (Mokhtari & Sheorey, 2002) was adapted for the study data collection procedures.

### B. Participants

The study first aimed to recruit 320 Saudi EFL students as participants during the second academic term (November 2021 to January 2022). At the time, the participants were senior undergraduate students enrolled in various academic courses in the English program at Al Imam University (IMSIU). The researcher distributed questionnaires to 320 students at random and received 260 valid responses that were used for further analysis. Our sample thus exceeded the minimum sample size in relation to the study variables of  $50 + (8 \times 4) = 82$ . Hence, the sample was determined to be large enough for descriptive and inferential data analyses. Overall, the study sample was representative of all students enrolled in the bachelor's program of English Language and Literature at the time. As evident in the collected demographic data, the study participants were homogeneous. Specifically, all the participants 1) were young native speakers of Arabic learning English as a foreign language, 2) had covered the same course requirements throughout the first three years of the program, 3) had comparable academic experience (in school and universities) of reading various text types (including narrative and expository texts), and 4) possessed similar levels of pre-university public education, cultural, and, to some extent, socio-economic backgrounds. In addition, the students were required to take compulsory courses (e.g., Arabic and Islamic studies, linguistics, learning and teaching methods, English/American literature, and translation) as a part of their academic courses. Assessment of English majors' academic progress is heavily dependent on their overall scores, which are based on submitted written assignments, mid-term and final exams. According to their teachers' assessments of their mid-term and final exams (often designed and administered by EFL instructors to assess students' overall English proficiency), the 260 participants were divided into three language proficiency groups (low, intermediate, and high). This distribution projected some approximate measurements of Saudi EFL students' language proficiency at the time.

### C. Instrument

Our main data collection instrument was Mokhtari and Sheorey's SORS (Mokhtari & Sheorey, 2002), originally designed to measure ESL readers' metacognitive awareness and use of reading strategies when reading English texts. It includes 30 items measuring three main reading strategies: global, problem-solving, and support strategies. *Global reading strategies* are strategies used to prepare for the reading task (e.g., assessing what to read or ignore, noticing text characteristics, and guessing what the material is about). The SORS contains 13 global strategy items, such as "I think about what I know to help me understand what I read," "I take an overall view of the text to see what it is about before reading it," and "I check my information when I come across new information". *Problem-solving strategies* deal with problems that arise when comprehending textual content (e.g., re-reading to increase understanding, going back to a previous section when losing concentration, taking a pause, and thinking about reading). The SORS includes eight problem-solving items, such as "I read slowly and carefully to make sure I understand what I am reading," "When text becomes difficult, I re-read it to increase my understanding," and "When text becomes difficult, I pay closer attention to what I am reading." Finally, *support strategies* are used to facilitate reading comprehension (e.g., underlining or circling information, paraphrasing to improve understanding, and going back and forth in the text). The SORS includes nine support strategy items, for example, "When reading, I translate from English into my native language," "I underline or circle information in the text to help me remember it," and "I go back and forth in the text to find relationships among ideas in it".

All 30 items were scored on a five-point Likert-type scale: 1 (I never or almost never do this), 2 (I only occasionally do this), 3 (I sometimes do this), 4 (I usually do this), and 5 (I always or almost always do this). SORS is a well-established self-reported instrument with high internal consistency ( $\alpha = 0.89$ ). Its Cronbach's alpha was acceptable for global ( $\alpha = 0.780$ ), problem-solving ( $\alpha = 0.790$ ), and support ( $\alpha = 0.720$ ) strategies, and the overall reliability coefficient was  $\alpha = 0.85$ . Over many years, the SORS instrument has been used exclusively in past studies (Ahmadian & Pasand, 2017; Alhaqbani & Riazi, 2012; Ghaith & El-Sanyoura, 2019; Malcolm, 2009; Meniado, 2016; Tavakoli, 2014; Zhang & Wu, 2009).

However, to avoid any possible comprehension difficulties in completing the original SORS instrument, the questionnaire was translated into Arabic (the participants' native language). Two university faculty members specialized in the field of translation were invited to verify the quality of the translated version. After verification, the adapted SORS was administered. The researcher also decided to regroup the order of the 30 items in the original SORS under separate reading strategy-use categories (global, problem-solving, and support strategies) that the questionnaire items correspond to; hence, making it easier for the study results to report the statistical variations across the three reading categories (see Table 1).

### D. Procedures

The adapted SORS questionnaire was administered to the study participants using the SurveyMonkey online service, which distributed the questionnaire to the participants' previously obtained emails. All ethical considerations were addressed in this study. The researcher first explained the study's overall aim to the participants, and requested their participation in the study. They were explicitly informed that the outcome of their participation would have no bearing on their academic standing and assessment, and that they could withdraw at any time. After informed consents to participate were obtained, all the participants were requested to provide honest responses to the questionnaire items.

### *E. Data Analysis*

Data were analyzed quantitatively to obtain both descriptive and inferential statistics. Subsequently, a two-factor ANOVA design was employed to detect any statistically significant differences among the three proficiency groups. Similar to previous studies examining students' levels of reading strategy-use based on Likert scales (Oxford & Burry-Stock; 1995; Zhang & Wu, 2009), our study considered three levels of usage: high (mean of 3.5 or higher), moderate (mean of 2.5 to 3.4), and low (mean of 2.4 or lower).

## III. RESULTS AND DISCUSSION

To answer the first two research questions ("How often do Saudi EFL learners use different reading strategies when reading English texts?" and "Which reading strategies do Saudi EFL learners use most and least frequently?"), descriptive analysis was conducted on the questionnaire responses to reveal the frequencies (means [M] and standard deviations [SD]) of the respondents' perceived use of individual reading strategies (Table 1).

TABLE 1  
MEANS AND STANDARD DEVIATIONS OF THE PARTICIPANTS' RESPONSES TO THE SURVEY OF READING STRATEGIES

Strategy	Item	Item description	Min.	Max.	Md.	M	SD
Global strategies	Q1	I have a purpose in mind when I read.	1.00	5.00	4.00	3.54	1.02
	Q3	I think about what I know to help me understand what I read.	1.00	5.00	4.00	3.67	1.22
	Q4	I take an overall view of the text to see what it is about before reading it.	1.00	5.00	4.00	3.49	1.28
	Q6	I think about whether the content of the text fits my reading purpose.	1.00	5.00	4.00	3.69	1.14
	Q8	I review the text first by noting its characteristics, like length and organization.	1.00	5.00	3.00	2.99	1.38
	Q12	When reading, I decide what to read closely and what to ignore.	1.00	5.00	3.00	3.18	1.37
	Q15	I use tables, figures, and pictures in text to increase my understanding.	1.00	5.00	4.00	3.49	1.34
	Q17	I use context clues to help me better understand what I am reading.	1.00	5.00	3.00	3.19	1.14
	Q20	I use typographical features like bold face and italics to identify key information.	1.00	5.00	3.00	3.07	1.35
	Q21	I critically analyze and evaluate the information presented in the text.	1.00	5.00	3.00	2.96	1.25
	Q23	I check my understanding when I come across new information.	1.00	5.00	4.00	3.80	1.13
	Q24	I try to guess what the content of the text is about when I read.	1.00	5.00	4.00	3.81	1.11
Q27	I check to see if my guesses about the text are right or wrong.	1.00	5.00	3.00	3.26	1.26	
Problem-solving strategies	Q7	I read slowly and carefully to make sure I understand what I read.	1.00	5.00	4.00	4.01	1.02
	Q9	I try to get back on track when I lose concentration.	2.00	5.00	4.00	3.94	0.93
	Q11	I adjust my reading speed according to what I am reading.	1.00	5.00	4.00	3.61	1.13
	Q14	When the text becomes difficult, I pay closer attention to what I am reading.	1.00	5.00	4.00	3.90	1.16
	Q16	I stop from time to time and think about what I am reading.	1.00	5.00	3.00	3.23	1.24
	Q19	I try to picture or visualize information to help me remember what I read.	1.00	5.00	4.00	3.62	1.16
	Q25	When the text becomes difficult, I re-read it to increase my understanding.	1.00	5.00	4.00	4.04	0.98
	Q28	When I read, I guess the meaning of unknown words or phrases.	2.00	5.00	4.00	3.94	0.90
Support strategies	Q2	I take notes while reading to help me understand what I read.	1.00	5.00	3.00	3.00	1.11
	Q5	When the text becomes difficult, I read aloud to help me understand what I read.	1.00	5.00	4.00	3.76	1.20
	Q10	I underline or circle information in the text to help me remember it.	1.00	5.00	4.00	3.80	1.22
	Q13	I use reference materials (e.g., a dictionary) to help me understand what I read.	1.00	5.00	3.00	3.46	1.27
	Q18	I paraphrase (restate ideas in my own words) to better understand what I read.	1.00	5.00	4.00	3.47	1.20
	Q22	I go back and forth in the text to find relationships among ideas in it.	1.00	5.00	3.00	3.40	1.19
	Q26	I ask myself questions I like to have answered in the text.	1.00	5.00	3.00	2.97	1.34
	Q29	When reading, I translate from English into my native language.	1.00	5.00	4.00	3.58	1.10
	Q30	When reading, I think about information in both English and my mother tongue.	1.00	5.00	4.00	3.92	1.04

As shown in Table 1, students varied in their perceived use of reading strategies across the three categories. The least frequently used strategies were as follows: item 21 in the global category (“I critically analyze and evaluate the information presented in the text”;  $M = 2.96$ ,  $SD = 1.25$ ), item 16 in the problem-solving category (“I stop from time to time and think about what I am reading”;  $M = 3.23$ ,  $SD = 1.24$ ), and item 26 in the support category (“I ask myself questions I like to have answered in the text”;  $M = 2.97$ ,  $SD = 1.34$ ). Interestingly, all the least frequently used strategies require higher-level processing by the reader. Furthermore, each least frequently used strategy targets readers’ comprehension monitoring or evaluation of text context. Thus, readers may use these strategies less frequently because they are more cognitively demanding than other strategic processes.

The most frequently used reading strategies in each category were as follows: item 24 in the global category (“I try to guess what the content of the text is about when I read”;  $M = 3.81$ ,  $SD = 1.11$ ), item 25 in the problem-solving category (“When the text becomes difficult, I re-read it to increase my understanding”;  $M = 4.04$ ,  $SD = 0.98$ ), and item 30 in the

support category (“When reading, I think about information in both English and my mother tongue”;  $M = 3.92$ ,  $SD = 1.04$ ). Item 25 was the most frequently used strategy overall. This result is unsurprising and is in line with previous studies reporting that re-reading as a problem-solving reading process was the most frequently used cognitive strategy in various language-learning contexts, perhaps because of its low cognitive demand on the reader. Conversely, item 21 was the least used strategy. Overall, the results showed that the respondents reported using 16 strategies (53.3% of all 30 strategies) at a high-frequency level ( $M \geq 3.5$ ), while the remaining 14 strategies (46.6%) were moderately used ( $M \geq 2.5$ ). Interestingly, none of the 30 individual strategies was reported at a low-frequency level ( $M \leq 2.4$ ). Regarding strategy-use categories, the data indicated a high rate of strategies in the problem-solving category ( $M = 3.99$ ) across the three proficiency levels, followed by global strategies ( $M = 3.65$ ) and support strategies ( $M = 2.65$ ; Table 2). While the results indicate apparent mean differences among all three proficiency levels, the use of global and problem-solving strategies was higher among high-proficiency students. However, the use of support strategies was higher for the intermediate proficiency group than the low or high-proficient group (as shown in Table 2).

TABLE 2  
MEAN USE OF STRATEGY CATEGORIES ACROSS PROFICIENCY LEVELS

Students' proficiency levels	Global strategies	Problem-solving strategies	Support strategies
	Mean	Mean	Mean
Low	2.53	3.30	2.45
Intermediate	4.07	4.24	2.95
High	4.36	4.45	2.55
Overall Mean	3.65	3.99	2.65

To address the third research question (“Are there any significant differences in the frequency of reading strategy-use among high-, intermediate-, and low-proficiency EFL learners?”), an independent-samples ANOVA test of the three proficiency levels (low, intermediate, and high) was conducted to determine whether these apparent mean differences in strategy frequency use were statistically significant. Overall, the study results reveal statistically significant differences ( $p < .05$ ) among students in their perceived use of reading strategies for each reading proficiency level.

TABLE 3  
RESULTS OF THE ANOVA TEST: DIFFERENCES IN THE STRATEGIES REPORTED BY PROFICIENCY GROUPS

		Sum of squares	df	Mean square	F	Sig.
Global strategies	Between groups	126.459	2	63.230 .226	279.532	0.00*
	Within groups	58.133	257			
	<b>Total</b>	184.593	259			
Problem-solving strategies	Between groups	63.148	2	31.574 .585	53.997	0.00*
	Within groups	150.277	257			
	<b>Total</b>	213.425	259			
Support strategies	Between groups	18.153	2	9.076	39.369	0.00*
	Within groups	62.688	287			
	<b>Total</b>	85.405	289			

\*The mean difference is significant at the 0.05 level.

Overall, Table 3 shows that students with high-proficiency reported global and problem-solving strategies more often than intermediate- and low-proficient groups did, while low-proficiency group reported using support strategies more often than high- and intermediate-proficiency groups did. Our results are consistent with some previous findings (Jafari & Shokrpour, 2012; Meniado, 2016; Pammu et al., 2014; Tavakoli, 2014) regarding reading strategy use among EFL readers when completing reading tasks in various reading conditions. Overall, the study results also revealed that problem-solving strategies were most frequently reported by participants ( $M = 3.78$ ), followed by support ( $M = 3.48$ ) and global strategies ( $M = 3.39$ ). This is in line with the findings drawn by earlier studies (Al-Sobhani, 2013; Ghaith & El-Sanyoura, 2019; Hong-Nam & Leavell, 2006; Yiksel, 2012), which reported problem-solving strategies as the most frequently used, followed by global and support strategies. However, our results contradict some studies that found support strategies to be the most frequently used among EFL readers, followed by global and problem-solving strategies

(Jafari & Shokrpour, 2012; Meniado, 2016; Pammu et al., 2014; Tavakoli, 2014). These differences in results were expected, considering the interplay of factors regarding language learning and reading contexts, individual variations, and differences in the settings and designs used in past studies.

#### IV. CONCLUSION

The present study investigated Saudi EFL learners' metacognitive awareness of reading strategies when reading English texts and examined whether reported reading strategies varied across three proficiency levels (low, intermediate, and high). With the SORS instrument (Mokhtari & Sheorey, 2002) being adapted, the present study revealed how participants varied in their perceived use of reading strategies across global, problem-solving, and support strategies. Overall, EFL learners with high-proficiency reported global and problem-solving strategies more often than intermediate- and low-proficient groups did, while low-proficiency group reported using support strategies more often than high- and intermediate-proficiency groups did. Our study results also revealed how problem-solving strategies were most frequently reported by study participants, followed by support and global strategies.

A major implication of this study is that Saudi EFL readers need to be exposed to diverse reading strategies to facilitate their comprehension of English texts. Once aware of the varied word- and text-related metacognitive reading strategies available, Saudi EFL learners can be steered into employing and monitoring their reading strategies when processing different English text types to facilitate their reading comprehension. Furthermore, this study recommends that EFL instructors teach and guide their students on planning, regulating, and monitoring metacognitive strategies when reading English texts. Some researchers (Alhaqbani & Riazi, 2012; Alkhaleefah, 2017; Carrell, 1989) have stated that EFL learners may benefit from strategy-use instruction and designed curricula to raise awareness of the cognitive and metacognitive aspects of FL reading. Moreover, students should be encouraged to employ effective global, problem-solving, and support strategies. In other words, the study results suggest that reading-strategy instruction in the Saudi EFL context should emphasize the use of various reading strategies for language learners with varying reading abilities across different reading tasks. This is to assert the pedagogical objective of maximizing Saudi EFL learners' strategic reading to achieve effective reading comprehension in various reading tasks and activities.

Despite the study's findings and implications, it is important to acknowledge its limitations. First, our central focus was on inspecting EFL readers' *perceived* use of metacognitive reading strategies rather than the *actual* strategies employed while reading English texts. The researcher relied solely on the SORS questionnaire (Mokhtari & Sheorey, 2002) as incorporating think-aloud reading tasks in the study design was not feasible at the time, due to time constraints in collecting and analyzing qualitative data and limited student availability. Hence, this study suggests that future researchers incorporate think-aloud reports into mixed research designs aimed at determining EFL readers' actual and perceived reading strategies. Second, the study sought participation from students enrolled in an English program, as a result of which the study findings pertain to a specific academic context involving Saudi English majors at the university level; hence, generalizability of the results is impaired. Accordingly, future studies need to explore multiple language-instruction or academic settings where various EFL readers with diverse reading abilities and backgrounds reflect upon and report their reading strategies under different reading tasks and conditions. Finally, our study relied on EFL instructors' assessment of their students' proficiency when categorizing participants into low, intermediate, and high levels. Given this limitation, we suggest that future research in EFL strategic reading incorporates standardized reading proficiency tests (e.g., IELTS or TOEFL) while sampling study participants to ensure accurate measures of EFL learners' reading abilities.

#### ACKNOWLEDGEMENTS

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The author wishes to thank the study participants for their participation and for the cooperation of some colleagues in the English department.

#### REFERENCES

- [1] Ahmadian, M., & Pasand, G. P. (2017). EFL learners' use of online metacognitive reading strategies and its relation to their self-efficacy in reading. *Reading Matrix, 17*(2), 117–132.
- [2] Alderson, J. C. (2000). *Assessing reading*. Cambridge University Press.
- [3] Alhaqbani, A., & Riazi, M. (2012). Metacognitive awareness of reading strategy use in Arabic as a second language. *Reading in a Foreign Language, 24*(2), 231–255.
- [4] Alkhaleefah, T. A. (2017). Saudi EFL learners' reported reading problems and strategic processing of text types: A think-aloud case study. *Reading Psychology, 38*(7), 687–730.
- [5] Alkhaleefah, T. A. (2016). Taxonomies in L1 and L2 reading strategies: A critical review of issues surrounding strategy-use definitions and classifications in previous think-aloud research. *The Reading Matrix: An International Online Journal, 16*(2), 162–226.
- [6] Al-Nujaidi, A. H. (2003). *The relationship between vocabulary size, reading strategies, and reading comprehension of EFL learners in Saudi Arabia* [Doctoral dissertation]. Oklahoma State University.

- [7] Al-Qahtani, A. A. (2020). Investigating metacognitive think-aloud strategy in improving Saudi EFL learners' reading comprehension and attitudes. *English Language Teaching*, 13(9), 50–62. <https://doi.org/10.5539/elt.v13n9p50>
- [8] Al Rasheed, H. S. S. (2014). Examining the effectiveness of pre-reading strategies on Saudi EFL college students' reading comprehension. *English Language Teaching*, 7(11), 79–91. <https://doi.org/10.5539/elt.v7n11p79>
- [9] Al-Sobhani, Y. A. (2013). Metacognitive reading strategies use by Yemeni EFL undergraduate university students. *Frontiers in Language Teaching*, 4(1), 121–130.
- [10] Bilici, Ö. U., & Subaşı, G. (2022). EFL learners' metacognitive awareness of global reading strategies and L2 reading comprehension skills: The efficacy of reciprocal teaching. *The Reading Matrix*, 22(2), 170–185.
- [11] Carrell, P. L. (1989). Metacognitive awareness and second language reading. *The Modern Language Journal*, 73(2), 121–134. <https://doi.org/10.1111/j.1540-4781.1989.tb02534.x>
- [12] Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation and understanding* (pp. 21–29). Lawrence Erlbaum Associates.
- [13] Grabe, W. (2008). *Reading in a second Language: Moving from theory to practice*. Cambridge University Press.
- [14] Grabe, W. P., & Stoller, F. L. (2013). *Teaching and researching: Reading*. Routledge.
- [15] Green, J. M., & Oxford, R. (1995). A closer look at learning strategies, L2 proficiency, and gender. *TESOL Quarterly*, 29(2), 261–297. <https://doi.org/10.2307/3587625>
- [16] Ghaith, G., & El-Sanyoura, H. (2019). Reading comprehension: The mediating role of metacognitive strategies. *Reading in a Foreign Language*, 31(1), 19–43.
- [17] Hong-Nam, K., & Leavell, A. G. (2006). Language learning strategy use of ESL students in an intensive English learning context. *System*, 34(3), 399–415. <https://doi.org/10.1016/j.system.2006.02.002>
- [18] Huang, S. (2006). Reading English for academic purposes: What situational factors may motivate learners to read? *System*, 34(3), 371–383. <https://doi.org/10.1016/j.system.2006.04.006>
- [19] Jafari, S. M., & Shokrpour, N. (2012). The reading strategies used by Iranian ESP students to comprehend authentic expository texts in English. *International Journal of Applied Linguistics and English Literature*, 1(4), 102–113. <https://doi.org/10.7575/ijalel.v.1n.4p.102>
- [20] Malcolm, D. (2009). Reading strategy awareness of Arabic-speaking medical students studying in English. *System*, 37(4), 640–651. <https://doi.org/10.1016/j.system.2009.09.008>
- [21] Meniado, J. C. (2016). Metacognitive reading strategies, motivation and reading comprehension performance of Saudi EFL students. *English Language Teaching*, 9(3), 117–129. <https://doi.org/10.5539/elt.v9n3p117>
- [22] Mokhtari, K., & Reichard, C. A. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology*, 94(2), 249–259. <https://doi.org/10.1037/0022-0663.94.2.249>
- [23] Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education*, 25(3), 2–11.
- [24] Muhid, A., Amalia, E. R., Hilaliyah, H., Budiana, N., & Wajdi, M. B. N. (2020). The effect of metacognitive strategies implementation on students' reading comprehension achievement. *International Journal of Instruction*, 13(2), 847–862. <https://doi.org/10.29333/iji.2020.13257a>
- [25] Oxford, R. L., & Burry-Stock, J. A. (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the Strategy Inventory for Language Learning (SILL). *System*, 23(1), 1–23. [https://doi.org/10.1016/0346-251x\(94\)00047-a](https://doi.org/10.1016/0346-251x(94)00047-a)
- [26] Pammu, A., Amir, Z., & Maasum, T. N. (2014). Metacognitive reading strategies of less proficient tertiary learners: A case study of EFL learners at a public university in Makassar, Indonesia. *Procedia Social and Behavioral Sciences*, 118, 357–364. <https://doi.org/10.1016/j.sbspro.2014.02.049>
- [27] Park, Y. (2010). *Korean EFL college students' reading strategy use to comprehend authentic expository/technical texts in English* [Doctoral dissertation]. University of Kansas.
- [28] Pressley, M., & Gaskins, I. W. (2006). Metacognitively competent reading comprehension is constructively responsive reading: How can such reading be developed in students? *Metacognitive Learning*, 1(1), 99–113. <https://doi.org/10.1007/s11409-006-7263-7>
- [29] Prichard, C. (2014). Reading strategy use of low- and high-proficiency learners and the effect of reading instruction. *Bulletin of Higher Education Okayama University*, 10, 115–122.
- [30] Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19(4), 460–475. <https://doi.org/10.1006/ceps.1994.1033>
- [31] Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System*, 29(4), 431–449. [https://doi.org/10.1016/s0346-251x\(01\)00039-2](https://doi.org/10.1016/s0346-251x(01)00039-2)
- [32] Tavakoli, H. (2014). The effectiveness of metacognitive strategy awareness in reading comprehension: The case of Iranian university EFL students. *Reading Matrix*, 14(2), 314–336.
- [33] Veenman, M. V., Van Hout-Wolters, B. H., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognitive Learning*, 1(1), 3–14. <https://doi.org/10.1007/s11409-006-6893-0>
- [34] Yüksel, İ. (2012). Metacognitive awareness of academic reading strategies. *Procedia Social and Behavioral Sciences*, 31, 894–898. <https://doi.org/10.1016/j.sbspro.2011.12.164>
- [35] Zhang, L. (2018). *Metacognitive and cognitive strategy use in reading comprehension: A structural equation modelling approach*. Springer.
- [36] Zhang, L. J., & Wu, A. (2009). Chinese senior high school EFL students' metacognitive awareness and reading-strategy use. *Reading in a Foreign Language*, 21(1), 37–59.



**Tarek A. Alkhaleefah** is currently an Assistant Professor of Applied Linguistics in the College of Languages and Translation (CLT) at Al-Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia. With a PhD in Applied Linguistics from University of Essex, UK in 2011, Tarek's doctorate thesis was about investigating Saudi EFL learners' reading problems and strategies in relation to L2 reading proficiency, text types, and reading purposes.

His research interests include reading in a second/foreign language, language learning/learner strategies, individual differences in language learning, and research methods in second language learning. He has published some articles in international journals, such as *Reading Psychology*, *The Reading Matrix*, *International Journal of Applied Linguistics and English Literature*, and *International Journal of Linguistics*.

He also co-authored a book chapter in Emery & Moore's (eds.) *Teaching, Learning and Researching Reading in EFL* published by TESOL Arabia in 2014. He has also been a reviewer for various articles submitted to international journals and publishers, such as *Sage Open Journal*, *English Language Teaching Journal*, *Journal of Research in Reading*, *Advances in Cognitive Psychology*, *Foreign Language Annals*, *Reading in a Foreign Language*, and *Cogent Education*. He has also supervised and examined many MA theses over the years.