Higher Education Studies; Vol. 15, No. 1; 2025
ISSN 1925-4741 E-ISSN 1925-475X
Published by Canadian Center of Science and Education

Gender Differences in Metacognitive Reading Strategies of Business and Engineering Students in Oman

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Received: November 21, 2024 Accepted: December 24, 2024 Online Published: January 8, 2025

doi:10.5539/hes.v15n1p181 URL: https://doi.org/10.5539/hes.v15n1p181

Abstract

Students often need help with reading comprehension, understanding, and retaining the meaning of the text. Overcoming reading difficulties involves teaching learners metacognitive strategies for effective reading. Metacognitive reading strategies enable readers to engage more actively with the material, improving comprehension, retention, and critical thinking skills while reading. This paper investigates the metacognitive strategy preferences of male and female Omani learners enrolled in Business and Engineering programs. Data was collected using the Survey of Reading Strategies (SORS). One hundred eighty-eight undergraduates, comprising 81 males and 107 females, responded to the survey. The data was analyzed using the SPSS statistical program. Descriptive statistics means and standard deviation were used to identify male and female learners' most preferred strategy scale (Global, Support, and Problem-solving strategies). Also, a t-test was used to determine individual strategy preferences between genders. The findings reveal no significant differences between male and female students for global and problem-solving strategies. However, results show a substantial difference between both genders for support strategies. Finally, the findings will inform curriculum developers and teachers in developing targeted metacognitive reading strategies to enhance students' competence in reading skills.

Keywords: gender differences, metacognition, reading strategies, business and engineering students, reading comprehension

1. Introduction

Metacognition is a concept of psychology that “focuses on the active participation of the individual in his or her thinking process” (Stewart & Landline, 1995, p. 17). It refers to an individual's awareness and control of his thinking process, which is pivotal in academic success, particularly in reading comprehension.

The concept of metacognition has been considered as one of the critical factors in determining reading comprehension. Metacognitive reading strategies represent individuals' cognitive processes to monitor, control, and develop reading comprehension. By consciously applying metacognitive reading strategies, readers can navigate complex texts more effectively, retain information better, and engage with material on a deeper level. These strategies benefit academic success, lifelong learning, and critical thinking, making them a crucial aspect of the reading process.

According to Karbalaei (2010),“metacognition involves awareness and control of planning, monitoring, repairing, revising, summarising, and evaluating” (p.166). These strategies encompass a range of techniques, such as setting reading goals, self-assessment, predicting the content of a text, questioning and clarifying, and summarizing information. This exploration delves into male and female students' distinctive approaches while engaging with textual material in different specializations, such as business and engineering. By shedding light on these gender-related variations in metacognitive reading strategies, we can gain valuable insights into optimizing pedagogical methods and ultimately fostering enhanced learning outcomes for students in vital fields of study.

2. Literature Review

There are many definitions and interpretations of metacognition since Flavell (1979) first used it. The current research in metacognition includes awareness of strategy, task, and cognition as closely related aspects. Metacognition refers to thinking about one's thinking processes to observe and evaluate one's actions (Flavell, 1979, p. 906). Salmani (2010) states that meta-cognitive strategies refer to managing the learning process and dealing with tasks (p. 4). Sheorey and Mukhtari (2001) defined metacognition as "the knowledge of the reader's cognition relative to the reading process and the self-control mechanism they use to monitor and enhance comprehension" (p. 432).

2.1 Metacognitive Awareness of Strategy in Reading Comprehension

Mokhtari and Sheorey (2002) state that metacognitive reading involves three types of strategies: global strategies, problem-solving strategies, and support strategies. Global strategies help the reader state the purpose of their assignment, which influences vocabulary improvement and the grasp of information on specific topics. Problem-solving strategies relate to how a reader solves a problem encountered while reading a complex text by changing the reading speed, re-reading the text, reading aloud, and guessing the meaning of the complex words. In contrast, support strategies provide the readers with extra reading strategies they can apply to their reading using reference materials.

Rastegar et al. (2017) conducted a study that found a positive relationship between awareness of metacognitive reading strategies and learners' reading comprehension. In a study by Sheorey and Mokhtari (2001), they found a relationship between the student's reading ability and the reported reading strategies, irrespective of the level of reading ability. This result confirmed that skilled readers use more strategies than less capable readers due to their high metacognitive awareness of various reading strategies. Chern (1993) found a correlation between readers' awareness of metacognitive reading strategy and reading ability in a similar study.

Carrell (1989) examined metacognitive awareness of reading strategies by two groups of learners in their first and second language and the correlation between their awareness and reading ability. The results also showed that second language learners of English at an advanced level were likely to use more global strategies than lower-level learners of Spanish.

2.2 Gender and Metacognitive Reading Strategies

Ahmed (2019) explored the strategy preferences of 129 male and 246 female students studying various disciplines at a university in Oman. The instrument used in the study was Survey of Reading Strategies (SORS). The results revealed that both genders ranked problem-solving strategies as a highly used strategy category. On the other hand, metacognitive strategies were classified as moderate use. However, a difference was observed in support strategies, where females ranked them as high, and males as moderately used.

Another study conducted in Oman by Alami (2016) explored the strategy preferences of 90 female and 110 male students using the Metacognitive Awareness of Reading Strategy Inventory (MARSI). The findings reported that male and female students' preference for the three scales was the same, with problem-solving strategies having a high mean. This was followed by metacognitive reading strategies and support strategies were ranked as least preferred category.

Poole (2005) compared the reading strategies of male and female ESL college students from different countries. His study sample consisted of males and females from various universities and a community college in the United States. The instrument used was the Survey of Reading Strategies (SORS). Findings from the instrument revealed strategic differences between the genders. Also, both genders used the strategies with medium or high frequency. However, there was no significant difference in any of the three subscales of SORS.

Abu-Snoubar (2017) explored gender differences among EFL learners in a university using the Survey of Reading Strategies (SORS). The study involved 30 male and 70 female students. It was found that there were no significant differences between female and male students' overall employment of reading strategies. Also, both genders rated the three categories of SORS in the same order, with problem-solving being the most frequently used strategy category, followed by support and metacognitive strategies.

Deliany and Cahyono (2020) examined metacognitive reading strategies and the knowledge of EFL learners among 33 females and 20 males in a university. They collected data from the Metacognitive Awareness of Reading Strategy Inventory (MARSI). The findings did not reveal major gender differences for the three types of strategies.

Martinez (2008) examined the strategy used by 157 Spanish ESP university learners and compared the male

(52%) and female (48%) participants' utilization of these strategies. It was observed that participants were generally moderate to high users of all the strategies. The data analysis proved that both genders ranked problem-solving as the most preferred reading strategy. Global strategies and support strategies followed this. Also, it was found that the females employed more strategies than the males and opted more for the support reading strategies.

3. Method

3.1 Research Question

The study investigates the metacognitive reading strategy preferences of male and female students studying business and engineering disciplines in Oman. The following research question guides the study.

- Are there significant differences in the metacognitive reading strategies employed by male and female EFL students studying business and engineering?

3.2 Participants

The participants in this study consisted of 188 undergraduate students. The sample comprised of 81 males and 107 females. Both male and female students were enrolled in business studies and engineering. Table 1 below shows the distribution of students according to gender.

Table 1. Participants' Gender

Gender	Frequency	Percentage
Male	81	43%
Female	107	57%
Total	188	

3.3 Instrument

The study used the Survey of Reading Strategies (SORS) questionnaire as an instrument to collect data. Mokhtari and Sheorey (2002) developed SORS to measure the reading strategy preferences of ESL learners in schools, colleges, and universities. It consists of 30 items and uses a 5-point Likert scale from 5 (always) to 4 (usually), 3 (sometimes), 2 (occasionally), and 1 (never).

3.4 Procedure

The researcher administered the questionnaire in the students' classroom. First, the students were informed about the study's aim and given a consent form to sign. The students took about 20 minutes to complete the survey.

3.5 Data Analysis

The data was analyzed using the SPSS statistical program. Descriptive statistics means and standard deviation were used to identify male and female learners' most preferred strategy scale (Global, Support, and Problem-solving strategies). A t-test was also used to determine individual strategy preferences between genders.

4. Results

As stated above, the current study aims to explore the strategy preferences of Omani EFL learners. The instrument used for collecting data is the Survey of Reading Strategies (SORS). The frequency of strategy used on the SORS scale ranges from 1-5, as suggested by Oxford and Burry-Stock (1995). Therefore, three levels of strategy use are employed for analysis, which are high (a mean of 3.5 or above), moderate (a standard of 2.5-3.4), and low (a mean of 2.4 or lower).

4.1 Overall Reading Strategy Preferences Across Genders

An independent sample's t-test (two-tailed), $\alpha = .05$, was conducted to assess whether there are significant differences in overall reading strategies employed by male and female EFL students studying different disciplines. The results were found to be statistically significant: $t(185) = -3.115$, $p = .002$, indicating that the overall reading strategies for female students ($M = 3.69$, $SD = .51$) were significantly higher than the general reading strategies for male students ($M = 3.47$, $SD = .45$).

Table 2 presents the individual strategy preferences of male and female students. We can see significant differences between male and female students on 7 out of 30 strategies in which females reported high frequency (mean of 3.5 or above) as compared to male students. Also, male students ranked 12 strategies (40%) as high use and 15 (50%) as moderate use. In contrast, female students ranked 20 strategies (66%) as high use and 7 (23%) as medium use. Both genders did not report any low-frequency strategy (mean value below 2.4).

Table 2. Differences in Reported Reading Strategy Use by Male and Female students

GLOBAL (GLOB)	**Male(N=81)**		**Female(N=106)**			
PROBLEM-SOLVING (PROB)	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**t**	**p-value**
SUPPORT (SUP)						
GLOB 1. Setting a purpose for reading	3.90	.875	3.69	.960	1.56	0.06
GLOB 2: Using prior knowledge	3.47	1.174	3.75	1.105	-1.65	0.05
GLOB 3. Previewing text before reading	3.60	.904	3.46	1.053	0.98	0.17
GLOB 4. Checking how text content fits the purpose	3.36	1.186	3.58	1.112	-1.29	0.10
GLOB 5. Noting text characteristics	2.70	1.355	3.70	1.388	-4.90	<.001*
GLOB 6. Determining what to read	3.33	1.107	3.37	1.063	-0.22	0.41
GLOB 7. Using text features (e.g., tables)	3.83	1.104	4.08	.967	-1.698	0.05
GLOB 8. Using context clues	2.93	1.127	3.17	1.223	-1.398	0.08
GLOB 9. Evaluating what is read	3.86	.932	4.03	.971	-1.165	0.12
GLOB 10. Check understanding of new information	3.85	1.152	4.06	1.145	-1.208	0.11
GLOB 11. Predicting or guessing text meaning	3.37	1.123	3.30	1.131	0.412	0.34
GLOB 12. Confirming predictions	3.11	1.140	3.08	1.224	0.203	0.42
PROB 13.Reading slowly and carefully	3.47	1.285	3.85	1.209	-2.071	0.02*
PROB 14. Try to stay focused on reading	3.86	1.009	4.09	1.000	-1.553	0.06
PROB 15.Adjusting reading rate	3.68	1.105	3.82	.974	-0.93	0.18
PROB 16. Paying close attention to reading	3.28	.990	3.47	1.080	-1.221	0.11
PROB 17. Pausing and thinking about reading	3.49	1.097	3.69	.888	-1.342	0.09
PROB 18. Visualising information read	3.21	1.092	3.74	1.054	-3.329	<.001*
PROB 19.Using topographic aids (e.g.italics)	3.68	1.023	3.96	.904	-2.005	0.02*
PROB 20. Re-reading for a better understanding	3.25	1.210	3.52	1.340	-1.434	0.08
PROB 21.Guessing the meaning of unknown words	2.73	1.084	2.85	1.085	-0.754	0.23
SUP 22. Taking notes while reading	3.12	1.041	3.43	1.096	-1.962	0.03*
SUP 23. Reading aloud when text becomes difficult	3.69	1.008	3.76	.962	-0.502	0.31
SUP 24. Underlining and circling information in text	3.27	1.073	3.16	1.258	0.638	0.26
SUP 25. Using reference material	3.81	.910	4.02	1.014	-1.425	0.08
SUP 26. Paraphrasing for better understanding	3.49	1.131	3.65	1.069	-0.971	0.17
SUP 27. Going back and forth in the text	3.19	.989	3.31	1.124	-0.8	0.21
SUP 28. Asking oneself questions	3.37	1.018	3.60	1.127	-1.463	0.07
SUP 29. Translating to the native tongue	3.53	1.266	4.05	1.064	-3.028	0.00*
SUP 30. Thinking in my native tongue and English	3.88	1.041	4.20	.899	-2.262	0.01*
OVERALL MEAN	3.47	0.450	3.69	0.51	-3.12	3.47
GLOBAL STRATEGIES	3.35	0.450	3.42	0.5144	-0.986	.325
PROBLEM-SOLVING STRATEGIES	3.63	0.561	3.82	0.613	-2.138	.034
SUPPORT STRATEGIES	3.41	0.549	3.82	0.658	-4.526	<.001*
***Strategies with significant differences**						

The data was further analyzed to explore the relationship between gender and students' preferences for reading strategies. Table 3 shows that both genders' most preferred strategy category was problem-solving strategies, ranked as high use by males (M=3.63) and females (M=3.82). This was followed by global strategies rated as medium use by male (M=3.35) and female (M=3.42) students. However, a difference was seen for support strategies: females ranked them as high-use (M=3.82), while males rated them as medium-use (M=3.41).

4.2 Data Analysis

An independent samples test (Table 3) revealed that the p-value for global strategies is .325, more than 0.05. The findings indicate no statistical difference between males and females for global strategy, as the results show ($t=-.986$, $df=185$, $\alpha = 0.05$, $p=.325$) in which the p-value is more than 0.05. Thus, it can be concluded that there is no statistical difference between males and females while using global strategies.

Table 3. Independent Samples T-test

Type of Strategy	**Gender**	**Mean**	**SD**	**Levene's Test for Equality of Variances**		**T**	**Df**	**Sig.(2-tailed)**
				F	Sig			
Global Strategies	Male	3.35	0.450	.849	.358	-.986	185	.325
	Female	3.42	0.514					
Problem-Solving Strategies	Male	3.63	0.561	1.455	.229	-2.138	185	.034
	Female	3.82	0.613					
Support Strategies	Male	3.41	0.549	2.785	.097	-4.526	185	<.001
	Female	3.82	0.658					

In addition, the p-value for problem-solving strategies is .034, higher than the alpha probability. However, the result of support strategies shows that there is a statistical difference between males and females as p=<.001. The results for support strategies are (t=.097, df=185, p=<.001). As a result, it can be concluded that there are statistical differences between male and female students in the support strategies category.

5. Discussion

5.1 Statistical Analysis

The study explored the metacognitive strategy preferences of male and female Omani learners studying business and engineering. The findings reveal that overall reading strategies for female students (M = 3.69, SD = .51) were significantly higher than for male students (M = 3.47, SD = .45). Also, the most preferred strategy category by males and females was problem-solving strategies. This finding was reported in various research studies conducted in foreign language learning environments (Ahmed, 2019; Alami, 2016; Abu-Snoubar, 2017; Martinez, 2008). It was found that foreign language learners preferred problem-solving strategies.

Next, both genders rated global strategies as the second most preferred category of strategies. This finding has been supported by a few studies (Ahmed, 2019 & Martinez, 2008). However, it conflicted with the study conducted by Abu-Snoubar (2017), in which learners chose support strategies as the second most preferred strategy category. As for support strategies, it was found that there was a difference between male and female learners. Females ranked it as a high-use category, while males rated it as medium use. This finding is consistent with Ahmed (2019) and Martinez (2008), in which females reported a higher frequency of strategy use of support categories than males. Nevertheless, some studies conducted in similar foreign language contexts (Poole, 2005; Deliany & Cahyono, 2020) found no significant differences between male and female students for global, problem-solving, and support strategies. Therefore, it can be inferred that participants of these studies were taught these strategies in their higher education institutions. Another reason for the difference could be the reliability of the participants' responses. As Mokhtari and Sheorey (2002) observe, SORS is a self-reporting instrument; it is difficult to predict whether the participants use the strategies they are reporting.

5.2 Implications

The study's findings have pedagogical implications that can help improve teaching practices and strategies in the Omani context. Teachers can offer more individualized instruction and support by recognizing that different genders may have varying metacognitive approaches to reading. They could include tailored reading materials, strategies, and feedback. Also, teachers should encourage students to explore various metacognitive reading strategies, thus helping them set goals, monitor their comprehension, and adjust their strategies over time.

5.3 Scope for Further Research

Gender differences in metacognitive reading strategies are a complex and evolving field of study. Continued research is necessary to explore this topic further, understand its nuances, and identify effective teaching strategies that benefit students of all genders.

6. Conclusion

This paper has investigated the metacognitive strategy preferences of male and female Omani EFL learners studying business and engineering programs. The results reveal that this study significantly contributed to understanding the awareness of metacognitive reading strategy among Omani EFL learners studying business and engineering. These findings provide valuable insights into how individuals of different genders approach reading comprehension. However, we must recognize the importance of metacognitive strategies. Researchers have discussed the advantages of applying metacognitive strategies for reading (Mokhtari & Sheorey, 2008; Baker, 2008). Thus, explicit teaching of metacognitive strategies is crucial. Teachers can provide structured instruction on strategies like setting goals, monitoring comprehension, and adjusting strategies, ensuring that all students, regardless of gender, develop these essential skills.

In conclusion, while gender may influence metacognitive reading strategies to some extent, it is essential to recognize the individuality and diversity of learners. The overarching goal of education should be to provide all students, regardless of their gender, with the skills and support they need to become proficient and critical readers. Gender-aware and inclusive teaching practices can contribute to more equitable and practical education. By considering and addressing gender differences in metacognitive reading strategies, teachers can create a more inclusive and equitable learning environment where all students can excel in reading comprehension and critical thinking.

Acknowledgments

"Not applicable"

Author's contributions

Dr. Rajakumar and Dr. Saranya were responsible for the literature review, and Dr. Ruhina was responsible for data collection and analysis. Dr. Rajakumar drafted the manuscript, and Dr. Saranya revised it. All authors read and approved the final manuscript.

Funding

"Not applicable"

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer-reviewed.

Data availability statement

The data supporting this study's findings are available on request from the corresponding author. However, due to privacy or ethical restrictions, the data are not publicly available.

Data sharing statement

No additional data are available.

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