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Metacognitive Awareness of Reading Strategies for Academic Materials: A Study of Undergraduate Students in Pakistan

Abstract   *Metacognitive awareness of reading strategies measures how readers of a text engage with it and think about their own reading processes. This paper presents the findings of a descriptive study on the metacognitive awareness of reading strategy use on the undergraduate students of Lahore, Pakistan. The study makes use of the Metacognitive Awareness of Reading Strategies Inventory (MARSI), which is a self-report instrument, and has 30 items on a 5-point Likert scale; it was administered to 500 public and private sector universities students. Descriptive and inferential statistics were computed for analysis through the use of SPSS, version 22. The results reported that problem-solving and support strategies are equally preferred over global strategies. Results of the t-test revealed that students from the public sector demonstrate greater strategy awareness than those from the private sector in all the subscales of MARSI, while no overall significant difference between Humanities and Sciences was found.*

Key Words: Metacognitive Awareness of Reading Strategies Inventory (MARSI), Non-Native Speakers of English, Reading Strategies, T-Test, Undergraduate Students.

Introduction

Reading is among the fundamental skills required to function as a 21st-century citizen. A skilled reader employs and is aware of many diverse strategies for reading text and materials in different formats and mediums (Duke & Pearson, 2002; Pearce, 2018). Among these strategies, metacognitive awareness is as important as the reader's cognitive, self-regulation and motivational processes (Pressley & Afflerbach, 1995; Alexander & Jetton, 2000; Pressley, 2000; Pearce, 2018; Smith-Keita, 2018). If appropriate strategies are not used effectively by the readers, reading productivity and efficiency may be affected, especially for university students, as they have to constantly engage with and read diverse texts for their education. This paper reports the findings of research conducted on undergraduate students of two universities in Lahore, Pakistan. This study focused on the metacognitive strategies of reading strategies (MARS) which were used when reading and engaging with academic texts, materials and books. This area is significant as it provides insights into the reading processes of learners involved in reading in varying chunks of time and for various purposes. Improving the use of one's metacognitive strategies can contribute to increasing reading efficiency and motivation.

Reading and the Role of Metacognition

Metacognition is the capability of an individual to think about their thinking processes (Flavell, 1979). Pearce (2018) explains metacognitive strategies as those which guide the person when to use which strategy in order to perform or complete a task, such as reading; this includes analyzing the potential and effectiveness of a particular strategy, based on which it is selected for future use. In the same vein, Hertzog, C., & Dunlosky, J. (2011) have proposed that metacognitive monitoring entails how a person

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evaluates a particular cognitive process or activity while doing something (like reading); similarly, metacognitive control is how that person regulates a cognitive activity as it happens (Hertzog, & Dunlosky, 2011).

This is especially interesting and pertinent to readers (including undergraduate readers) because learners need metacognitive monitoring and control when they academic texts and materials for a specific purpose within the given time. Although metacognitive reading strategies awareness and use may not be the only contributing factors that enhance reading ability and performance (Meniado, 2016), it is still of considerable importance for intermediate-level readers. Research by Mokhtari (2017) has shown the many benefits of using metacognition and its related strategies to improve reading comprehension, while other studies have highlighted how it increases motivation to read (Becker, McElvany & Kortenbruck, 2010). Kolić-Vehovec, Zubković and Pahljina-Reinić assert that metacognitive awareness leads to the development of positive reading attitudes in learners at all levels, leading to the use of reading as a recreational activity (2014).

Metacognitive Awareness of Reading Strategies Inventory (MARSI)

Mokhtari and Reichard (2002, p.2) developed the Metacognitive Awareness of Reading Strategies Inventory (MARSI). It is a well-established self-report instrument to gauge how often, or not, do readers use different strategies when reading texts, books, notes or journals. The inventory is a valuable instrument to assess whether the readers are metacognitively aware of their own strategy use, and how these strategies affect their reading.

Mokhtari & Reichard (2002) assert that English teachers can use this instrument for "assessing, monitoring, and documenting the type and number of reading strategies used by students…(and) monitoring students' progress in becoming constructively responsive readers" (p. 255). Although it is considered valid and reliable, the self-report nature of the instrument makes it necessary to factor in participant subjectivity (Greene, 2015; Mokhtari & Reichard, 2002).

The Likert-scale instrument has 30 items and usually takes 10 minutes to execute (Pearce, 2018); it has a scale based on five points that range from "I never or almost never do this" at 1, to "I always or almost always do this" at 5. The items are about the use of the different strategies of reading such as note-taking, establishing the purpose of reading, and re-reading etc., and are further distinguished within the subcategories encompassing "global", "problem-solving", and "support strategies". The division of items in the categories and the areas of metacognition they cover are elaborated in Table 1

Table 1. Description of Subscales of MARSI

Category	Description	Example	Item
1	Techniques to modify and manage reading intentionally	Overall preview of the text	1–12
2	Techniques focused on solving problems in understanding texts	Re-reading; modifying the speed of reading	13–19
3	Supporting reading through various aids	Use of dictionaries; notetaking	20–28

Note: 1=Global, 2=Problem Solving, 3=Support. Modified from Mokhtari and Sheorey (cited in Azhar, Awan & Khalid. 2015)

Reading in Pakistan

Liyanage (2004) has proposed that English in ESL or EFL contexts, uses teacher-centered and deductive teaching techniques. Such techniques are usually not conducive to developing metacognitive awareness and its relevant strategy use while reading. The same study also highlighted that the overall reading proficiency in Pakistan is low despite offering instruction for more than ten years. These lead to difficulties with the demands of the required reading tasks at the undergraduate and graduate levels. The results of the study (Kazi, 2017) showed that Pakistani students do not make use of metacognitive

and cognitive strategies, even to the extent that they do not use note making or note-taking. The most prevalent learning strategies in Pakistan are translation and repetition, with no attention to identifying the purpose or aim of reading a text; similarly social affective strategies were less preference in reading.

Research Questions

1. Which metacognitive awareness of reading strategies are used by learners at the undergraduate level in Pakistan?
2. Which demographic variables (public or private sector university; the field of study) influence the students' metacognitive awareness of reading strategies (MARS) at the undergraduate level in Pakistan?

Research Methodology

The research is descriptive in nature as it investigates undergraduate students' MARS of print material. It also explores the relationship of various demographic variables on their reading strategy use. Two private and two public sector universities were randomly selected. From these 150 students were randomly selected from different departments of each university, making a total sample size of 500 students. The number of male participants was 191 and females were 309 from two public and two private colleges and universities of Lahore. Data was collected through a survey with the use of the "Metacognitive Awareness of Reading Strategies Inventory" (MARSI) created by Mokhtari and Reichard (2002). The instrument contains thirty items that assess "global reading strategies, problem-solving strategies, and support strategies" using a five-point scale. The tools were pilot tested, and language was modified for better understanding (words like 'context cues' (item 19) and 'paraphrase' (item 20) were replaced by 'taking hints from the text' and 'restate/write in other words' respectively). The reliability analysis of Cronbach Alpha was also conducted for the modified instrument as well as the three subscales. Overall Cronbach Alpha value was .85, whereas values for global reading strategies, problem-solving strategies, and support strategies were .71, .64 and .68 respectively. The relatively low values for two of the subscales did not adversely affect the reliability of the instrument, because Kline (as cited by (Field, 2005, p. 668) argues that values below .7 are to be expected when psychological constructs are involved, due to the "diversity of the constructs being measured" (*ibid.*). The gathered data from the MARSI was analyzed using SPSS, version 22.

Analysis and Discussion of Results

For analysis of data means and standard deviations were analyzed with respect to demographic variables, which were public/private sector university and academic field of study. In inferential statistics t-test was conducted to observe if the undergraduate students' demographic variables showed a significant influence on their metacognitive strategies. The researcher decided that high means are considered to be 3.5 to 5.0, medium 2.5 to 3.4 and low means are 2.4 or less, as suggested by the developers (Mokhtari and Reichard, 2002).

Descriptive Analysis of MARSI

A look at Table 2 reveals that the highest and lowest preference from all three strategies, global, support and problem-solving, falls between the medium ranges ($3.4 \leq M \geq 2.5$). Strategies of problem-solving and a single support strategy are the most preferred in the five highest. The results reveal that participants do not prefer to use global strategy as these are not reported in the five most used strategies.

Table 2. Computation of Means and SD for Strategy items (from highest to lowest mean)

Item No.	Type	M	D
30	PROB	3.47	1.33
8	PROB	3.42	1.23
5	PROB	3.41	1
15	SUP	3.41	1.27
16	PROB	3.38	1.28
20	SUP	3.33	1.31
3	GLOB	3.31	1.231
22	GLOB	3.30	1.164
25	GLOB	3.29	1286
18	PROB	3.29	1.295
9	SUP	3.28	1.265
19	GLOB	3.27	1.297
29	GLOB	3.23	1.240
28	SUP	3.23	1.229
21	PROB	3.23	1.235
23	GLOB	3.23	1.304
12	SUP	3.23	1.247
17	GLOB	3.22	1.269
13	PROB	3.22	1.226
6	SUP	3.21	1.174
11	PROB	3.20	1.250
7	GLOB	3.19	1.232
2	SUP	3.16	1.32
14	GLOB	3.16	1.21
10	GLOB	3.10	1.26
1	SUP	3.09	1.24
12	GLOB	2.95	1.72

Table 2 shows that 3 of the strategies which fall in the medium range but towards the higher end, belong to problem-solving strategy items. Item (30), "I try to guess the meaning of unknown words or phrases" (M = 3.47, SD= 1.33), which is most used; item (8), "I read slowly but carefully to be sure I understand what I am reading" (M = 3.42, SD 1.23), which preferred as the second strategy; and item (5), "When the text becomes difficult, I read aloud to help me understand what I read" (M = 3.41, SD= 1.27), which ranks third. A look at the lowest strategies preferred by the participants reveals that global and support strategies are the least preferred. A global strategy item 12 "I have a purpose in mind when I read", is the least used strategy (M= 2.95, SD= 1.72) by the participants. The next least used strategy is a support strategy, and it was item (1), "When text becomes difficult, I read aloud to help me understand what I read" (M=3.09, SD= 1.24). The third least used strategy is again global item (10) stating, "I skim the text first by noting characteristics like length and organization" (M= 3.10, SD=1.26).

Table 3. Overall Means, Standard Deviations for Overall MARS

Strategy	N	M	SD
1	500	3.22	.61
2	500	3.25	.61
3	500	3.25	.61
4	500	3.26	.56

Note: 1=Global, 2=Problem Solving, 3=Support, and 4=Overall Strategies

Table 3 shows that overall strategy use is in the medium range < 3. It also shows that support strategies are less preferred and global and problem-solving is relatively more preferred.

Results of t-test of MARSI by University Sector

A t-test (Independent Samples) was performed to determine the effects of readers being from public or private universities on their MARS use. The results showed a significant difference in preference for all sub-categories of MARS, as below.

Table 4. T-Test for All Strategies by Public/ Private University Students

	Public			Private			t-Test		
Strategy	N	M	SD	N	M	SD	T	Sig(2tailed)	Difference
1	250	3.30	68	250	3.14	68	2.87	.004*	Pub > Pvt
2	250	3.34	66	250	3.16	66	3.24	.001*	Pub > Pvt
3	250	3.34	66	250	3.16	54	3.24	.001*	Pub > Pvt
4	250	3.35	63	250	3.16	46	3.89	.000*	Pub > Pvt

Note: 1=Global, 2=Problem Solving, 3=Support, and 4=Overall Strategies

Results reveal a significant statistical difference in preferences in overall use of strategy of students from university from the public sector (M = 3.35, SD = .63) and students of private sector university (M = 3.16, SD = .46; t (500) = 3.89, p = .000, two-tailed). The mean difference = .18, 95% and CI: –.91 to .286 however was small.

Results of T-Test of MARSI by Academic Field of Study

The t-test showed that the results when assessed on the basis of Academic Field of Study (Humanities and Sciences), were not statistically different with respect to the use of overall strategies according to MARSI.

Table 5. T-Tests for Overall Strategy Use by Academic Field of Study

Acad Field	N	M	SD	T	Sig.
Humanities	339	3.27	.57	-.617	.538
Sciences	161	3.24	.54		

*p <0.05

Results revealed a significant statistical difference in preferences only in in global strategy use by Humanities (M = 3.26, SD = .58) and Sciences (M = 3.16, SD = .58; t (500) = -2.12, p = .034, two-tailed). The differences in the means (mean difference = -.12,
95% CI: –.241 to -.009) however was small.

Discussion and Conclusion

The focus of the first research question of the study was to investigate the most preferred and least preferred MARS of undergraduate students. The results reported that students' most preferred strategies are problem-solving, as reported in Table 2. This is supported by Yüksel and Yüksel (2012), who reported less use of global and support strategies as compared to problem-solving. This is also supported by Azhar, Awan and Khalid (2015) who found students using Problem Solving Strategies to be proficient readers. Anderson (2002) in his research also highlighted that for second language readers Problem Solving Strategies are the most preferred.

The results from Table 3 show that although Problem Solving and Support Strategies are more preferred as compared to Global Strategies, the overall means for all the strategies are in the medium range. This indicates that metacognitive strategy use for the Pakistani readers is not highly prevalent, which is in contradiction to the results of a study by Yüksel and Yüksel (2012). Their results showed that non-native speakers made high use of strategies as it was crucial to developing comprehension of the material(s).

What is also interesting is that the least used strategy is global in nature, stating that they have a purpose in mind when they read. This points out that students fail to develop a focus before reading and therefore encounter language issues. It is pointed out by Mokhtari and Reichard (2002) students focus more on the completion of a task instead of giving attention to the reading strategies. As a consequence their reading practices are weak. They assert that merely having reading strategies knowledge is not a solution, but careful monitoring and application of the correct strategies for reading is essential.

The learners in the study do not exhibit the use of smart strategies, as the fourth highest strategy used by them is "I use reference materials such as dictionaries to help me understand what I read". Oxford (1993) elaborated that language learners who are not so successful prefer strategies such as using a dictionary for translation, rote learning, and repetition. Research also tells us that high strategy use is not what makes one a successful language learner, but using the appropriate strategies in the right combination does (Oxford, 1993; Oxford & Crookall, 1989).

The current study also explored the effect of background variations such as public or private sector universities and field of study on MARS. The results by Kazi and Iqbal (2011), reported that arts major students from the public sector reported higher strategy use for all the categories of strategies as compared to those from the sciences. In this study as well, humanities have displayed more use of global MARS as compared to the sciences.

In light of the results, it is recommended that students need to be explicitly imparted the use of MARS explicitly. This explicit strategy instruction is asserted in studies by Oxford (1993). In the local context, this view is also endorsed by Azhar, Awan and (2015) and Sheikh, Soomro and Hussain (2019). It is suggested to conduct extensive research in this area utilizing experimental methods to check the effects of reading strategies metacognitive awareness (MARS), and also extensive surveys with more demographic variables for deeper understanding in the Pakistani context.

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