

## **University Students' Awareness of Meta-cognitive Reading Strategies and Reading Comprehension**

<sup>1</sup>Mussarrat Azhar, <sup>2</sup>Riffat un Nisa Awan & <sup>3</sup>Shaista Khalid  
musarratazher@gmail.com

### **Abstract**

*The current research paper reports a study investigating the awareness of Sargodha university post graduate students' about meta-cognitive reading strategies use and reading comprehension of the academic material in English as a foreign language. The data was collected through a questionnaire (MARS) particularly designed to expose the kinds of reading strategies adult learners report exploiting when reading academic materials (Mukhtari and Reichard, 2002). The questionnaire was accompanied by a comprehension test to judge the reading ability of the students. The outcomes of the study expose that on the whole these post graduate university students are aware of all the strategies included in the present research, with an inclination towards global strategies, followed by support and problem solving strategies respectively. However, when reading ability was considered in relation to the comprehension test, the students with preference for problem strategies scored higher as compared to the students with preference for global and support strategies. Moreover, disparity was found between male and female students in their awareness of metacognitive strategies use and comprehension test scores.*

**Keywords:** *Reading strategies and comprehension, academic text, meta-cognition, awareness*

### **Introduction**

Reading is a complex process. The reader is `simultaneously involved in so many tasks of recognizing, pronouncing, interpreting, understanding, storing and relating what is written with the background knowledge. According to Lisa Harp, as cited in Fakoya and Yuka (2014) 'reading is a difficult process. The brain must be doing several things

at once in order to make sense out of the written word'. University education in Pakistan demands exclusive readings of the academic materials in English. The students have to study at least 5 different courses in a semester of 18 weeks. Each course refers to an excess of reading stuff. The students need to know how to deal with a massive quantity of reading material and variety of comprehension

<sup>1,2,3</sup> University of Sargodha, Pakistan

tasks in a limited amount of time. To meet such a demand the students need to be equipped with specific skill of strategy use in reading. They have to use different strategies and tactics such as, making predictions, skimming, understanding and engrossing, analyzing and recognize particular issues, queries or misunderstandings, summarizing and reviewing information to use in writing or in seminars. Being not updated with such reading strategies, the students face problems in all aspects of reading process and understanding the content. Thus, if equipped with meta-cognitive reading strategies the university students would better comprehend the academic texts. The present research aims at exploring whether Sargodha university post graduate students are aware of meta-cognitive reading strategies and are making use of them in the process of reading. It also aims at exploring whether being conscious of the cognitive process affects the reading comprehension of the students.

### **Literature Review**

Researchers (e.g. Dreyer and Nei, 2003) have reported about the inabilities of the students in reading comprehension that the students require an awareness of

strategies needed to successfully understand expository texts. “Many students enter university education under prepared for the demands placed on them”. (Dreyer and Nei, 2003, p. 349) They select and use ineffective strategies with little strategic intent (Martinez, 2008, p. 168). They can cope up with the heavy burden of reading materials and increase comprehension with appropriate strategy use and conscious monitoring of the text. Researches have indicted the strategic consciousness and monitoring of the understanding process as vital features of skilled readers.

### **Meta-cognition and Meta-cognitive Reading Strategies**

Meta-cognition means knowing about the process of knowing. It refers to the awareness, planning and monitoring of the cognitive process. According to Karbalaei (2010, p.166), “metacognition involves awareness and control of planning, monitoring, repairing, revising, summarizing, and evaluating”. It also refers to selective attention, planning for organization and monitoring comprehension (Imtiaz, 2004, p. 35). According to Salmani (2010) meta-cognitive strategies refer to mananging the learning process and

dealing with the tasks (p. 4) Sheorey and Mukhtari (2001) include both awareness and monitoring in their conceptualization of meta-cognition, which is defined 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)

Meta-cognition plays an imperative role in reading as it involves conscious awareness of the process of decoding and comprehending the written material. Meta-cognition in reading, Anderson (1999) says is “the ability of being consciously aware of the strategies used for the processing and comprehension of the text”. According to Auerbach and Paxton (cited in Zhang and Wu, 2009, p. 38), it “entails knowledge of strategies for processing texts, the ability to monitor comprehension and the ability to adjust strategies as needed”. Meta-cognition is important in the process of reading as it helps readers in verifying strategies needed for the understanding of written text. However, meta-cognitive reading strategies are different from cognitive strategies as “the role of cognitive strategies is described as making cognitive progress whereas

metacognitive strategies monitor this progress” Siam and Soozandehfar (2011, p. 4). While cognitive strategies involve readers’ mental behavior for understanding, “metacognitive strategies involve readers’ deliberate mental behaviors for directing and controlling their cognitive strategy processing for successful performance” (Phakiti, 2006) and refer to the premeditated, purposeful, cognizant, and attentive use of different conscious tactics in interacting with the text to strengthen understanding of what is written. Mukhtari and Richards (2001) have distinguished among three different categories of meta-cognitive reading strategies. They are global strategies, support strategies and problem solving strategies. Global strategies are generalized and aim to set the scene for the act of reading e.g. looking at the title and contents, predicting about the text and setting the purpose etc. Problem solving strategies help in understanding the text during reading e.g. rereading for understanding. Support strategies carry the process of reading and include strategies like consulting dictionary, taking notes etc. The application of these strategies is believed to contribute

to efficient reading (Zhang and Wu, 2009, p. 3).

### **Meta-cognitive Reading Strategies and Comprehension**

Researchers have recognized and emphasized the part of metacognitive reading strategies in comprehension and subsequently related this awareness to the success of learners. Metacognitive awareness enables the students to use reading strategies more competently and efficiently than their unsuccessful peers (Carrell, 1989; Sheorey & Mukhtari, 2001; Zhang, 2001; Zhang et al., 2008; Zhang and Wu, 2009). According to Sheorey and Mukhtari (2001), 'it is the combination of conscious awareness of the strategic reading processes and the actual use of reading strategies that distinguishes the skilled from the unskilled readers'. 'Skilled readers use meta-cognitive strategies effectively, while the less proficient readers have far less metacognitive awareness than proficient readers do have'. (Brown, 1980; Flavell, 1979)

The main difference between skilled and unskilled readers is alleged to recline in the capability of the former to "engage in deliberate activities that require planful thinking, flexible strategies and

periodic self-monitoring" (Paris & Jacobs 1984, cited in Sheorey & Mokhtari 2001, p. 433). These findings have persuaded researchers to explore the effectiveness of teaching metacognitive strategies to all readers. Carrell (1989) carried out a research to investigate the association between metacognitive awareness and reading comprehension in native language (L1 i.e. Urdu in case of Pakistan) and foreign language (L2 i.e. English). He has proved that the thriving use of reading strategies is based on fact whether a strategy is used meta-cognitively. Devine (cited in Hassan, 2003, p. 1) explored that readers' theoretical familiarization towards reading have exerted influence on their reading behaviour in the target language. She exposed that the readers' metacognitive awareness or theoretical orientation towards reading seemed to have affected the reading behaviour of these readers rather than L2 language ability or L1 reading ability (Eskey, and Grabe, 1988). Martinez (2008) in her study of the reported strategy use of university students studying English for Specific Purposes (ESP), at the University of Oviedo on self reported strategy use and

comprehension discovers an association between self reported strategy use and reading ability and concludes that using reading strategies influence reading competence and comprehension performance .

Barnett (1988) investigated the effects of metacognitive awareness and strategy use on reading comprehension. Findings indicate that there is a linear association between strategy use and reading comprehension. Students who use different strategies in reading perform better than the students who do not.

Many researchers (Maqsood, 1997; Phakiti, 2006; Rysz, 2004; Rehman et. Al., 2010) believe that meta-cognition plays constructive role in assisting students perform better. Meta-cognition has been linked to an extensive variety of assenting academic outcomes for students such as improved scores and performance on tests of intelligence. As Pakistani students have to cope up with the heavy burden of reading stuff during the limited time of university education, it is important to examine how far the students are aware of and use meta-cognitive reading strategies during reading academic text. By administering the questionnaire (MARSII) by Mukhtari

and Reichard, (2002), it analyzes the students' reported awareness of metacognitive strategies and their use during reading academic texts in English. It also aims to discover what types of strategies are preferred by the students while reading academic texts and to analyze if the reported results are in accordance with their reading comprehension. The questionnaire was accompanied by a comprehension test to judge the reading ability of the students. Moreover the researchers also plan to explore if there exists any disparity between male and female students in their professed use of meta-cognitive reading strategies. Thus the following questions are being addressed in this paper.

- 1) Do the Post graduate students of Sargodha university use meta-cognitive reading strategies in reading academic texts?
- 2) Does there exist any relationship between the students' strategy use and reading comprehension?
- 3) Do male and female students differ in their use of metacognitive reading strategies while reading academic texts?

## **Research Methodology**

## Participants

The population of the study comprise of the post graduate students of Sargodha University. A total of 150 (n=150) students of masters' classes from 5 different departments: English, Education, Psychology, Sociology and Chemistry departments of the University of Sargodha were randomly selected as participants for this study. Thirty students from each department were randomly selected on the premises of availability of the students. The researchers themselves personally administered the questionnaire to ensure the reliability of the results. The age of the students ranged from 20 to 23 years as generally the age of students doing masters in Pakistan. Of these 47 % were female students while 53% were male students of the university.

## Instrument

A five point rating scale questionnaire (MARS) developed by Mukhtari and Reichard, (2002) was employed to collect data. This questionnaire is particularly designed

to reveal the type of reading strategies (i.e. problem solving strategies, global strategies and support strategies) respondents exploit when reading academic stuff. The questionnaire is developed on five point rating scale ranging from 1 to 5 (1 = very less strategy use (never); 2= rare strategy use (rarely); 3= sometimes strategy use (sometimes); 4= frequent strategy use (often); 5 = high strategy use (always)). It addresses the three types of the reading strategies namely, global (GLOB), support (SUP) and problem solving (PROB) strategies. Global strategies refer to the techniques used to monitor reading; problem-solving strategies refer to the techniques used in managing the problems in understanding text; whereas the support strategies stand for support mechanism as an aid in reading. Their detailed description is given in the table given below

**Table 1. Categorization and description of EFL reading strategies**

Category	Description	Example	Item
Global reading strategies (GLOB)	The intentional, carefully planned techniques by which learners monitor or manage their reading	Having the purpose in mind; previewing the text	1–12
Problem-solving strategies (PROB)	The localized, focused techniques used when problems develop in understanding textual information	Adjusting reading speed; rereading the text	13–19
Support strategies (SUP)	The basic support mechanisms intended to aid the reader in comprehending the text	Using dictionaries; taking notes	20–28

*Note.* Adapted from Mokhtari and Sheorey (2002, cited in Zhang and Wu, 2009, p. 4).

### Comprehension Test

The questionnaire for measuring reading strategies was also accompanied by comprehension test adopted from GRE standardized tests. The comprehension test was based on a reading passage along with 5 multiple choice questions. The test was assessed and scored by the researchers themselves. The test was administered to analyze the students' level of understanding and to see

whether their scores were in accordance with their strategy use during reading academic texts.

### Results

The data was analyzed using mean score for exploring which strategy was being used most often by the students. For discovering the group difference between the means of male and female students, *t* test was used. The relationship of test scores and reading strategies was found out by Pearson moment correlation coefficient (Pearson *r*).

**Table No. 2** Item wise Mean and Standard Deviation of Reading Strategies

Type	Items	Mean	Std. Deviation
GLOB1	Setting a purpose for reading	4.2907	.80974
GLOB 2	Looking at the title before reading to get a hint about text content	4.5581	.77618
GLOB 3	Using prior knowledge	3.9884	.86084
GLOB 4	Previewing text before reading in detail	3.8837	.93832
GLOB 5	Evaluating how text content fits reading purpose	3.9767	.94529
GLOB 6	Skipping parts of text thought unimportant	3.7209	1.06992
GLOB 7	Using text features, e.g.: tables, figures for better understanding	3.6744	.99932
GLOB 8	Skimming through text before reading to see length and organization	3.6860	1.02051

GLOB 9	Using context clues, e.g. “first”; “but” for better understanding	4.1163	.87338
GLOB 10	Critical analysis and evaluation of information	3.9070	.94094
GLOB 15	Checking if one’s guesses about text are right or wrong	4.2093	.88273
SUP 11	Paraphrasing for better understanding	4.0465	.96901
SUP 12	Going back and forth in text	3.9419	.91207
SUP 13	Using reference materials, e.g.: dictionaries	3.8372	1.10465
SUP 14	Translating from English into urdu	4.1628	1.12575
SUP 25	I stop from time to time and think about what I am reading	4.1047	.95830
SUP16	Taking notes while reading	4.1744	.90997
SUP 17	Reading aloud when text becomes difficult	3.9767	1.05135
SUP 18	I summarize to reflect on key ideas in the text.	3.9767	1.00559
SUP 19	I discuss my reading with others to check my understanding.	4.1279	.91775
SUP 20	Underlining, highlighting information in text	4.2558	.93540
PROB 21	Reading slowly but carefully for better understanding	4.2791	.87651
PROB 22	I try to get back on track when I lose concentration	4.3372	.82048
PROB 23	Adjusting reading speed to difficulty level of text	4.3837	.76955
PROB 24	Paying closer attention when text becomes difficult	4.4419	.76088
PROB 26	Visualizing information to help remember text	3.9884	1.02319
PROB 27	Re-reading for better understanding	4.0698	1.04927
PROB 28	Guessing meaning of unknown words or phrases	4.0930	.97773
PROB 29	Trying to stay focused on text	4.2326	.80695

The table 2 shows the mean and standard deviation of global, support and problem solving strategies employed by the students of university of Sargodha. It gives the mean scores of different strategies used

by the students. Mean scores indicate that Global strategies were the one which were most preferred followed by support strategies and problem strategies respectively. The item related to global

strategy, ‘Looking at the title before reading to get a hint about text content’ scored highest mean (M=4.56, SD=0.77) followed by ‘Paying closer attention when text becomes difficult ’ (M=4.44, SD=0.76) which was related to problem strategy.

Table No.3  
Mean and standard deviation for male and female preference in the use of reading strategies and *t* test for mean gender difference in reading strategies (N=Female 67, Male 76)

	Gender	Mean	Std. Deviation	<i>T</i>	Sig. (2-tailed)	Mean Difference
Global Strategy	Female	43.83	4.80822	-1.021	.215	.850
	Male	44.68	5.24649			
Support Strategy	Female	41.18	4.90184	3.096	.002	2.600
	Male	38.58	5.10493			
Problem Strategy	Female	34.00	4.04145	1.139	.256	.790
	Male	33.21	4.21526			

Table no. 3 shows the overall mean and standard deviation of three strategies for male and female students. Male students with the highest mean score (M=44.68, SD=5.24) shows their bigger interest in using global strategies. Global strategies are also popular with the girls (M=43.83, SD=4.80) as compared to the other two strategies. The above table also shows the gender differences across all the variables involved in the study. The mean gender difference for support

strategy is significant ( $t=3.096, p<.01$ ) at 0.01 level of significance. This distinction is in support of girls (M=41.18) having sturdy preference for the use of support strategy. The gender differences for global strategy ( $t=-1.021, p>0.05$ ).and problem strategy ( $t=1.139, p>0.05$ ) are non-significant so it is concluded that there does not exist any significant difference in the use of reading strategy of male and female students for global and problem strategy.

**Table No. 4**  
**Pearson moment Correlation Coefficient (Pearson *r*) for test scores and Three Reading Strategies**

Reading Strategies	Test score	Global strategy	Support strategy	Problem Strategy
Global strategy	.123	-	.558**	.594**
Support strategy	-.071	.558**	-	.588**
Problem Strategy	.245**	.594**	.588**	-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table no. 4 depicts the relationship of test scores with the use of three reading strategies. This relationship is significant with the problem strategy ( $r = .245$ ) which means students who use problem strategy score higher on their test scores. The Pearson  $r$  for test scores and support strategy was negative, weak and non significant ( $r = -.071$ ). Global strategy was weakly related with test scores ( $r = .123$ ) and was non significant. The inter relationship of all the strategies is strong and significant especially global and problem strategy ( $r = .594$ ).

### **Discussion**

The data are analyzed from three different perspectives. Firstly the students' responses in terms of their preference for individual strategy use are examined. Secondly the students' responses are analyzed with respect to gender differences. Thirdly the responses are related to the comprehension test scores. The results show that the means of overall responses in terms of individual strategy items ranges from 4.5581 to 3.6744. "Looking at the title before reading to get a hint about text content" is the most preferred strategy for the students, where title means title only and not the title page

with other specifications. "Using text features, e.g.: tables, figures for better understanding" is the least preferred one. 18 out of 29 strategies show high mean score ranging from 4.5581 to 4.0465. This shows that the strategies like "setting purpose for reading", "looking at the title", "using word clues", "translating from English into Urdu", "taking notes", "underling and highlighting" are the most preferred reading strategies among university students. The preference for these strategies seems to be related to the students' exposure to and practices of the most preferred strategies. Whereas "using prior knowledge", "previewing text before reading", "evaluating how text content fits the purpose", "skipping unimportant part of the text", "using text features like tables, figures, critical analysis" are the less preferred strategies for the learners. Now the preferred strategies are the ones the students have developed informally during their academic career. In Pakistan the majority of the students even at university level read for examination purposes. The students are accustomed to: take notes and underline for examination purposes, translate from

and into the target language as have been studying through grammar translation method. The least preferred strategies indicate the students' less exposure and practices of the mentioned strategies. The less preferred strategies indicate that reading is the process that does not engage too many tactics and strategies. Most of the time, reading seems to be a simple process of just looking at the title, taking notes and translating text, although the students are wide awake of the cognitive process. On the whole, the above analysis shows that the students demonstrated traits of vigorous tactful and strategic readers. They were conscious of their cognitive process during reading and were capable of utilizing an ample array of EFL reading strategies to attain comprehension with fanaticism for many and indifference for few others strategies. Many other studies (e.g., Block, 1992; Sheorey & Mokhtari, 2001; Zhang, 2001; Zhang et al., 2008) support these findings. Category wise analysis shows that global strategies are the most preferred ones followed by support strategies and problem strategies respectively. The item related to global strategy, 'Looking at the title before reading to get a hint about text content' scored highest mean followed by 'Reading carefully when

text becomes difficult ' which was related to problem strategy. The results are different from Martinez (2008) where the Students had shown a lucid inclination for problem-solving strategies. These strategies are trailed by global and support reading strategies respectively. The results show that the four strategies with the maximum use are related to problem solving strategies. The results regarding reading comprehension scores specify that the students showing preferences for problem solving strategies are towering achievers and get better scores as compared to the scores of the students preferring global and support strategies. The possible reason for this difference may be lack of conscious effort required for solving reading and comprehension problems on the part of Sargodha university students. These university students are not generally taught and skilled in meta-cognitive reading strategies

As for as the gender differences in metacognitive strategy use are concerned the results indicate that the male students with the highest mean score (44.82) show their bigger concern in using global strategies. Global strategies are

also popular with the girls as compared to the other two strategies. The mean score for gender difference in support strategy is significant ( $t=3.096$ ,  $p<.01$ ) at 0.01 level of significance. This difference is in favour of girls having strong predilection for the use of support strategy. The results are contrary to Christina Martinez (2008: 165-176) where females show significantly elevated occurrence of strategy use and tend to employ support reading strategies more than men.

### **Conclusion & Recommendations**

The main conclusion we have come up here is that the post graduate students at Sargodha University are positively aware of the metacognitive reading strategy use and that they exploit metacognitive reading strategies while reading academic text to certain extent. Still there is a call for an increase in the understanding of readers' metacognitive consciousness of reading strategies. The awareness can be attained by effective strategy instruction to make reading process more effective and regular. Particularly the students need to be trained in more tactful strategies like analyzing critically, visualizing and evaluating the text contents and using tables, figures

other text feature etc. It is important that metacognitive reading strategies must be the part of reading instructions. Reading skill when taught in integration with metacognitive strategies not only makes readers efficient and increases their critical thinking but also enable them to cope up with the heavy burden of the reading stuff. Reading becomes a "thoughtful and constructive" process and exerts positive influence on students' achievements. We can extract pedagogical implications from this study also. The teachers can increase students' reading ability and comprehension through making them practice metacognitive reading strategies and help them become efficient readers.

There is a great scope of research on related issues in Pakistani context as little is done on the metacognitive strategy use of Pakistani students. An experimental study with two groups on the application of metacognitive reading strategies is proposed here. More over, it can be researched how much teachers themselves are aware about metacognitive reading strategy use. We can also see the difference between reading strategies in reading in English and Urdu and evaluate the consequences

of strategic teaching on the improvement of reading performance in both languages.

## References

- Fakoya, A. A. & Yuka, L. C. (2014). Discordant notes and scores in students' performance. *International Journal of Language Studies* 8(1) \_\_\_\_\_
- Anderson, N. J. (2002). The role of metacognition in second/foreign language teaching and learning. *ERIC Digest*. Washington, DC: ERIC Clearinghouse on Languages and Linguistics. Retrieved from ERIC database. Ed. No. 99-Co-008
- Anderson, N. J. (2003). Teaching reading. In D. Nunan (Ed.), *Practical English language teaching* (pp. 67-86). New York: McGraw Hill Publishers
- Brown, A. L. (1980). Metacognitive development and reading. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 453-481). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Barnett, M. A. (1988). Teaching Reading in a Foreign Language. *Eric Digest*. Retrieved from ERIC database.  
<http://www.ericdigests.org/pre-9211/reading.htm>
- Block, E. L. (1992). See how they Read: Comprehension Monitoring of L1 and L2 Readers. *TESOL Quarterly* 26, 2:319-43.
- Carrell, P. L. (1989). Metacognitive Awareness and Second Language Reading. *The Modern Language Journal*, 73 (2), 121-134
- Dreyer, C., & Nel, C. (2003). Teaching reading strategies and reading comprehension within technology-enhanced learning environment. *System*, 31, 349-365.
- Eskey, D. E. and Grabe, W, (1988). Interactive models for ESL reading: Perspectives on instruction. In P. L. Carrell, J. Devine, and Eskey (Eds.) *Interactive Approaches to second Language Reading*. New York: Cambridge University Press
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive development inquiry, *American Psychologist* 34, (10)
- Hassan, F. (2003). Metacognitive strategy awareness and reading comprehension, Retrieved from <http://www.melta.org.my/ET/2003/2003-16.pdf>
- Imtiaz, S. (2004). Metacognitive Strategies of Reading among ESL Learners *South Asian Language Review* XIV, (1) 34-43
- Karbalaei, A. R. (2010). A comparison of the metacognitive reading strategies used by EFL and EsL Readers, *The Reading Matrix* 10, (2) pp. 165-180

- Lisa, H. (2005). Helping students with reading problems. *International Journal of Language Studies*. Retrieved from [www.adoptionarticlesdirectory.com](http://www.adoptionarticlesdirectory.com).
- Martinez, C. A. (2008). Self-reported reading strategy use among Spanish university students of English, *Spanish Journal of Applied Linguistics* 167-179
- Mokhtari, K., & Reichard, C. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology*, 94 (2), 249-259
- Phakiti, A. (2006). Modeling cognitive and metacognitive strategies and their relationships to EFL reading test performance. *Melbourne Papers in Language Testing*. Retrieved from [http://ltrc.unimelb.edu.au/mplt/papers/11\\_1\\_4\\_Phakiti.pdf](http://ltrc.unimelb.edu.au/mplt/papers/11_1_4_Phakiti.pdf)
- Sheorey R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System*, 29(4), 431-449.
- Siam & Soozandehfar, M. A (2011) Metacognitive awareness of reading strategies and reading comprehension, *California Linguistic Notes* XXXVI (1) pp.4
- Salmani , M. A. (2010). The impact of formal schemata on L3 reading recall. *International Journal of Language Studies*, 4(4), 357-372
- Temur, T. And Bahar, O. (2011) Metacognitive awareness of reading strategies of Turkish learners who learn English as a foreign language, *European Journal of Educational Studies* 3(2), 421-427
- Vianty, M. (2007). The comparison of students' use of meta-cognitive reading strategies between reading in Bahasa Indonesia and in English. *International Education Journal*, vol. 8(2), 449-460.
- Zhang, L. J. (2001). Awareness in reading: EFL students' metacognitive knowledge of reading strategies in an acquisition-poor environment. *Language Awareness*, 10(4), 268-288.
- Zhang, L. J. (2008). Constructivist pedagogy in strategic reading instruction: Exploring pathways to learner development in the English as a second language (ESL) classroom. *Instructional Science: An International Journal of Learning and Cognition*, 36(2), 89-116
- Zhang L. J. and Wu (2009). Chinese senior high school EFL students' metacognitive awareness and reading-strategy use, *Reading in a Foreign Language*. 21(1) 37-59
- GRE Reading Comprehension Test (2013). Retrieved on September 2013 from [http://www.majortests.com/gre/reading\\_comprehension.php](http://www.majortests.com/gre/reading_comprehension.php)