An Investigation into the Relationship between Metacognitive Reading Awareness and Reading Comprehension of Iranian EFL learners

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**Abstract:** Using appropriate reading strategies is influential in reading comprehension. In this study an attempt has been made to compare the metacognitive awareness of the reading strategies of proficient EFL students with that of less-proficient EFL learners. In addition, the current study tried to find the possible correlation between metacognitive awareness and reading comprehension. In order to accomplish this, 107 Iranian EFL learners studying English in two language institutes in Shiraz were selected through simple two-stage cluster sampling. Participants were all between 21-25 years old (both male and female). A Proficiency Test (Toefl test of Tarbiat Modares University) was administered to ensure the homogeneity of the subjects and to divide them into two proficiency levels according to their scores. Then, a reading comprehension test was given to the subjects to be completed in order to assess their reading ability in English. Soon after this, they were given a questionnaire of reading metacognitive awareness. Pearson Product Moment correlation was employed to find out if there was a statistically significant relationship between Iranian EFL learners’ reading ability and metacognitive awareness. And a t-test was run to find whether the two groups differ significantly or not. The results of the study suggested a negative significant correlation between EFL learners’ metacognitive awareness and their reading comprehension scores. In addition, it was found that there was no significant difference between high and low proficient subjects in terms of their metacognitive awareness.

**Index Terms:** Cognitive strategies, learning strategies, metacognitive strategies, metacognition, more proficient and less proficient learners

**1. INTRODUCTION**

Reading is a fundamental skill that enables the individual to learn and apply new knowledge and to communicate successfully. However, some students have problems in reading the texts and need some training in learning strategies. Therefore, when the learning strategies of good language learners are taught to less competent learners, it could have promote the development of second language skills and reading skills drastically. Furthermore, reading involves higher level language skills such as activation of back ground knowledge, asking questions, checking comprehension, inferring, predicting and so forth required for better comprehension. Different studies have shown that these strategies which are related to readers’ metacognitive knowledge play an important role in reading comprehension. Thus, metacognitive knowledge plays a crucial role in understanding of the readers’ explicit and conscious use of reading strategies. Indeed, researchers agree that awareness and monitoring of one’s comprehension processes are important aspects of advanced reading. Meta-
cognitive processes are helpful in better understanding of reading comprehension. Due to this reason, recognizing readers’ awareness of the strategies they use while comprehending a text and to understand if they use these strategies effectively is necessary.

2. REVIEW OF THE RELATED LITERATURE

2.1. Theoretical background

Initially Flavell (1979) defined Metacognitive awareness, or metacognition (as cited in Dinner, 2009), and first called it “metamemory” or one’s knowledge regarding one’s own cognitive processes or anything related to them. In other words, metacognition was introduced by him as one’s ability to comprehend and use his cognitive process to maximize learning. Metacognition was initially employed to the reading by Brown (1980, cited in Williams & Atkins, 2009, p. 29), who described the reading process as involving strategic knowledge and action: smooth sailing-comprehension at an automatic level- until comprehension breaks down, and then conscious attempts to comprehend via re-reading, looking at pictures, figuring out meanings of unknown words, parsing sentences, etc. Similarly, Sheorey and Mokhtari (2001) considered metacognitive knowledge in reading as the readers’ cognition and the self control mechanisms they use to monitor and increase comprehension. Flavell (1979) breaks down metacognition into multiple parts: Metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions (or strategies).

Metacognitive knowledge includes awareness about the variables that affect their cognitive or thinking abilities. These variables include person, task and strategies. Knowledge about ourselves, person variable, may include knowing what we are more successful in doing. For example, a person may know that he is better at solving math problems than writing a paper. Knowledge about tasks is related to the difficulty of the task. In regards to strategies, we know specific strategies will help accomplish a task, for example, stating information aloud will help in retrieval.

Another characteristic of metacognitive knowledge is that it is declarative and procedural. Declarative knowledge involves facts and information we know and can retrieve automatically; however, when a reader comes to information he does not know, procedural knowledge is used to help figure it out (Garner, 1994). This procedural knowledge is related to the strategy variable because when one does not understand the information, he has to decide what strategy will be helpful in discovering the information.

2.2. Studies on the contribution of metacognitive strategy to reading comprehension

Fotovatian (1999) explored the use of reading comprehension strategies by Iranian learners of English as a foreign language. One hundred thirty one freshmen of English major in Shiraz University and Shiraz Azad University took part in the study, of whom one hundred took only a reading questionnaire and participated in interview and self-report sessions in which they freely described which strategy they used while reading an English test. The results obtained from the analysis of the data revealed that some strategies such as recognizing text structure, and elaboration were used significantly more often by good readers, whereas strategies such as paraphrasing, simplification, or looking up all the new words were used more by the poor readers. The results also indicated that metacognitive awareness was utilized significantly more frequently by skilled readers.

Consistent with this finding, Al Melhi (2000) has found that there are some differences between more skilled and less skilled readers in terms of their reading strategies, their use of reading strategies, their metacognitive awareness, their idea of a good reader. He points out that training in metacognitive language learning strategies helps learners develop their listening and reading skills and raise their proficiency.

Mehrpoor (2004) investigated reading comprehension strategies utilized by the male and female Iranian students of English and the effect of the strategy use on their reading comprehension performance. The participants were seventy one
sophomore students of teaching English of Shiraz University and Shiraz Azad University. The results obtained using a reading comprehension questionnaire, a general proficiency exam, as well as a reading comprehension test revealed that high proficient students used more strategies. The findings also suggested a significant difference between three levels of proficiency in terms of strategy use and the predictive power of the reading comprehension strategy use on reading comprehension performance. In summary, Successful comprehension depends on directed cognitive attempt, referred to as metacognition, which contains knowledge and regulation of cognitive processing. While reading, metacognitive processing is demonstrated via strategies, which are helpful in reading (Alexander & Jetton 2000, p.295)

The results of the L2 metacognitive studies seem to show that there is a positive correlation between metacognitive awareness and reading ability (Yin & Agnes, 2001). However, this cannot be conclusive because findings from Spooner et al. (1998) seem to indicate that there is a threshold level that needs to be achieved before metacognitive awareness can play a significant role in reading. Therefore, this study aims to unravel the relationship between metacognitive awareness and reading ability in L2 as well as the relation between proficiency level and metacognitive awareness.

2.3. Research questions

This research addresses the following questions.
RQ1. Is there any relationship between Iranian EFL learners’ metacognitive awareness and their reading comprehension ability?
RQ2. Is there any significant difference between high and low proficient students with regard to their metacognitive awareness?

3. METHODOLOGY

3.1. Participants

The language learners in two language institutes in Shiraz were selected based on a simple two-stage cluster sampling. The listing units in the second stage are selected independently within each cluster by simple random sampling and the fraction of listing units sampled within each cluster is the same for each cluster (Naing et al., 2006). According to this, two language institutes in Shiraz were selected based on the factors that are explained below and based on the proficiency test two groups (more proficient and less proficient) were selected.

3.2. Instruments

In order to gather data, three instruments were employed in this study. The first one was a proficiency test. This test was administered to make a distinction between test takers in terms of their proficiency level. The test is the TOEFL Test, it consists of 60 multiple-choice items and comprises four subsections of grammar (24 items), vocabulary (18 items), and reading (18 items). Due to administrative limitations, listening comprehension section was not included. In order to assess the reliability of the TOEFL Test, the TOEFL Test was pretested with a sample group of 30 students in Fakher and Pishtazan institutes having characteristics similar to the target group. The estimated internal consistency (Cronbach Alpha) revealed that the adequate reliability of 0.78 was attained. The face and content validity of the test was checked by two applied linguists in Yasouj University.

3.3. Procedure

The proficiency test was given to 250 language learners; the descriptive statistics related to the subjects’ performance on Proficiency Test is summarized in table 3.1.
Table 3.1 The Descriptive Statistics Of The Proficiency Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>No.of items</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement score</td>
<td>250</td>
<td>60</td>
<td>38/44</td>
<td>9/88</td>
<td>22</td>
<td>55</td>
</tr>
</tbody>
</table>

According to table 3.2 below, those who are one standard deviation above mean are proficient learners and those who are one standard deviation below mean are less proficient students.

Table 3.2 The Percentage Of Proficient And Less Proficient Learners

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficient</td>
<td>28</td>
<td>26/2</td>
</tr>
<tr>
<td>Less proficient</td>
<td>79</td>
<td>73/8</td>
</tr>
</tbody>
</table>

The second instrument was the test of reading comprehension in English. This test was chosen from the reading component of the Tarbiat Modarres University TOEFL Test that was adapted from Barrons TOEFL test (1996) to assess learners’ reading comprehension levels. The test consists of thirty multiple-choice items including five passages, ranging from around 56 to 240 words in length and the average readability index of 0.70. The reading passages used in this study had general content, which is believed to be of interest to the students.

The reliability of the reading comprehension test was computed through Cronbach Alpha method of estimating reliability after it was administered to both groups. The index obtained for reliability was 0.75. The face and content validity of the test was confirmed by the two applied linguists in Yasouj University.

The third instrument was a Metacognitive Awareness of Reading Strategies Questionnaire. The data for the use of metacognitive strategies was collected using the questionnaire adapted from the survey of reading strategies by Sheorey and Mokhtari (2001) that was designed to assess the metacognitive awareness and perceived use of reading strategies of adolescent and adult learners of English as a second language (ESL) while reading school related materials in English (p. 2).

In the first step, Pearson Product Moment correlation was employed to find out if there is a statistically significant relationship between Iranian EFL learners’ reading ability and metacognitive awareness. Then, an independent t-test was run in order to investigate whether there is any significant change in the performance of the groups and to find whether the two groups differ significantly or not.

4. RESULTS AND DISCUSSION

4.1. Relationship between reading comprehension and metacognitive awareness

The first question deals with the possible correlation between metacognitive awareness and reading comprehension. In order to determine whether there is any correlation between metacognitive awareness and reading comprehension, the Pearson Product Moment Correlation was run. The results are presented in Table 4.1.
Table 4.1. Correlation Coefficient Between Metacognitive Awareness And Reading Comprehension

<table>
<thead>
<tr>
<th>variable</th>
<th>Pearson correlation</th>
<th>Sig(2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive awareness reading</td>
<td>-0.51</td>
<td>0.00</td>
</tr>
<tr>
<td>comprehension</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is a negative correlation between participants’ scores on metacognitive awareness and reading comprehension, at the level of significance of $P = 0.01$. Given the correlation coefficient of $-0.51$, this relationship is significant, suggesting that the higher the students’ level of metacognition, the lower their scores on reading comprehension.

The results for the second question “is there any significant difference between high and low proficient students with regard to metacognitive awareness?” including the descriptive and inferential statistics of metacognitive awareness of reading strategies questionnaire are shown in table 4.2 below.

Table 4.2. Descriptive Statistics Of The Metacognitive Awareness Of Reading Strategies Questionnaire

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficient</td>
<td>52</td>
<td>2.18</td>
<td>0.41</td>
</tr>
<tr>
<td>Less proficient</td>
<td>55</td>
<td>2.31</td>
<td>0.44</td>
</tr>
</tbody>
</table>

The results presented in Table 4.2 do not show any significant difference between the performance of the two groups (proficient group, $M = 2.18$ and less proficient group, $M = 2.31$) on the metacognitive awareness questionnaire, suggesting that there is not any significant difference between the two groups in terms of their performance on the questionnaire. However, in order to answer the second research question, and to check whether the observed difference between the means of the two groups was statistically significant, an Independent Sample T-test was run (Table 4.3).

Table 4.3. Independent Sample T-test For The Difference Between More Proficient And Less Proficient Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>t</th>
<th>Df</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive awareness of reading comprehension</td>
<td>-1.48</td>
<td>98</td>
<td>0.141</td>
</tr>
</tbody>
</table>

Table 4.3 shows that the difference between more proficient and less proficient groups was not statistically significant at the .05 level of significance ($p = 0.141 > .05$). This means that there is not any significant difference between the means of the two groups (DF=98, sig=0.14). Therefore, there is no difference between metacognitive awareness of more proficient and less proficient groups. In other words, it can be said that level of proficiency does not influence the metacognitive awareness. Thus, these two groups were not significantly different in terms of metacognitive awareness of reading strategies.
5. CONCLUSION

Quantitative research methods were employed to collect the data for this study. The results of the Reading Comprehension Test demonstrated that proficient groups (M=17.04, SD=3.47) did better than less proficient groups (M=7.08, SD=2.67). Therefore, those who are more proficient scored higher on the reading comprehension test than less proficient groups. But the results of the Metacognitive Awareness of Reading Strategy Questionnaire (MARSQ) did not show any difference between proficient (M=2.18, SD=.41) and less proficient groups (M=2.31, .044). This indicated that those who are more proficient are not more aware of Metacognitive strategies.

With regard to the first research question, the results of the Pearson Moment Product Correlation between reading comprehension and metacognitive awareness suggest that there is a negative significant correlation between participants’ scores on reading comprehension and metacognitive awareness (sig =0.00, r= -0.05, p=0.01), that is the higher the learners’ scores on metacognitive awareness, the lower the scores on reading comprehension. Also, this negative correlation between the metacognitive awareness and reading comprehension suggests that good readers may not be more metacognitively aware than poor readers and that the criterion for judging good readers and poor readers based on metacognitive awareness should be revisited. This does not support the findings of Barnett (1988, as cited in Alsamandi, 2009) and Carrell (1989) that there is a positive linear relationship between metacognitive awareness and reading comprehension. It also does not support the findings of the studies conducted by Wafa (2003) and Yang (2009), which showed that there is a positive relation between the use of metacognitive strategies and the achievement in English language. Therefore, the findings of this study imply that there seems to be no simple or linear relationship between the use of metacognitive awareness and reading comprehension.

However, the findings of this study are consistent with the findings of Anderson (1991), Carrell et al. (1998), Brantmeier (2000), and Madkhali (2005). In addition, Anderson (1991) found that no specific strategies were related to successful reading comprehension. His study also showed that no specific strategy, or groups of strategies, contributed more to students’ successful comprehension of the texts. Also, Brantmeier (2000) found no relationship between the types of strategies that second-language learners’ use and their level of reading comprehension.

With regard to the second research question, the results of the t-test show that there is no significant difference between the means of the two groups (M=2.18, M=2.31). It can be said that level of proficiency is not related to the metacognitive awareness. So the findings of this study are not in line with the reviewed studies which claimed that the level of the proficiency of the reader is related to the metacognitive awareness of reading significantly. That is, the more proficient the reader is, the better s/he uses metacognitive strategies. As mentioned in Chapter Two, different researchers like Barnett (1988, as cited in Alsamandi, 2009), Carrell et al. (1989), Fotovatian (1999) and Mehrpoor (2004) investigated the effects of metacognitive awareness and strategy use on reading comprehension. They found that as the reader becomes more proficient in English, s/he knows more metacognitive strategies and, thus, becomes more familiar with reading strategies like metacognitive reading awareness. In other words, better readers also have an enhanced metacognitive awareness of their own use of strategies that leads to greater reading ability and proficiency. Also, Berkowitz and Cicchelli (2004) found that differences in metacognitive strategy use were not statistically different between the more proficient and less proficient groups. The practical application of these strategies is varied from group to another and from one participant to another. Moreover, Anderson’s (1991) study seems to indicate that strategic reading is not only a matter of knowing how to use and apply strategies successfully. This may contribute to the relationship between proficiency levels and reading strategies used by readers. In other words, the use of metacognitive strategies does not guarantee a high level of comprehension because some other factors like readers’ first language (L1), literacy levels, L2 and background knowledge levels and the interaction of vocabulary knowledge, strategies, relationships between and among different cognate and non-cognate L1s and L2s should be considered as well (Bernhardt, 2005).
REFERENCES


Authors’ Bio

Forough Sadeghi is a Ph.D. Candidate in teaching English at Shiraz Azad University. She has been teaching English for about 4 years in Fakher Higher Education College and around 3 years in Zand Higher Education Institute. Her areas of interest are critical and dynamic evaluation, reading skills and metacognitive strategies.

Mostafa Zamanian was born in 1955. He received his Ph.D. degree in the University of UNM, Albuquerque, NM, United States of America in 1984. His major was teaching English. He has taught at Grambling State University in US and Paul Quinn College in the USA for about 20 years. He is currently a faculty member at Islamic Azad University of Shiraz, Iran. His main areas of interests are Psycholinguistics, Materials development, Motivation and Vocabulary. Dr. Mostafa Zamanian is now a program developer for M.A. and Ph.D. courses at the aforementioned University.