The Interaction between reading comprehension cognitive test-taking strategies, test performance, and cognitive language learning strategies

Narjes Ghafournia, Akbar Afghari

Abstract

The study investigated the significant interaction between reading comprehension cognitive test-taking strategies and the level of reading proficiency of Iranian MA students. A further concern of the study was to explore the significant interaction between cognitive test-taking strategies and reading strategies. To this end, 947 Iranian MA students participated in the study. They took a reading comprehension test and answered a cognitive strategy questionnaire. The findings showed that the participants at the high level of reading proficiency used cognitive test-taking strategies more significantly than the participants at the intermediate level did. Significant interaction was found between cognitive test-taking and reading strategies.

Keywords: linguistic competence; strategic competence; cognitive strategies; reading strategies; test-taking strategies.

1. Introduction

The development of cognitive psychology in 1970s encouraged many researchers to investigate systematically the underlying cognitive process of learning and test taking. Some cognitive psychologists stressed the importance of strategic investment in the process of learning and test taking (e.g. Bachman & Palmer, 1996, 2010; Brown, 2007; Oxford, 1990). Through using appropriate strategic patterns, language learners do not act as passive recipients of knowledge, but rather act as active self-reliant constructors of knowledge, able to self-direct, organize, and undertake the process of language learning and test taking. The significance of strategic investment in language use is so high that Bachman and Palmer (1996, 2010)
introduced strategic competence as the major component in their classical and recent conceptual models of language use. In both models, strategic competence acts as a mediating component, linking linguistic and non-linguistic components within language users as well as language use settings. Strategic competence regulates online cognitive process of using a language by regulating the use of cognitive strategies in different learning and test-taking settings. Thus, in their recent framework of language use, Bachman and Palmer stressed the importance of cognitive strategies interacting with strategic competence, attributes of language users, and characteristics of language use settings.

2. Review of Literature and Empirical Background

Bachman and Palmer (2010) defined cognitive strategies as “the mental processes directly related to information processing to obtain, store, retrieve, or use information in learning or assessment settings” (p. 56). The strategies enable language learners to link new and already known information to facilitate mental restructuring of information. The role of cognitive strategies in most language learning settings is in accord with Vygotsky’s (1978) tapestry approach, dealing with social interactional aspects of language learning. Following the approach, a language teacher initially assists learners to accomplish required tasks and then gradually lessens the assistance based on the learners’ development of cognitive strategic thinking process. In test-taking settings, cognitive strategies enable test takers to use their linguistic and world knowledge to solve given tasks. Good examples of cognitive strategies used for taking reading tests are making prediction, translating, summarizing, linking to prior knowledge or experience, applying grammatical rules, and guessing meaning from contexts (O’Malley & Chamot, 1990; Oxford, 1990). The strategies play major roles in test-taking settings enabling test takers to implement the proper strategic plans to take language tests effectively.

Some researchers have investigated the interaction between cognitive strategies and different psychosocial variables. Among different variables, investigating the interaction between language ability and cognitive thinking process has been of particular interest to some researchers (e.g. Yamashita, 2003). For example, in Yamashita’s study on the cognitive process of taking a gap-filling test of reading, the significant positive correlation between the participants’ reading ability and use of cognitive strategies was proved. Such studies provide useful insights into the strong interaction between linguistic and strategic competences enabling language users to accomplish communicative purposes effectively.

As reading comprehension in English is the major focus of foreign language instructional curriculums at universities in Iran, the present study is an attempt to investigate the interaction between cognitive test-taking strategies and reading comprehension test performance of Iranian MA students concerning their level of reading proficiency in English. The further concern of the study is to probe the significant interaction between cognitive test-taking and cognitive reading strategies. The findings have special significance because they help language teachers understand how linguistic and strategic competences interact in the process of test taking. In addition, because learning and test taking are interrelated cognitive processes, the findings provide language teachers with useful insights into the strategic patterns of learning and test taking.

Thus, the study seeks to find the answers to the following questions:

1. Is there any significant interaction between cognitive test-taking strategies and level of reading proficiency in English?
2. Is there any significant interaction between cognitive test-taking strategies and cognitive reading strategies?

3. Method

The section is dealt with the participants, instruments, procedures, and data analysis used in the study to probe the research questions.

3.1. Participants

947 Iranian MA students majoring in different fields of study participated in the study. The participants were studying at Islamic Azad University of Mashhad. Based on the standard deviation of their reading scores from the mean, the participants were classified under the three levels of reading proficiency. The participants whose scores were below -1 standard deviation were considered as low, between ± 1 standard deviation were considered as intermediate, and above +1 standard deviation from the mean were considered as high proficiency language learners.

3.2. Instruments

Two instruments were used in the study to collect data. They were a TOEFL test, and a cognitive strategy questionnaire.

3.2.1. TOEFL test

A standard general English proficiency test of TOEFL (Longman, 2005) was utilized in this study. The test was a paper-based version consisting of the four sections of Listening Comprehension, Structure and Written Expressions, Reading Comprehension, and Writing. Due to the need to assess the participants’ levels of reading proficiency, only the Reading Comprehension Section of the TOEFL test was used. The section included five reading comprehension passages followed by 50 multiple-choice test items. The standard time for taking the reading comprehension test was 55 minutes.

3.2.2. Cognitive strategy questionnaire

A cognitive strategy questionnaire organized on a 5-point Likert scale was used in the study. The participants had to read the questionnaire items and indicate the frequency of using each cognitive strategy through selecting one of the following adverbs of frequency:

a) never 1  b) seldom 2  c) sometimes 3  d) often 4  e) always 5

The questionnaire contained 30 statements contextualizing the use of cognitive strategies in reading and test-taking settings. The questionnaire was constructed from the fifth version of Oxford’s (1990) Strategy Inventory for Language Learning (SILL). Prior to administrating the questionnaire, some professors in TEFL reviewed it and gave some comments based on which some items were improved. The questionnaire was piloted using a sample of 30 MA participants majoring at different academic disciplines. The reliability estimate of the questionnaire using Cronbach alpha formula was $\alpha = .889$, which is very high. The allotted time to answer the questionnaire items was 15 minutes.
3.3. Procedures

The participants initially took the reading comprehension test then answered the cognitive strategy questionnaire. Prior to taking the test and completing the questionnaire, the participants were briefed on the structures of the test and the questionnaire as well as the way to answer them.

3.4. Data analysis

To probe the research questions, descriptive statistics, one-way ANOVA, Tukey HSD test, Pearson correlation, and regression analysis were calculated using the 16th version of SPSS software.

4. Results and discussion

To probe the first research question concerning the significant interaction between the participants’ level of reading proficiency and use of cognitive test-taking strategies, the descriptive statistics was calculated, the results of which are indicated in Table 1.

<table>
<thead>
<tr>
<th>Level of Reading Proficiency</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>158</td>
<td>3.3477</td>
<td>.50841</td>
<td>.04045</td>
</tr>
<tr>
<td>Intermediate</td>
<td>642</td>
<td>3.3456</td>
<td>.48979</td>
<td>.01933</td>
</tr>
<tr>
<td>High</td>
<td>147</td>
<td>3.4586</td>
<td>.46926</td>
<td>.03870</td>
</tr>
<tr>
<td>Total</td>
<td>947</td>
<td>3.3675</td>
<td>.49189</td>
<td>.01598</td>
</tr>
</tbody>
</table>

As indicated in Table 4.1, high proficiency students got the highest mean score \(M = 3.4846, SD = .46926\) whereas intermediate proficiency students got the lowest mean score \(M = 3.3456, SD = .48979\) in using cognitive test-taking strategies. To investigate significant differences among the mean scores of the three groups in using the strategies, one-way ANOVA was conducted, the results of which are demonstrated in Table 2.

<table>
<thead>
<tr>
<th>Cognitive Test-taking Strategies</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2.388</td>
<td>2</td>
<td>1.194</td>
<td>4.976</td>
<td>.007</td>
</tr>
<tr>
<td>Within Groups</td>
<td>226.506</td>
<td>944</td>
<td>.204</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>228.839</td>
<td>946</td>
<td></td>
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</tbody>
</table>

As indicated in Table 4.2, significant differences existed among the mean scores of the three groups in using the strategies, \(F(2, 944) = 4.976, p = .007\). To probe the second research question concerning the significant interaction between cognitive test-taking strategies and cognitive reading strategies, linear regression analysis was conducted, the results of which are indicated in Table 3.

<table>
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As indicated in Table 3, the standard regression coefficient between cognitive test-taking strategies and cognitive reading strategies was significant ($B = .549, p = .000$). The $t$ value ($t = 20.199$) was significant at $p = .000$, indicating a significant linear relationship between cognitive test-taking strategies and cognitive reading strategies. The findings indicate the significant interaction between the participants’ level of reading proficiency and use of cognitive test-taking strategies. In addition, the significant interaction found between cognitive test-taking strategies and cognitive reading strategies clarifies the interrelated nature of learning and test taking.

5. Conclusion

In any context of language use, strategic competence plays a mediating role, linking linguistic and non-linguistic variables. It also regulates the online cognitive process of language use by means of cognitive strategies. The significant role of strategic competence as well as cognitive strategies has been shown in Bachman and Palmer’s (2010) conceptual framework of language use, in which multiple complex interactions between linguistic and non-linguistic variables has been demonstrated. Thus, the study was an attempt to explore the interaction between cognitive strategies and reading ability of Iranian MA students in taking an English reading test. The findings indicate a positive significant interaction between the cognitive strategic components and the participants’ level of reading proficiency, suggesting language teachers for balanced teaching of strategic and linguistic aspects of language learning. The findings also indicate strong interaction between learning and test-taking strategic patterns of the participants due to the interrelated cognitive process of learning and test taking. Thus, the interchangeable use of the strategies should be thought to language learners.

References


