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THE RELATIONSHIP BETWEEN METACOGNITIVE AWARENESS AND TEST-TAKING STRATEGIES AND THEIR EFFECTS ON TEST PERFORMANCE OF IRANIAN EFL LEARNERS

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ABSTRACT
This study investigated the relationship between metacognitive awareness and test-taking strategies used by Iranian learners studying English as a foreign language (EFL). It also investigated the possible effects of participants' test-taking strategies and metacognitive awareness on their language test performance. 79 Iranian EFL learners studying English as a foreign language participated in this study. They were at intermediate level and included both male and female learners. All participants were asked to complete a metacognitive awareness inventory and a test-taking strategies questionnaire. The participants were divided into three groups (low, average, and high) based on test-taking strategy use score and the score of metacognitive awareness. The achievement of learners was investigated through their performance on final exam. Findings showed that a) learners' metacognitive awareness and test-taking strategy use significantly affected their test performance and their final achievement score; besides, b) there was a significant correlation between metacognitive awareness and test-taking strategy used by learners during their exam. The results of this study emphasized the importance of metacognitive awareness and test-taking strategy use in learning process and learners' performance. Learners can improve their performance by being metacognitively aware of their learning and using strategies in language tests.

KEYWORDS: Metacognitive awareness, Test-Taking Strategies, Test Performance.

INTRODUCTION
These days, tests are found to play a key role in decision making. Learners are frequently evaluated based on their performance under test-taking situations. Consequently, better performance has become a great concern for most of students; therefore, they try hard to improve their performance on tests (Zhang, Liu, Zhao, & Xie, 2011). Successful learners use some strategies while taking tests which help them in finding right answers and perform more efficiently. Teachers can help their students by teaching them test-taking strategies which they can employ under a test situation and motivate them to recognize the importance of these

strategies and how to benefit from them in order to achieve the desired outcome. However, knowledge of test-taking strategies is not enough; there are some factors that affect test-taking strategies. One of these factors is metacognitive awareness, being aware of what happens in one's mind or knowing about cognitive process. This awareness allows learners to have more control over their own learning process and test performance.

REVIEW OF LITERATURE

Test-Taking Strategies

Learning strategies are one of the most controversial issues which have attracted the attention of many researchers (e.g. Cohen & Upton, 2007; Oxford, 1990; Zhang et al., 2011; Purpura, 1999; Phakiti, 2003, 2006). Oxford (1990) has discussed learning strategies as in the following: "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, and more transferable to new situations" (p. 8). One of these learning strategies is test-taking strategy which enables learners to take advantage of the characteristics and the format of the test to improve their performance and increase scores in test-taking situations (Rogers & Harley, 1999). These strategies include reading instructions carefully, scheduling the allocated time appropriately, making use of clue words in questions, delaying answering difficult questions, reviewing the work in order to check the answers, etc (Pour-Mohammadi & Zainol Abidin, 2012).

Language learners are to some extent aware of test-taking strategies or process that they selected. Accordingly, language test-taking strategies are classified into three categories: language use strategies, test-management strategies and test-wiseness strategies (Cohen & Upton, 2007). Language use strategies refer to those actions that learners consciously take to increase the employment of a second or foreign language to complete language tasks. In most cases, examinees need to use four types of language use strategies (i.e., retrieval, rehearsal, cover, and communication strategies) in a testing situation so that they can store, retain, recall, and apply the information for use on the test (Pour-Mohammadi & Zainol Abidin, 2012, p.297). Test management strategies refer to those strategies for responding meaningfully to testing tasks (Xu & Wu, 2012). Test-wiseness strategies are "strategies for using knowledge of test formats and other peripheral information to answer test items without going through the expected linguistic and cognitive process" (Hirano, 2009, p. 158). For example, choosing the longest choice in a multiple choice test without knowing what it really means is one of these strategies. The difference between these three categories is that the basis of language competence decrease from first category (language use strategies) to the last one (test-wiseness strategies) (Xu & Wu, 2012).

Rezaee (2006, p.155) classified test-taking strategies into two types: "general and specific" strategies. General strategies refer to those strategies that can be applied to a wider variety of tests such as preparing for the test, reading the directions, use of time during a test, error avoidance strategies etc. While specific strategies refer to those strategies which are related to the exact area of the subject matter that is being tested and deal with taking various kinds of tests such as multiple-choice, matching, fill-in-the-blanks, essay, short answer, true-false, and problem solving. Pour-Mohammadi & Zainol Abidin (2011, p. 242) in a review of studies on test-taking

strategies in second/foreign language reading comprehension tests, indicated that generally most of the studies on test-taking strategies describe test-taking strategies instruction and this fact that the use of such strategies help learners improve their performance on language tests, particularly reading comprehension tests. This is true for most EFL students regardless of what learning context they are in. They also investigated whether teaching test-taking strategies to Iranian EFL learners would help them to enhance their reading comprehension test performance. They found that teaching test-taking strategies was effective.

The relationship between test-takers' cognitive and metacognitive strategy use and second language test performance was investigated by Purpura (1997). He used sophisticated statistical methods to investigate the relationships between test takers' reported strategy use and their performance on second language tests (SLTP). He found that "strategies' beneficial effects depend both on the type of task in which test takers deploy them and on the combination of other strategies with which test takers use them" (p. 315). A few years later, Phakiti (2006) investigated the relationship of these two strategies and EFL reading test performance. It was found that the degree of relationship between strategies varied depending on the function of cognitive processing (p. 86).

Metacognitive Awareness

Metacognition refers to "the ability to reflect upon, understand, and control one's learning" (Schraw & Dennison, 1994, p. 460). Flavell (1978) first coined this term and defined it as "cognition about cognition" or "thinking about thinking" (Flavell, 1979). Two categories were distinguished for metacognition, including knowledge of cognition and regulation of cognition (Flavell, 1979). He classified knowledge of cognition into three categories: person, task, and strategy knowledge. Person refers to general knowledge one has about human beings' cognitive capabilities. Task is the knowledge about the nature of the task and finally strategy indicates the knowledge about strategies that may be useful for different tasks and in different situations. However, some other researchers such as Schraw (1994) have differently categorized components of metacognition. Accordingly, three types of knowledge are proposed: declarative knowledge or the knowledge about self and about strategies; procedural knowledge which is the knowledge about how to use strategies and conditional knowledge which relates to knowledge of when and why to use strategies. Regulation of cognition includes a set of sub-processes that regulate and facilitate the control of aspects of learning (Schraw & Dennison, 1994). The skills of this component are planning, monitoring and evaluation (Schraw, 1998). Planning includes goal setting and choosing the appropriate strategies before involving in learning. Monitoring is consideration of learning, task performance and the use of strategy while engaging in an activity. Evaluation is assessment of learning outcomes and strategies to examine whether the goals have been achieved (Schraw, 1998).

Recent studies demonstrated that learners who are aware of their metacognition and are metacognitively aware perform better than unaware learners (Garner & Alexander, 1989; Pressley & Ghatala, 1990, as cited in Schraw & Dennison, 1994). This is because metacognitive awareness allows learners to plan, sequence, and regulate their learning in a way that improve performance (Schraw, 1994).

Many recent studies indicate that metacognitive awareness is necessary due to the fast speed of change and innovation in knowledge (Cihanoglu, 2012). There are many studies focusing metacognition. Yüksel and Yüksel (2012) investigated metacognitive awareness of academic reading strategies of students in Turkey. The results indicated that their participants were often aware of academic reading strategies. Memnun and Akkaya (2009) designed a study to determine the level of metacognitive awareness of primary teacher trainees and examined whether there was a difference according to class levels and gender. They reported that the majority of teacher trainees had a high level of metacognitive awareness. In addition, there was no significant difference among candidate teachers' metacognition awareness regarding gender, but the difference among candidate teachers' metacognitive awareness according to class level was significant. Temur, Kargn, Bayar, and Bayar (2010), in their research investigated the effect of age and language skill levels on metacognitive awareness in the field of reading. The subjects were in 6th, 7th, and 8th grades. The result of the study revealed that there was a positive correlation between grade level and metacognitive awareness in reading, but the difference was not statistically significant. Young and Fry (2008) examined the relationship between metacognitive awareness and academic achievement among college students. Correlations were found between the metacognitive awareness and cumulative GPA as well as end of course grades. Graduate and undergraduate students performed differently according to their metacognitive awareness. A study was also conducted by Yanyan (2010) who investigated the role of metacognitive awareness in English writing of Chinese EFL learners. The researcher used a self-designed questionnaire of metacognitive awareness. The results indicated that the learners' metacognitive knowledge was not strong, metacognitive knowledge and its three components, i.e., person knowledge, task knowledge and strategic knowledge, were all positively correlated with English writing performance. The results demonstrated that a good command of metacognitive knowledge can empower EFL learners in their English writing and cultivate their learning autonomy in English learning.

RESEARCH QUESTIONS

The present study attempted to investigate the use of English test-taking strategies and the effect of learners' metacognitive awareness on these strategies. To achieve this purpose, the following research questions were formulated:

1. Does Iranian EFL learners' metacognitive awareness affect their end of course achievements?
2. Do test-taking strategies used by Iranian EFL learners in English final exam affect their end of course achievements?
3. Is there any significant relationship between test-taking strategies used by Iranian EFL learners in English final exam and their metacognitive awareness?

METHODOLOGY

Participants

The participants in this study were 79 learners studying English as a foreign language in two language institutes in Mashhad, Iran. They were at intermediate level and included both male and female learners. The number of the female participants amounted to 50 (36.7%), whereas that of the male participants corresponded to 29 (63.3%). During the semester, they have tried to improve their English knowledge such as grammar, vocabulary and their four skills of language learning including speaking, listening, reading, and writing. These learners studied English at schools at least for five years and attended English classes at language institutes at least for 8 semesters. To have the permission of continuing study in the present semester, all the participants have successfully passed the achievement test of the last semester which assessed the materials they have learnt throughout the term. Furthermore, all the participants have successfully passed the placement tests designed and carried out by the institutes in order to be able to study at this level. Four skills of language learning including speaking, listening, reading, and writing were tested through placement tests. First, learners took an English test examining their knowledge of grammar, vocabulary and their ability in dealing with reading passages and listening parts. After completing language tests, they were asked to write a short text about titles introduced by institutes' supervisors. At the end, in order to check the participants' speaking ability, they were interviewed one by one. Through interview section, both accuracy and fluency in speaking were considered. Those learners who successfully pass these stages and gain the acceptable level could attend the classes. In these language institutes, the focus of teaching was mostly on improving learners' speaking ability and there was no instruction for learners about test-taking strategies and how to take English test and take over problems during the test.

Instruments

Two instruments were used to gather the relevant data for this study. They included Likert rating-scale questionnaires and final achievement test.

Metacognitive Awareness Inventory

The metacognitive awareness inventory used in this study was the one developed by Schraw and Dennison (1994). This inventory consisted of 52 multiple choice items. All items were written using 5-Likert-type scale, ranging from "Strongly agree" to "Strongly disagree". The items investigated two categories of metacognition; knowledge of cognition and regulation of cognition with their subcomponents: declarative knowledge; procedural knowledge; conditional knowledge; planning; information management strategies; monitoring; debugging strategies; and evaluation. The Cronbach's alpha reliability coefficient reported by Schraw and Dennison was 0.88. In order to check the efficiency of this inventory for EFL context and its appropriateness for the context of this study, the internal consistency reliability was calculated. The Cronbach's alpha reliability coefficient in the present study was .92 which was quite strong (Dörnyei, 2007; DeVellis, 2003; Nunnally, 1978 as cited in Pallant, 2010).

Test-Taking Strategy Use Questionnaire

To measure participants' test-taking strategies, a 5-point Likert rating-scale questionnaire: 1 (Never) to 5 (Always) adopted from Rezaei (2006) was used. This inventory included 22 multiple choice items with the Cronbach's alpha reliability coefficient of 0.76. In the current study, the Chronbach alpha coefficient was .72 which is acceptable according to Dörnyei (2007 p.207).

Strategies checked by this questionnaire can be put into four categories: a) items which bear on strategies generally used in taking a test, b) items which are related to specific strategies which are usually employed in taking reading comprehension tests, c) items which show strategies which subjects use in grammar tests, and d) items concerned with taking vocabulary tests.

Final Achievement Test

The achievement of learners was investigated through their performance on final exam of that semester. The test consisted of four parts. Grammar and vocabulary parts examined learners' knowledge of vocabulary and grammar points which they acquired during the term. This test was designed by doing all the necessary steps of test development process. It was administered to many learners in order to be considered as a proper instrument for assessing learners' English knowledge. It also tested learners' listening ability and their ability in dealing with general reading passages. The scores were used as a criterion for their achievement and effectiveness of test-taking strategies they employed to complete the test.

Procedure

Data Collection

In order to find the level of learners' metacognitive awareness, all the participants were asked to complete the related questionnaires three weeks before the exam. The last session of the term was the final exam day. Students were to answer exam questions which need them to remember what they have learnt during the whole term and use their listening and reading skills. The questionnaire that seeks to identify the subjects' test-taking strategies was conducted immediately after the final exam in order to prevent forgetfulness. The scores of final English test were considered as a criterion for investigating learners' performance.

Data Analysis

Data collected from the two questionnaires were analyzed using the Statistical Package for Social Science (SPSS), 19th version. Data analysis procedures for this phase of the study included calculating descriptive statistics, such as means and standard deviations for the whole sample. In order to investigate any relationship between test-taking strategies and metacognitive awareness, a Pearson product moment correlation was conducted. The possible effect of test-taking strategies on EFL learners' test performance was investigated by conducting a one-way analysis of variance. Another one-way ANOVA was conducted to examine the effect of metacognitive awareness on learners' test performance. In order to check the learners' achievement their scores of final exam were examined and used to find the above mentioned analyses.

RESULTS AND DISCUSSION

Descriptive statistics including mean, standard deviation, minimum, and maximum were measured for test-taking strategy scale and metacognitive awareness inventory. Descriptive statistics are shown in Table 1. The metacognitive awareness inventory included 52 items with choices for each item ranged from 1(strongly disagree) to 5 (strongly agree). The highest possible score for this inventory was 260. In this study the learners' metacognitive awareness ranged from 145 to 249. As can be inferred, there was no learner with perfect metacognitive awareness. Also,

the mean score obtained for total metacognitive awareness was 197.44 which was more than 75% of the full score for this scale (260).

The test-taking strategy scale was a 5-point Likert rating-scale questionnaire included 22 items. The responses for each statements of this scale ranged from1 (Never) to 5 (Always). Considering 22 items on a five point scale, full score for this scale is 110. As can be seen in Table 1, the learners' using test-taking strategies during the exam ranged from 52 to 102 with the mean score of 79.55 which is somewhat more than 72% of the full score for this scale (110).

Table 1: Descriptive Statistics for Test-Taking Strategy Scale and Metacognitive Awareness Inventory

	Min	Max	M	SD
Total MA	145	249	197.44	24.79
Total TTS	52	102	79.55	10.19
Scores	50	98	77.89	13.03

Note. MA= metacognitive awareness; TTS= test-taking strategy.

To facilitate hypothesis testing, participants were grouped into three categories based on their metacognitive awareness and their level of strategy use. The cutoff points were made using equal percentiles. In categorization based on metacognitive awareness, those learners scoring 187 or less comprised the low metacognitive group (n=28); those scoring between 188and 208comprised the average group (n=27); those scoring 209 or more comprised the high group (n=24). Three test-taking strategy groups included low group comprising learners scoring 76 or less (n=28); average group including those individuals scoring from 77 and 85 (n=29); and those scoring 86 or more comprised the high group (n=22).

In order to answer the first and second research questions and to see whether learners' test-taking strategy employment through the test affect their final exam achievement, a one-way between-groups analysis of variance (ANOVA) was conducted. The ANOVA results (see Table 2) showed that there was a statistically significant difference at the $p < .05$ level for the three groups (low, average, and high) of test-taking strategy use: F (2, 76) = 125.18, p = .01. The effect size, calculated using eta squared, was .7 which indicates that the difference in mean scores between the groups was quite large. Post-hoc comparisons using the Tukey HSD test showed that the mean score for learners with high test-taking strategy use (M = 93.37, SD = 3.57) was significantly different from learners with average test taking strategy use (M = 78.87, SD = 8.96) and those with low strategy use (M = 64.71, SD = 4.62). Average strategy use group was also statistically different from low strategy users.

Table 2: One-Way ANOVA Test-Taking Strategy

	df	SS	MS	F	*p*
Between Groups	2	10167.537	5083.768	125.188	.01
Within Groups	76	3086.295	40.609		
Total	78	13253.832			

Note. df= degree of freedom; SS= sum of squares; MS= mean squares.
* $p < .05$.

Another one-way ANOVA was conducted to compare the three groups (high, average, and low) of metacognitive awareness in order to identify any dissimilation in test performance between

groups. The ANOVA results (see Table 3) showed that there was a statistically significant difference at the $p < .05$ level for the three groups (low, average, and high) of metacognitive awareness: F (2, 76) = 234.85, p = .00. The effect size, calculated using eta squared, was .8 which indicates that the difference in mean scores between the groups was quite large. Post-hoc comparisons using the Tukey HSD test showed that the mean score for learners with high metacognitive awareness (M = 94.28, SD = 2.44) was significantly different from learners with average metacognitive awareness (M = 77.11, SD = 6.72) and those with low metacognitive awareness (M = 64.60, SD = 4.44). Average metacognitive awareness group was also statistically different from low metacognitively aware learners.

Table 3: One-Way ANOVA Metacognitive Awareness

	df	SS	MS	F	*p*
Between Groups	2	11407.969	5703.985	234.851	.00
Within Groups	76	1845.863	24.288		
Total	78	13253.832			

Note. df= degree of freedom; SS= sum of squares; MS= mean squares.
* $p < .05$.

These findings were in line with Young and Fry's (2008) study which examined the relationship between metacognitive awareness and academic achievement in college students. There were correlations between the metacognitive awareness and cumulative GPA as well as end of course grades. Schraw (1994) also stated that learners who are aware of their metacognition and are metacognitively aware perform better than unaware learners. He recognized high metacognitive awareness as an indicator of better performance since it allows learners to plan, sequence, and regulate their learning in a way that improve performance. The results of the present study also confirmed that the group differences in metacognitive awareness affect the learners' test performance. Learners with high metacognitivey awareness perform statistically better than average and low groups. In a study conducted by Yanyan (2010), the role of metacognitive awareness in English writing of Chinese EFL learners was investigated. It was found that although the learners' metacognitive knowledge was not strong, metacognitive knowledge and its three components, i.e., person knowledge, task knowledge and strategic knowledge, were all positively correlated with English writing performance. The results demonstrated that high level of metacognitive knowledge can empower EFL learners in their English writing and help them improve their learning autonomy in English learning. In this study, learners having high metacognitive awareness and think about their learning, the process of learning and what happens in their mind differ significantly from low and average groups with regards to their achievement scores. It means that they might be able to make a connection between what happens in their mind and what they know about their learning, and their real performance in test situation and on test papers. It seems that they were able to transfer their awareness to the world out of their mind. Moreover, test situation and its characteristics could affect learners' mind and help them to think more effectively about what they know and focus on test. In addition, learners' proficiency in controlling their thoughts and using them toward reaching the desired goals was another thing which could affect their performance and using their metacognitive awareness in a given situation. They might know how to use this awareness for their own benefit.

The result of the effect of test-taking strategies used by test-takers on achievement scores in this study was in line with previous studies. Purpura (1997) investigated the relationships between test-takers' cognitive and metacognitive strategy use and second language test performance. He found that both metacognitive and cognitive strategies directly affect the language performance. Phakiti's (2003b) study confirmed Purpurs's findings. He found that cognitive and metacognitive strategies positively correlated with the reading test performance. He reported that highly successful learners significantly used higher metacognitive strategies and approached the test task more strategically. However, finding of the study conducted by Song (2004) was not in line with the results of the present study. Song found that these two strategies accounted for 8.6% of the test score and the effects of strategy use on language performance was weak (Song, 2005, as cited in Phakiti, 2006).

In the current study, learners with high level of test-taking strategy use differ significantly from low and average groups with regard to their final achievement scores. It means that those who used more test-taking strategies through the test gained a better score and had a better performance. It seems that test-taking strategy use affected the learners' test performance. This finding might be due to the effectiveness of test-taking strategies learners employed under the given test. Strategies which learners used to deal with questions and overcome problems might be effective enough to find the right answers and increase their scores. This could be because of employing right strategies for given questions. The learners migh know what test-taking strategies are; how to use them in test situation; where a given strategy is employed and whether it is effective in that situation. Furthermore, a strategy might be used consciously in tests and the test-taker might be aware of using that specific strategy. Cohen (2012) emphasized that the selection is a necessary element in the notion of strategy; otherwise, the process would not be considered strategy (Cohen & Upton, 2007).

Question number three investigated any relationship between participants' metacognitive awareness and their test-taking strategy use. To answer this question, the Pearson product moment formula was used and the correlation between estimated metacognitive awareness and test-taking strategy was computed. This correlation reached the statistical significance (r= .82. p<.01).

Table 4: The Correlation between Test-Takers' Test Performance and Their Metacognitive Awareness

Variables	*Metacognitive Awareness*
Test Performance	.82**

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

It means that learners tended to be aware of strategies they used during the test. They think about the processes happening in their mind while selecting and employing strategies. This result was also found by Yüksel and Yüksel (2012) who investigated metacognitive awareness of academic reading strategies of students. They found that participants usually used reading strategies which they were aware of. It means they used their metacognitive awareness to select a strategy and thought about which strategy is helpful for the given questions. They might think about different strategies for questions and select the best ones to find the answer for those questions. It means

that learners with higher level of metacognitive awareness tended to use more test-taking strategy through the test in order to handle the questions and find answers.

CONCLUSION

This study began with the idea of examining the relationship between metacognitive awareness, test-taking strategy use and General English achievement of male and female students learning English as a foreign language. The results of this study indicated that test-taking strategy use and metacognitive awareness of Iranian EFL learners affected their test performance and final achievement scores. There were significant differences between low, average and high groups in their effects on test performance. A significant correlation was found between learners' metacognitive awareness and their test-taking strategy use. The results of this study can help learners to improve their performance in language tests and make them aware of how metacognitive awareness works and how it can help them in learning a foreign language. Moreover, it seems necessary to make learners aware of test-taking strategy and how to employ them. It might be better for learners to think deeper about their process of learning and what they know about their learning. The participants for this study were at intermediate level. Therefore, the results of the study could not be generalized for learners with different levels of language proficiency. It might be useful to conduct a study that includes different proficiency level to check whether this factor play a role in variables used in this study. In addition, test-taking strategy use related data were gathered through questionnaires. In order to consider the quality of strategies used by test-takers and assessing their effectiveness, it will be useful to use other method of data collection such as self-report, self observation, and think aloud.

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