

THE RELATIONSHIP BETWEEN COGNITIVE AND METACOGNITIVE STRATEGY USE AND EFL WRITING TEST PERFORMANCE

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Abstract

This paper tried to investigate the relationship between cognitive and metacognitive strategy use and EFL writing test performance. For the purpose of this study, 40 EFL students were chosen. First, those participants whose scores were 1 standard deviation above and 1 standard deviation below the mean were chosen, and then they were divided into three groups. Cognitive and metacognitive questionnaire and a final writing test were used as the instrumentations of this study. Analyses of the data revealed that there was a difference between the cognitive and metacognitive strategy. Correlation with cognitive strategies and writing test was 0.53 and insignificant, while correlation with the metacognitive strategy and writing test was 0.60. Showing significant relationships, the findings of the present study can entail some implications in promoting the meta-cognitive strategies by teachers to have better improvement in writing skill.

Key Words: Cognitive strategies, Meta-cognitive strategies, Writing, Writing achievement.

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1 Introduction

English is defined as an international language, used by more than one and a half billion people as a first, second, or foreign language for communication purposes (Kasper, 1993). In the past, the goal of learning English was the mastery of the structure of the language. Nowadays, English seems to be playing a main role in all around the world for people in communicating with each other, and the purpose of teaching the language has moved from the mastery of structure to the ability to utilize the language for communicative purposes such as writing. However; it is exceptional to find people who tend to avoid entering L2 communication situations even if they have a high level of communicative competence. This implies that there is a further layer of mediating factors between having the competence to communicate and putting this competence into practice.

2 Writing and its Types

Nowadays among language skills, the ability to write has become an important skill in our literate world since everything needs to be conveyed by writing. But, there are plenty of aspects for carrying out any sort of writing, which is dependent on the context. As a starting point, according to Brown (2004), the genres of written language are academic, job-related, and personal writing. To illustrate, academic writing is characterised by essays, reports, theses, and so forth; job-related writing has to be with memos, announcements, letters, and so on. Personal writing is all about emails, shopping lists, personal journals, and so forth. As it can be seen, writing, regardless of its genres, is a crucial media for human beings in all contexts.

Brown (2004) categorized writing performance into four types including: imitative, intensive, responsive and extensive. Issues in assessing responsive writing, as he noted, require learners to perform a limited discourse level, connecting sentences into a paragraph and creating them logically. The issues are *authenticity* where face and content validity need to be assured; *scoring* that takes an important place for a washback; and *time* which implies the freedom to process multiple drafts before the text becomes an end product. Consequently, the assessment tasks that Brown proposes for this performance are paraphrasing, guided questions and answer, and paragraph construction tasks that include topic sentence, main and supporting ideas, and so on.

As another variable of this paper, writing is defined as the productive skill in the written mode (Heaton, 1988). It seems that most of us have some difficulty in getting our thoughts down on paper since writing is a complex task; also the difficulty increases if English is not the first language of the writer (Widdowson, 1983). Mastery of writing skill is the same as having power that let you have control “not only of information but of people” (Tribble, 1996, p.13). So, writing is a sophisticated cognitive task; it is an activity that requires “thought, discipline, and concentration.” (White, 1987, p.266). Writing is not just a simple “direct production of what the brain knows or can do at a particular moment” (Smith, 1989, p.33).

3 Cognitive and Metacognitive Strategy

Bachman and Palmer (1996) presented language ability model; cognitive and meta-cognitive strategy. While a learner is using the language, strategic competence and the knowledge of the language and text context must interact with each other. Furthermore, they consider meta-cognitive strategies and strategic competence to have some overlaps but the difference is that the latter is a mediator between internal knowledge, situational and external context in language use. There are some criticisms regarding what is said till here. McNamara (1996) believes that the model presented by Bachman and Palmer (1996) does not have empirical research basis. A few researchers examined this issue empirically (Purpura, 1997, 1998).

Meta-cognitive knowledge (Meta-cognition) is mental process of the knowledge in course of learning. There are two aspects in relation to this issue: self-directed thinking and cognition knowledge. The former is governed by planning, evaluation and regulation activities (Glenberg, 2005). Meta-cognition is engaged with monitoring cognitive processes to gain cognitive goals. It is a planned, future-oriented and intentional mental process that is used in accomplishing cognitive tasks (Flavell, 1971). Meta-cognitive knowledge helps learners to choose learning strategies that help them which approaches are easier for them in course of learning (Hsiao & Oxford, 2002).

Metacognition helps learners to enhance learning. Also, they should be aware of their learning tendencies. Successful learners are meta-cognitively involved in teaching and learning while poor learners aren't. This paper involves two strategies in meta-cognitive strategies, i.e. planning

and monitoring strategies. Planning strategies are learners' previewing or overviewing the tasks to accomplish them (Grobe, 1991). Monitoring strategies are deliberately done by learners to check, monitor and evaluate their performance to finish the task successfully. The difference between these two terms, cognitive and metacognitive strategies, is the learners' ongoing mental activities and using their own knowledge to do the tasks. Translating, summarizing and guessing the meaning from the contexts are regarded as examples of cognitive strategies (Oxford, 1990).

Tribble (1996) believes that writers need various types of knowledge to create effective text. Content knowledge that is the knowledge of ideas and topics of the subject area, context knowledge, the knowledge of the context and audience to whom the text is addressed, language system knowledge, the knowledge of the macro and micro elements to accomplish the text, and writing process knowledge which is the knowledge of how to prepare and produce the text. The macro elements include knowledge about genres. According to Weigle (2002), genre is "the expected form and communicative function of the written product; for example, a letter, an essay, a laboratory report" (p.63). The micro elements include knowledge of grammar, lexis, and mechanism. Moreover, the knowledge of writing process assumes different processes such as planning, organizing, text production, reviewing, reading, editing and so on that writers go through while writing.

Academic writing is not about knowledge of grammar, vocabulary, and mechanism (Weigle 2002, Tribble 1996, Hyland 2003). Knapp and Watkins (as cited in Hyland, 2003) argue that "grammar is a name for the source available to user of a language system for producing text" (p.8). According to their claim, grammar is only one resource in the activity of producing a text. But we can see that experienced writers improve all their language knowledge in producing a well formed text, and grammar is only one source to raise this conscious manipulation; particularly in the drafting and revision stage, where the writer mind focuses only to correct errors to get the content right.

According to Tribble (1996), it can then be said that although writing as a major skill in teaching and learning any language is easy, at the same time it is not an easy thing to do. Particularly at the present time when students don't have long attention spans and are more and more "digital"

and visual learners. However, it is a necessary skill that presents any student a world of possibilities. Writing allows controlled, deliberate and powerful communication. So we have to get learners' writing better and better.

Based on what is mentioned so far, the present study tried to examine the following research questions:

Q1. Is there any relationship between writing test performance and meta-cognitive strategies?

Q2. Is there any relationship between writing test performance and cognitive strategies?

Q3. Does the use of cognitive and meta-cognitive strategies predict EFL learners' performance on writing test?

4 Methodology

The participants of this study were chosen from Islamic Azad University, South Tehran Branch majoring in English Translation in the year 1394. There were 40 students, both male and female students. Their final score was used in order to categorize them into three groups; unsuccessful students, moderately successful and highly successful. The criterion for this classification is as follows:

- a) The students whose scores are below 15 are regarded as unsuccessful students.
- b) The students whose scores are between 15 and 18 are regarded as moderately successful students.
- c) The students whose scores are 18 and above that are regarded as highly successful students.

Two main instrumentations were used in this study. Cognitive and meta-cognitive questionnaire and a writing test. The Purpura's (1999) Cognitive and Metacognitive Strategy Questionnaire was used as a tool for measuring cognitive and meta-cognitive strategies of the students. The questionnaire used a 5-point Likert scale: 1(Never), 2(Sometimes), 3(Often), 4 (Usually) and 5 (Always). A final writing test at the end of the semester was used for the purpose of this study.

5 Results

In order to come up with the answer to the research question, Pearson correlation between meta-cognitive strategies and writing test is 0.53 and it is significant at the 0.05 level. Concerning the

relationship between cognitive and writing test, statistics revealed that the correlation is 0.60 and as a result it is insignificant (Table 1).

Table 1 Pearson Correlations between Cognitive Strategies and Metacognitive Strategies and Writing Test

		Meta cognitive	Cognitive	Writing Test
Cognitive	Pearson	.48**		.53
	correlation Sig. (.01		.00
	2- tailed)	40		40
	N			
Metacognitive	Pearson	.48**		.60
	correlation Sig. (.01		.00
	2- tailed)	40		40
	N			
Writing Test	Pearson	.60	.53	
	correlation	.00	.00	
		40	40	
	Sig. (2- tailed)			
N				

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

* . Correlation is significant at the 0.05 level (2-tailed).

The distribution of the meta-cognitive and cognitive strategy is shown in Table 2. The mean for cognitive and metacognitive strategy equalled 39.23 and 84.23, respectively. Standard deviation for the cognitive variable is 8.27 and for the meta-cognitive variable is 13.29. As the statistics show, the mean difference between the two strategies is large enough. Metacognitive strategies are used more than the cognitive ones by the students.

Table 2 Descriptive Statistics of the Cognitive and Metacognitive Strategy Use

Variables	Mean	SD	Skewness	Kurtosi	Median	Mode
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	s					
Cognitive Strategies	39.23	8.27	.50	.38	39.50	43.00
Meta cognitive Strategies	84.23	13.29	-.20	.43	84.50	84.00

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.86 ^a	.75	.74	2.79

a.Predictors: (Constant), cognitive, meta-cognitive

The table above shows the correlation (R) between the variables and it equaled 0.86 and R Square equaled 0.75.

Table 4 ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3049.08	2	1524.54	195.41	.00 ^a
	Residual	1006.43	129	7.80		
	Total	4055.51	131			

a.Predictors: (Constant,cognitive, metacognitive)

b.Dependent Variable: writing test

As the table shows F equalled 195.41 and the level of significance is 0.00 which is less than 0.05, so we conclude that the regression is significant.

Table 5 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	5.98	1.03			5.79	.00
	cognitive	.07	.01	.39		7.16	.00
	metacognitive	.11	.01	.56		10.13	.00

a. Dependent Variable: writing test

Regression coefficients of cognitive and metacognitive variables equalled 0.07 and 0.11 respectively and the level of significance is 0.00 which is less than 0.05. As a result, independent variables correlate significantly with writing test.

$$Y=5.98+0.07x_1+0.11x_2$$

6Discussions and Conclusion

Putting aside the limitations to the present study, cognitive and metacognitive strategies in relation to writing test can be discussed with more caution. Cognitive and metacognitive strategies are considered as two interactive factors of the mental process that do not perform independently of each other. Cognitive strategies from metacognitive strategies are difficult to be distinguished from each other (Brown et al., 1983; Wilson, 2000). As Purpura points (1999), “cognitive strategy use seems to function in concert with metacognitive strategy use, which functions in an executive capacity” (p.127). Test-takers may use cognitive strategy to a great extent, but they do nothing to monitor its use. Actually, the reason that it is impossible to identify the difference between cognitive and metacognitive strategies is due to its absence across individuals, even though the difference exists within individuals based on the given tasks.

Evidence from this study implies that metacognitive strategies and cognitive strategies are regarded multidimensional in their own nature. However, it is quite obvious that metacognitive strategies defining the nature of “strategic competence” are misleading theoretically. As a result, this limits only our understanding of the strategic competence to metacognitive strategies.

Review of the related literature in the field of metacognition and writing tests suggests that metacognitive strategies are considered as part of metacognition. It is required to make a distinction between strategies and strategic competence since the use of these strategies can yield valid or invalid performance and some strategies are not regarded within strategic competence such as innovative and creative behavior.

Furthermore, adequate number of the items in the questionnaire positively helps validity of the data since participants answer them correctly and with more patience rather than long list of questions in a questionnaire. If they were asked to answer a longer list of questions, they wouldn't read the question completely and data would remain incomplete.

As the analysis of the data showed, it is obvious that the meta-cognitive strategies were used by the students much more than the cognitive strategies. The difference in the use of these two strategies accounts for language test performance's variation. Also, success plays an important role using the meta-cognitive strategies based on the results of the statistics. The same study can be done again to see any consistency in the use of the two strategies and even to examine them in other languages other than English. Based on the obtained results of the present study, other areas such as relationship of meta-cognitive and cognitive strategies in second language testing can be investigated. The study can be replicated with students with other majors and with one gender, not a mixture of both. The researchers can make inferences on actual writing ability of the students measured. They can also make decision to see whether meta-cognitive strategies can be regarded as a source of measurement error (Messick, 1996).

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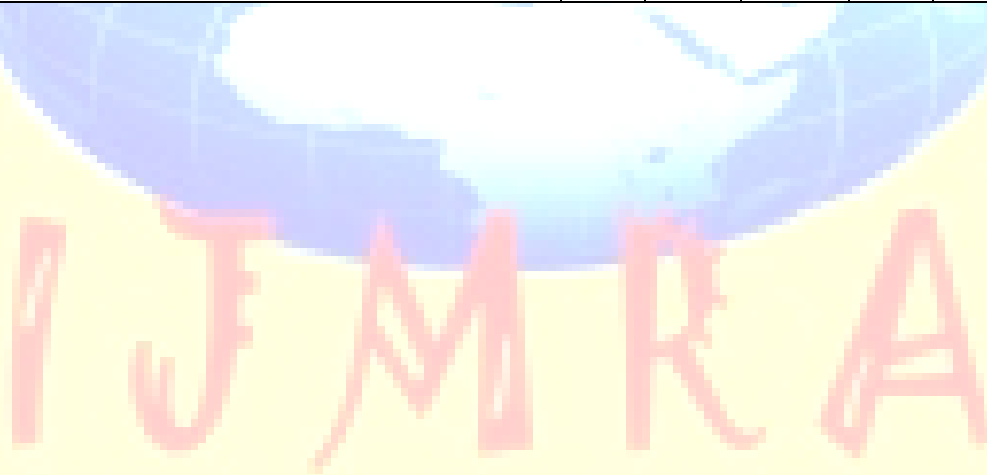
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	Your thinking	1	2	3	4	5
1.	I made short notes or underlined main ideas during the test.					
2.	I translated the reading texts and tasks into Thai.					
3.	I used pictures or titles of the texts to help comprehend reading tasks.					
4.	I used my own English structure knowledge to comprehend the text.					
5.	I spent more time on difficult questions.					
6.	I tried to understand the texts and questions regardless of my vocabulary knowledge.					
7.	I tried to find topics and main ideas by scanning and skimming.					
8.	I read the texts and questions several times to better understand them.					
9.	I used my prior knowledge to help understand the reading test.					
10.	I tried to identify easy and difficult test tasks.					
11.	When I started to complete the test, I planned how to complete it and followed					

	the plan.					
12.	I was aware of what and how I was doing in the test.					
13.	I checked my own performance and progress while completing the test.					
14.	I attempted to identify main points of the given reading texts and tasks.					

15.	I thought through the meaning of the test tasks/ questions before answering them.					
16.	I was aware of which strategy to use and how and when to use it.					
17.	I corrected mistakes immediately when found.					
18.	I asked myself how the test questions and the given texts related to what I already knew.					
19.	I determined what the test tasks/ questions required me to do.					
20.	I was aware of the need to plan a course of action.					
21.	I was aware of how much the test remained to be completed.					
22.	I tried to understand the questions adequately before attempting to find the answers.					
23.	I made sure I understood what had to be done and how to do it.					
24.	I was aware of my ongoing reading and test					

	taking.					
25.	I kept track of my own progress to complete the questions on time.					
26.	I used multiple thinking strategies to help answer the test questions.					
27.	I made sure to clarify the goal and know how to complete it.					
28.	I checked my accuracy as I progressed through the test.					
29.	I selected relevant information to help me understand the reading texts and answer the test questions.					
30.	I carefully checked the answers before submitting the test.					



Appendix A

The Cognitive and Metacognitive Strategy Questionnaire

Name-Surname: _____ Student ID: _____

Today's date: _____ Gender: [] male [] female Age: _____

No. of year learning English: English Entrance Test Score: _

Directions: A number of statements which people use to describe themselves when they were taking a reading test are given below. Read each statement and indicate how you thought during the test. Choose **1** (Never), **2** (Sometimes), **3** (Often), **4** (Usually), and **5** (Always).

