Test-taking Strategies, Schema Theory and Reading Comprehension Test Performance

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Abstract

Reading, as the most important academic language skill, receives the special focus in second/foreign language teaching. In addition, tests are regularly applied to evaluate academic performance. This paper reviews studies on test-taking strategies in second/foreign language reading comprehension tests. First, it depicts the beginnings of test taker strategy research and then discusses its development. It also argues the significant role of schemata in reading comprehension. Furthermore, it focuses on the effects of the language of reading passages, item types, and the testing method on the respondents' test-taking strategies and respondents' test performance, noting the significance of the findings for the field of construct validation of tests.

Keywords: Test-taking Strategies, Schema Theory, Reading Comprehension, Test Performance, EFL Learners

1. Introduction

Reading as an active, receptive, and decoding language skill is the main source of meaningful input in the process of learning a foreign language. Besides, according to Kim and Anderson (2011, p. 30), "reading is essential for successfully completing all college-level courses. In other words, college students who are more proficient readers are most likely to experience more success in their courses". Meantime, tests are the most common evaluating method in nearly all educational systems and academic institutions worldwide. Generally, tests carry the most load of the student's total grade particularly at the college level. The significance and uses of tests have extended beyond schools as many serious decisions that affect people's lives are made entirely according to specific tests. Whether the goal is college admission, certification, detection of specific behavior, or personal selection, a decision about an individual's ability is usually made based on his or her scores in specific tests. Hence, the significance of research on test-taking strategies as a way of helping students do well in their tests seems undeniable. A primary step to attain this goal could be studying test-related factors. This is because in tests, ability is not the only factor that affects students' performance. There are several cognitive and psychological factors which affect performances in tests (Hambleton et al., 1991). One important test-related factor is test-taking strategies, also known as testwiseness. This factor has its own effect on performance in tests and leads in another advantage which is improving test validity (Dodeen, 2009).

2. Definition of Title Variables

2.1 Test-taking Strategies

Considerable studies have indicated that, in the area of second or foreign language reading tests, there are certain types of strategies which are used by test-takers during a test-taking course (Cohen & Upton, 2007; Hirano, 2009). According to Rogers and Harley (1999), test-taking strategies enable learners to use the characteristics and format of a test to increase scores in a test-taking situation. These strategies include: reading the instructions carefully, scheduling the allocated time appropriately, making use of clue words in the questions, delaying answering difficult questions, reviewing the work in order to check the answers, etc. Cohen and Upton (2007, p. 211) define test-taking strategies as "those test-taking processes which respondents have selected and which they are conscious of, at least to some degree". Hirano (2009, p. 158) argues that there are basically distinct types of strategies that respondents use as they do language tests: 1) language learner strategies (the way learners operationalized their basic skills of listening, reading, speaking and writing including the related skills of grammar, vocabulary, and translation), 2) test management strategies (i.e., "strategies for responding meaningfully to the test items and tasks", and 3) testwiseness strategies (i.e., "strategies for using knowledge of test formats and other peripheral information to answer test items without going through the expected linguistic and cognitive processes").

Cohen (1998) maintains that test-taking strategies consist of language use strategies and testwiseness strategies. Language use strategies refer to actions that individuals consciously take to enhance the use of a second/foreign language in order to accomplish 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.In contrast, testwiseness is not necessarily determined by the examinee's language proficiency, but rather is concerned with his knowledge of how to take tests. Cohen (1998) also described three testwiseness strategies used by examinees when taking a multiple-choice test. They are: 1) making a surface matching of some information in the passage with the identical information in the item stem and in one of the response choices, 2) making use of material from a previous item when it "gives away", or reveals, the answer to a subsequent one, and 3) taking shortcuts to arrive at answers—that is, not reading the text but simply searching for the answers to the reading comprehension questions. Moreover, he also mentioned that in the case of responding to multiple-choice questions, a testwise examinee may choose an answer because it is a) the only grammatical one, b) the longest one, or c) the first or the last response. Rezaee (2006, p. 155) classifies test-taking strategies into two types of "general and specific". *General strategies* can be applied to wider variety of tests such as preparing for the test, reading the directions, the use of time during a test, error avoidance strategies etc. While *specific strategies* 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.

2.2 Reading Comprehension

Reading comprehension is commonly known as an interactive mental process between a reader's linguistic knowledge, knowledge of the world, and knowledge about a given topic (Rahmani & Sadeghi, 2011). In the setting of English as a Foreign Language (EFL), it is frequently supposed that reading comprehension is the fundamental way of learning new information and it is the most significant skill required for the students' success. The term reading goes with various definitions by different people. For instance, Chastain (1988) defines reading as a receptive decoding language process. In the mean time, Nuttall (1996) believes that the view of reading is fundamentally related to meaning, particularly with the transfer of meaning from mind to mind i.e., the transfer of a message from writer to reader. Radojevic (2009) reports that comprehension relies on two kinds of information: that which is received from the text and that which is retrieved from reader's memory. The schemata of the past experiences and prior knowledge that are contained in the readers' memory are critical in assisting readers to construct meaning from the text. By relating new ideas encountered in the text to familiar ideas and mental constructions, readers construct an understanding of the text material, and comprehension occurs. Nevertheless, reading comprehension can be simply defined as the capability to perceive and understand the meanings communicated by texts. While reading, the reader is viewed as an equal and active partner with the text in the meaning-making process of comprehension. That is in accordance with schema theory which states that comprehension is the result of the interaction between the background knowledge of the reader and the text.

2.3 Schema theory

2.3.1 Definition of Schema

The concept of schema has been defined and used by several authorities. For instance, Cohen et al. (1993, p. 28) explain schemata as "packets of information stored in memory representing general knowledge about objects, situations, events, or actions". Ajideh (2003, p. 4) defines schema as follows. "A schema (plural schemata) is a hypothetical mental structure for representing generic concepts stored in memory. It's a sort of framework, or plan, or script. Schemata are created through experience with people, objects, and events in the world. When we encounter something repeatedly, such as a restaurant, we begin to generalize across our restaurant experiences to develop an abstracted, generic set of expectations about what we will encounter in a restaurant."

2.3.2 Types of Schemata

According to the schema theory, there are three main areas of schemata connected to reading: *linguistic schemata, formal schemata*, and *content schemata*. These types of schemata have been described by Li et al. (2007) as follows:

2.3.2.1 Linguistic Schemata

Linguistic schemata refer to the knowledge of the letters and their corresponding sounds, both alone and in clusters and the ability to predict, through knowledge of syntax, the word or words that will follow.

They are the base for other schemata and extremely essential to decode and understand while reading. The more linguistic schemata are in a reader's mind, the faster he can acquire information and the better he can comprehend.

2.3.2.2 Formal Schemata

Formal schemata refer to the knowledge of rhetorical patterns and the organizational forms in which the information in the text is written. Familiarity with text structures influences the speed at which the reader processes the text.

2.3.2.3 Content Schemata

Content schemata are the reader's background knowledge of the topic being read and familiarity of the topic from previous experience, or whether it is related to socio-cultural settings of the reader. They comprise topic familiarity, cultural knowledge and previous experience with a field. Readers with higher background knowledge can comprehend and remember the text much better. Overall, efficiency in any of the above schemata will result in a reading comprehension deficit. Students' apparent reading problems may be problems of insufficient background knowledge (content, formal, and linguistic) (Carrell, 1988). Schema theory describes a reader's ability at analogy drawing and inferencing. According to this theory, our prior experience and knowledge of the world are constructed into interconnected patterns of constructions. These patterns of previous knowledge are stored in our brain hierarchically, with the more general and the more specific. The significant role of background knowledge in reading comprehension is underscored by Carrell and Eisterhold (1987). They point out that a reader's comprehension relies on his ability to connect the information that he gets from the text with his pre-existing background knowledge. That is, the process of comprehension is directed by the principle that every new input is mapped against some pre-existing schema and that all aspects of this schema must be well-matched with the new input information.

3. Factors Influencing L2 Reading Comprehension

Vocabulary size, syntactic and semantic knowledge, and background knowledge have been dealt with by many scientists as the influential factors in L2 reading comprehension. These factors are briefly discussed in the following.

3.1 Vocabulary Size

Undoubtedly, vocabulary knowledge, or knowledge of word meanings, functions a basic and vital role in reading comprehension. To comprehend the written text, the reader must distinguish the meanings of the most words they encounter. Although, vocabulary knowledge is not the only factor contributing to text comprehension, it can be viewed as an essential and accurate predictor of reading ability of a second or foreign language learner, and also has a direct impact on his comprehension ability. Nevertheless, vocabulary scientists have not clearly agreed on the vocabulary size the second or foreign language learner needs to achieve comprehension in reading a printed text. Yet, Laufer (1997) claims that there is a vocabulary threshold of 3000 word families for L2 learners to achieve the goal of effective reading and incidental vocabulary learning from context.

3.2 Syntactic and Semantic Knowledge

Having recognized the words in a text, readers ought to apply their syntactic and semantic knowledge to extract the author's intended message from the text (Yuill & Oakhill, 1991). Nevertheless, skilled and less-skilled readers also vary in their ability to make use of syntactic and semantic knowledge to comprehend a text being read.

It seems that syntactic knowledge plays a function in the meaning construction and interpretation of texts. Wu (2006) believes that syntactic knowledge is significant for two reasons. First, one can use a word or express the meaning of a sentence plainly with the aid of grammatical structures and rules of syntax. Next, analyzing the syntactic structure of a sentence can be useful to identify and recognize words. Semantic refers to word meaning. Oakhill and Garnham (1988) say that the role of word meaning in comprehension is noticeable, because readers who can recognize the meanings of words quickly and correctly are likely to comprehend text more easily. Consequently, inefficient semantic access may be a result of decoding problems, hence leading to comprehension failure during the reading process.

3.3 Background Knowledge

Pittelman and Heimlich (1991) described background knowledge as an individual's life experiences and the knowledge of the world acquired through his life. Yang (2004) specified that background knowledge involves six dimensions: 1) dynamic in nature, 2) available before a learning task, 3) structured,

4) can exist in multiple states (declarative, procedural, and conditional), 5) both explicit and implicit in nature, and 6) contains both conceptual and metacognitive knowledge components. All in all, it can be concluded that prior knowledge facilitates not only good readers' but also poor readers' reading comprehension. As Grabe (1991) explained, a high degree of background knowledge can even overcome linguistic insufficiencies.

4. General Functions of Test-taking Strategies

According to Skehan (1991, p. 290), "all learners use strategies; what good learners do is to choose the right strategy for the right occasion." Some of the strategies that testees use are common. For example, using the information obtained from other places in the test in answering particular items, ruling out the options learners are sure are wrong, etc. In the domain of language learning, McDonough (1999) mentions that sometimes the strategies learners apply are not directly connected to language learning but are characteristic features of the human brain. With regards to taking language tests, the same concept can be generalized. Doing the items in a test, students do employ certain strategies in order to improve their performance and, therefore, receive higher scores. Moreover, some researchers like Sarnacki (1979) and Benson (1988), posit that in certain cases the test provides the grounds for the test-takers to use some strategies or techniques known as test-taking strategies. These strategies are necessarily subject-independent and in answering the items can assist the test-takers to receive a higher score than they deserve.

Sometimes, in spite of the testees' knowledge of the language, some variables may interfere with their performance (Rezaee, 2005). Some of these variables are the methods used to measure language ability, and prior experience with the test, and individual attributes. Some significant features that are independent of testees' language ability may include cognitive and affective characteristics, the participants' real world knowledge, their educational and socio-economic background, age, sex, native language. The ability that enables individuals to use available resources and language strategies by regulating cognitive processes has been referred to as their *strategic competence* which is a component of communicative language (Phakiti, 2008). With regards to strategic competence, Bachman and Palmer (1996, p. 70) believe that it is "a set of metacognitive components, or strategies, which can be thought of as higher order executive processes that provide a cognitive management function in language use, as well as in other cognitive activities". Strategic competence puts emphasis on 'compensatory' strategies, that is, strategies used to compensate for or remedy a lack in some language areas. It can be said that a fair number of test-taking strategies are, in fact, compensatory. Testees often omit some materials simply because they do not know it. They may also produce different materials from what they would like with the hope that it will be acceptable in the given context. In a writing task, for example, testees may use lexical avoidance, simplification, or approximation when they do not remember the exact word or do not know it at all. As it is true with any mental activity, testees may make differential use of the strategies they have at their disposal.

5. Strategies Instruction

Strategies instruction is important because it can help readers develop a sense of conscious control over strategies that they can employ to carry out a reading task. According to Beckman (2002), the primary goal of strategies instruction is "teaching students about strategies, teaching them how and when to use strategies, helping students identify personally effective strategies, and encouraging students to make strategic behaviors part of their learning schema" (p. 1). Therefore, the instruction must consist of both what strategies to be learned and how, when, where, and why to use the strategies. Besides, teachers should provide students with opportunities to practice so that they will employ the strategies efficiently and automatically.

Beckman (2002) suggested a few steps for reading teachers to follow in order to achieve effective reading and test-taking strategies instruction:

1. Describe the strategy. Students obtain an understanding of the strategy and its purpose— why it is important, when it can be used, and how to use it.
2. Model its use. The teacher models the strategy, explaining to the students how to perform it.
3. Provide ample assisted practice time. The teacher monitors, provides cues, and gives feedback. Practice results in automaticity so the student does not have to "think" about using the strategy.
4. Promote student self-monitoring and evaluation of personal strategy use. Students will likely use the strategy if they see how it works for them; it will become part of their learning schema.
5. Encourage continued use and generalization of the strategy. Students are encouraged to try the strategy in other learning situations.

6. Studies on Test-Taking Strategies in Reading Comprehension Tasks

Several studies have probed the impacts of test-taking strategies on test performance (e.g., Cohen, 1984; Nevo, 1989; Phakiti, 2008; Radojevic, 2009; Rezaee, 2005). Cohen (1984) conducted one of the early studies on test-taking strategies. He reported a set of studies which had used verbal self-report data to identify the test-taking strategies utilized by EFL readers while taking multiple-choice reading comprehension tests. His review reported the following strategies for the multiple-choice test: reading just part of the passage and then searching for a corresponding question, matching words and phrases in the distracters or the stem with those in the passage, considering the questions before the passage, applying a fast, surface reading of the passage rather than a detailed reading, also stopping reading distracters when they found what they judged to be a correct response. In his study, Rezaee (2005) investigated the impact of knowing and applying test-taking strategies on the EFL learners' language test performance taking an achievement language test and whether the degree the testees use test-taking strategies vary in different sections of the test. First, the participants took a test-taking strategies questionnaire which was specifically devised for eliciting the participants' knowledge of test-taking strategies and the extent to which they use them. In addition to the questionnaire, an achievement language test was devised exactly based on the materials the participants had covered during their first year of education at university level.

The investigation of the data collected indicated that there was a high correlation between the participants' total scores in the achievement test and their scores in the questionnaire. Furthermore, it was discovered that the participants demonstrated various degrees of tendency in utilizing test-taking strategies in the different sections of the test. He concluded that "performance on language tests can be improved if both language teachers and test designers have a better insight into different strategies that the students apply" (p. 27). Another study on test-taking strategies was conducted by Phakiti (2008). The study investigated the relationship of test-takers' use of cognitive and metacognitive strategies to the EFL reading comprehension test performance. The results proposed that (1) the use of cognitive and metacognitive strategies had a positive relationship to the reading test performance, and (2) highly successful test-takers reported considerably higher metacognitive strategy use than the moderately successful ones who in turn reported higher use of these strategies than the unsuccessful test takers. These results also support the findings of other research that successful readers are more metacognitive than less successful readers.

More recently, Radojevic (2009) examined the effects of providing students with explicit instruction in how to use a repertoire of reading comprehension and test-taking strategies when reading and responding to three kinds of questions (direct, inferential, and critical). Particularly, the study examined whether providing students with an explicit or implicit instruction on reading comprehension strategies and test-taking strategies could improve their reading comprehension achievement. Students' reading comprehension and test-taking performance scores were compared as a function of instructional condition. The findings revealed the effectiveness of providing students with explicit strategy instruction when reading and responding to different forms of text. Students became able to apply the same thought processes to their own independent work.

7. Test-Taking Strategy Research as a Contribution to Test Validation

Sasaki (2000) investigated how changing unfamiliar words into more familiar ones may affect EFL learners' cloze test taking processes. The participants completed either a culturally familiar or unfamiliar version of a cloze test. Findings disclosed that those who read the modified and culturally familiar cloze passage indicated correct understanding of the key terms more often and tried to solve more items. This led to their better test performances than those of the participants who read the original text. Cohen and Upton (2007) investigated the reading and test-taking strategies that test takers used to complete the reading tasks in TOEFL reading section. They intended to better understand how reading and test-taking strategies were used on tests as part of the process of construct validation. One finding was that test-takers approached the TOEFL reading section as a test-taking task which required that they perform reading tasks in order to complete them. In other words, participants primarily aimed at getting the answers right, not to learn or gain anything from the texts read. A few common test-taking strategies that were frequently used across items were:

- rereading the question for clarification,
- going back to the question for paraphrases or confirms,
- reading the question and then reading the passage to search for clues to the answer either before or while considering options,

- selecting options through vocabulary, sentence, paragraph, or passage overall meaning,
- discarding options based on vocabulary, sentence, paragraph, or passage overall meaning as well as discourse structure.

More recently, Salehi (2011) analyzed test taking strategies of 40 Iranian test takers through a checklist of strategies in order to collect pieces of evidence for the construct validity of the reading section of a high-stakes test. The checklist contained 28 strategies tapping test takers' behaviors while taking some reading comprehension items. The objective was to see if there was concordance between the type of strategies and the item types in the reading comprehension passages. For instance, if the strategy of guessing is used on inference items, this puts at risk the validity of the item because there is a mismatch between the intentions of test makers and those of test takers (Cohen, 1984). Findings revealed that mostly the right strategies were used on the right item types.

8. Conclusion

This study has mostly dealt with the roles of test-taking strategies and various schemata in comprehending a reading text and taking the related test. On the whole, most of the abovementioned studies described that test-taking strategies instruction as well as the use of such strategies lead to improvement in language test performance, particularly reading comprehension scores, for different leveled students regardless of what learning context they are in. The findings indicate that such studies can provide insightful information about what tests really measure (Cohen, 2006, p. 325). Besides, such studies raise issues related to the construct validity of reading comprehension tests. Cohen (2006, p. 327) states that if test makers know about what test takers essentially do to produce answers to questions, they can perform a crucial form of validation, verifying the extent to which this behavior corresponds to the abilities they try to test. Furthermore, reading teachers need to go beyond their traditional roles by providing opportunities for their students to become familiar with and apply such test-taking strategies.

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