

Textbook Reading Strategies and Its Relationship to Reading Test Performance

Lijuan Li

li-lijuan@126.com

Universiti Sains Malaysia;

Hebei University, China

Sarjit Kaur

sarjit@usm.my

Universiti Sains Malaysia

ABSTRACT

Research studies on reading strategy use among ESL/EFL readers are increasingly becoming one of the most attended topics for researchers and educators. This study investigated the reading strategies used by 290 Chinese EFL second year undergraduates and examined the relationship between their reading strategy use and reading test performance. The participants reported their use of reading strategies through the Survey of Reading Strategies (SORS) in three categories: global reading strategies (GLOB), problem solving strategies (PROB) and support reading strategies (SUP). Students' reading test performance was measured by using the national College English Test Band-4 (CET-4). Results showed that students used overall reading strategies at a medium frequency level. They used PROB strategies most frequently (at a high level), followed by GLOB strategies (at a medium level). The least frequently used were SUP strategies (at a medium level). The most frequently used individual strategies were re-reading, regaining concentration and guessing the content of the text. The least frequently used strategies included reading aloud, questioning, paraphrasing, and translating. There was no significant relationship between students' overall reading strategy use and their general reading test performance. However, significant relationship was found between some individual reading strategies and different test formats. Students' banked cloze test performance was positively correlated to GLOB strategies. SUP strategies were negatively correlated to students' skimming and scanning performance. Most PROB strategies were related to student performance in fast reading either positively or negatively. Pedagogical implications are discussed in relation to the Chinese EFL context.

Keywords: reading strategies; reading strategy use; reading test performance; relationship; Chinese EFL tertiary students

INTRODUCTION

Reading in English as a second or foreign language (ESL/EFL) for the overwhelming majority is "the dominant global literacy" (Bernhardt, 2011, p. 8). In the context of ESL/EFL reading, analysing students' critical reading ability and reading strategy use has increasingly become the centre of attention in view of the fact that such studies help promote students' reading comprehension ability and proficiency (Pressley, 2006; Grabe & Stoller, 2011; Zuhana, Wong & Shameem Rafik-Galea, 2014). Reading strategies are "deliberate, goal-directed attempts to control and modify the reader's efforts to decode text, understand words and construct meanings of text" (Afflerbach, Pearson, & Paris, 2008, p. 368). The characteristics of reading strategies as intentional and conscious endeavours to comprehend the text versus reading skills with automaticity and unawareness are recognised by many researchers (Paris, Wasik & Turner, 1996; Alexander & Jetton, 2000; Afflerbach, Pearson, &

Paris, 2008; Grabe & Stoller, 2011). Students employ reading strategies before, during or after reading to enhance reading comprehension and increase reading effectiveness. Compared with the unskilled readers, skilled readers flexibly employ a variety of strategies in their reading process, thus attaining more effective reading comprehension (Pressley, 2006; Cubukcu, 2007; Grabe & Stoller, 2011). Indeed, investigations about reader's reading strategy use help to shed light on ways to help readers to become more capable and effective.

Tests are often used as an indicator to evaluate students' performance and achievements in language learning (Asiaah, Mohd Sallehhudin & Norizan, 2010). While researchers acknowledged that reading strategies could enhance reading comprehension, studies revealed different findings on the relationship of students' reading strategy use and their performance in the reading comprehension test. On one hand, some findings showed a positive correlation between reading strategy use and reading test performance (Phakiti, 2003; Liu & Zhang, 2008; Y. Wang & Liu, 2010). On the other hand, there were reports of no significant relationships existing between the two constructs (Shang, 2010; Karami & Hashemian, 2012). Notwithstanding such concerns, further research is needed to elicit empirical data towards providing deeper insights into the relationship between reading strategy use and reading test performance so as to promote the practical value of research studies on reading strategy use in other educational contexts.

Traditionally, considerable importance has always been attached to reading by EFL teachers and learners in China. However, the effects of reading instruction on learners' reading abilities are far from satisfactory (Li & Wang, 2010). Considering the importance of reading strategy use in enhancing students' reading comprehension, Chinese researchers have started to conduct studies to explore the types of reading strategies used by students in recent years. Nevertheless, given the limited number of research studies in this area, more research studies are needed to investigate the strategies Chinese EFL students use in improving their reading comprehension and performance. Given the fact that EFL reading is predominantly school-related in the Chinese context, there is a need for more research studies on students' use of strategies while reading school-related materials. In addition, Chinese EFL students have always been under great pressure of examinations. However, after years of study, most students are still not good at reading and their scores in reading comprehension tests are rather low (Xiang, 2011). Hence, the investigation of the relationship of students' use of reading strategies and their reading test performance has much pedagogical value in the Chinese EFL environment and other similar contexts.

This study investigated the reading strategies employed by 290 Chinese EFL tertiary students while reading textbook passages and examined the relationship between students' reading strategy use and reading test performance. Specifically, the research questions of the present study were:

1. How frequently do Chinese EFL tertiary students use reading strategies while reading textbook passages?
2. What type of strategies do Chinese EFL tertiary students use most frequently while reading textbook passages? What type of strategies do they use least frequently?
3. How is reading strategy use related to reading test performance among the Chinese EFL tertiary students?

LITERATURE REVIEW

READING STRATEGIES

Reading strategies are the reader's deliberate and goal-directed actions in decoding the text and constructing meaning (Afflerbach, Pearson, & Paris, 2008). They are "controlled processes that require conscious attention in their deployment, modification, and

orchestration” (Vandergrift & Goh, 2012, p. 91). Recently, reading strategies have increasingly become one of the major research areas because they are “of interest not only for what they reveal about the ways readers manage interactions with written text but also for how the use of strategies is related to effective reading comprehension” (Carrell, Gajdusek, & Wise, 1998, p. 97).

Research on reading strategies mostly centred on the strategies that good readers use. Pressley and Afflerbach (1995) examined 38 published studies on skilled readers and found that conscious active reading was apparent throughout the reading process and that monitoring and evaluation of the reading process and materials prevailed in various skilled readers. Skilled readers set their reading purposes and goals before reading and did an overview of the text while paying attention to the text structure. They make reading plans about how to read before they begin to read. Throughout reading, the skilled readers consciously skim or skip at flexible speed. They may pause to reread and always make predictions and inferences. They continuously interact with the text and form their interpretations. Their reading does not finish with the last word. Instead, they reread, make notes and summarise the important part. Their reflection on their reading continues long after reading is concluded.

Pressley and Afflerbach’s (1995) research provided researchers and educators with insights into the strategies employed by skilful readers. Further investigation was invoked and more data were elicited which enriched the repertoire of the strategies that readers can use in their reading process. Different categorisations were posited and a variety of types of reading strategies were identified. For example, Paris, Wasik and Turner (1996) identified strategies according to the different stages of the reading process and divided them into pre-reading, while-reading and after-reading strategies. They pointed out that good readers employ certain strategies before they began reading such as establishing a good physical environment, setting reading purposes, accessing prior knowledge, skimming for general ideas, reviewing instructions and predicting what might be read, etc. While they are reading, good readers use some strategies to facilitate and aid their reading comprehension. For example, they check their comprehension, identify the text’s main idea, make inferences, look for discourse markers, monitor vocabulary knowledge, compare what is read with what is known, evaluate the value of what is being learned, reread text or skip ahead. The reading process does not end when the readers reach the end of the text. Rather, Paris, Wasik and Turner (1996) found that good readers continue to appreciate the text and writer, revisit pre-reading expectations, review notes, reflect on text understanding, consolidate and integrate information, review information, elaborate and evaluate, determine what additional information is needed, apply new information to the task at hand, relate the text to own experience, or critique the text. It is pertinent to note that the classification of reading strategies put forward by Paris, Wasik and Turner (1996) provides a perspective for reading researchers to identify reading strategies based on the time and stage. However, the extant literature on reading strategy use indicates that there are cases when the same strategy is used at different stages. This complex nature of effective strategy use continues to be the dominant discourse in many reading research studies (Paris, Wasik & Turner, 1996; Mokhtari & Reichard, 2002; Vandergrift & Goh, 2012).

The classification of learning strategies also exerted influence on the categorisation of reading strategies. As suggested by O'Malley and Chamot (1990), learning strategies can be categorised into two main types: cognitive and metacognitive strategies. Cognitive strategies are specified and localised, involving manipulating the material to be learned or applying a specific technique to the learning task. In contrast, metacognitive strategies are more general and globalised. They oversee, direct and regulate the learning process by thinking about the learning process, planning, monitoring and evaluating learning. When applied in reading,

cognitive reading strategies address specific reading activities. They are used to manipulate the reading material, to process the incoming information or to perform specific tasks. Some examples include the following reading abilities: using prior knowledge to help comprehension, adjusting one's speed of reading when the material becomes difficult or easy, reading aloud when text gets hard, trying to stay focused on reading, pausing and thinking about reading, rereading for better understanding, and guessing the meaning of unknown words (Sheorey & Mokhtari, 2001). In contrast to cognitive strategies, metacognitive reading strategies are deployed to regulate the execution of the aforementioned strategies. They are used with a purpose to understand and regulate the task performance for a better and successful cognitive processing result by focusing on the planning, monitoring and regulating of the cognitive activities of reading process. Examples of metacognitive reading strategies include understanding the conditions under which one learns best, analysing the problem at hand, identifying which important aspects of a message apply to the task at hand, separating important information from less important information, determining how to strategically proceed, monitoring to track attention and comprehension, internal checking to determine success of achieving goals and revising, modifying, or terminating activities strategically etc. (Hudson, 2007).

Based upon an in-depth review of research findings, Mokhtari and Reichard (2002) grouped three categories of reading strategies in their effort to develop their inventories to measure the reader's metacognitive awareness and perceived use of reading strategies. Their categorisation of reading strategies were based on the functions that the strategies play in reading, including global reading strategies, problem solving strategies and support strategies. Global reading strategies (GLOB hereafter) refer to the techniques that readers use to monitor or manage their reading, including setting a reading purpose, previewing the text, making predictions or skimming with typographical aids, etc. Problem solving strategies (PROB hereafter) are used to solve problems when reading difficult text, examples of which include adjusting reading speed, guessing the meaning of unknown words, checking for comprehension and rereading the text for better understanding, etc. Support strategies (SUP hereafter) involve using the outside aiding techniques of reading and learning to help the reader while comprehending the text. Examples of this type of strategies are using a dictionary, taking notes, underlining, highlighting, summarising, etc.

In contrast to the work done by Paris, Wasik and Turner (1996); Mokhtari and Reichard (2002) did not take into consideration the time that the reading strategies are used. Rather, they placed more emphasis on the purposes to use the strategies or the functions that the strategies play in the reading process. Their categorisation is preferred by researchers who want to focus on the use frequency of the identified reading strategies.

RELATIONSHIP BETWEEN READING STRATEGIES AND READING TEST PERFORMANCE

Tests are often used to evaluate students' performance and assess their progress in language learning (Asiah, Mohd Sallehudin & Norizan, 2010). Reading comprehension tests are widely accepted as valuable research instruments to measure students' reading ability and achievements. A variety of test formats are used to measure reading ability which include multiple-choice, cloze, short answer, true or false, open-ended, written recall, sentence completion, matching, etc. (Ko, 2010). Students' performance in reading comprehension tests are recorded in the form of scores. As recognised by researchers, employing weak or ineffective strategies can lead to poor test performance (Kiewra, 2002) whereas "good strategy use minimises failure in learning and enables students to take advantage of learning opportunities" (Cubukcu, 2007, p. 106). In the reading research area, studies have been conducted to investigate the relationship between reading strategy use and reading test performance. Most research findings showed positive relationship between the two constructs

although insignificant relationship was reported by a few studies. Some of these findings are discussed here.

Phakiti (2003) investigated the relationship of reading strategy use to reading test performance among 384 EFL Thai university students enrolled in a fundamental English course. The students took a reading comprehension achievement test and completed a questionnaire about their use of cognitive and metacognitive reading strategies used while taking the tests. A total number of four highly successful and four unsuccessful students were selected to attend the retrospective interviews. Results showed that students' use of cognitive and metacognitive strategies could explain the variation on the reading test performance. The use of cognitive and metacognitive strategies had a positive relationship to the reading test performance and successful students reported significantly higher metacognitive strategy use than unsuccessful ones.

In another study, Madhumathi and Ghosh (2012) conducted an investigation among 52 first year Indian ESL students with the Survey of Reading Strategies (SORS) and a reading comprehension test modified from TOEFL (Test of English as a Foreign Language). Positive correlation was found between students' reading strategy use and their reading comprehension test performance. Results showed that students' overall use of reading strategies is moderately correlated to their reading performance and high proficiency students outperformed the middle and the low proficiency students in terms of strategy use.

Peng, Siriyothin and Lian (2014) examined the relationship between reading strategy use and reading performance among a group of 213 Chinese undergraduate students majoring in English with a reading strategy questionnaire and a reading comprehension test. A moderate positive correlation was found between the students' overall reading strategy use and reading performance. The study also found that metacognitive strategies were the only strategies that were capable of predicting reading performance.

In contrast to the research findings aforementioned, insignificant relationship was found between reading strategy use and reading performance in some other studies. Karami and Hashemian (2012) conducted a study among 40 ESL Iranian elementary female students using a reading strategy survey and a reading comprehension test. The participants were evenly divided into two age groups. One group contained 20 young people aged between 15 and 20 years old. The other group consisted of 20 adults aged between 35 to 40 years. Results showed that there was no statistically significant relationship between both the reading performance and the use of either cognitive or metacognitive reading strategies among the adult group students. Neither was there a significant relationship between the young learners' reading performance and their cognitive reading strategy use. However, the reading performance of the young group was found significantly related to their metacognitive reading strategy use. Karami and Hashemian (2012) did not provide possible reasons for this phenomenon. Nevertheless, their findings of the positive correlation between reading performance and metacognitive strategy use concurred with other research studies (Phakiti, 2003; Takallou, 2011; Peng, Siriyothin & Lian, 2014).

In another study, Shang (2010) conducted a one-semester reading strategy instruction among 53 Chinese first year English-major undergraduates. The examination of the relationship between reading strategy use and reading performance after the study showed that there was no statistically significant relationship between the two constructs. The reasons were explored with the students' reports which illustrated their difficulty in using vocabulary knowledge and background knowledge to comprehend the passages. It is suggested that decoding skills training and background knowledge enhancement be combined into direct strategy instruction to help students with reading problems.

Different findings concerning the relationship between reading strategy use and reading test performance suggested the necessity for further studies to provide insights into

the relationship between the two constructs in different research contexts and among different participants. Therefore, the present study was conducted to elicit empirical data about Chinese tertiary students in the Chinese EFL context.

METHOD

A total number of 290 students from seven intact classes were randomly selected from a university in northern China to complete the Survey of Reading Strategies (SORS) and to take an English reading comprehension test during their regular English classes. The participants were told to answer the items on the survey honestly and they were assured that neither their answers in the questionnaire or their scores from the test would affect their grades for the course. They were told that their feedback would provide important information to help improve future teaching, thus benefiting their own learning. The first researcher, together with the help of the English language teachers, directed students to complete the questionnaire and the reading comprehension test. The participating students took 10 minutes to complete the questionnaire and 50 minutes to finish the test. The data collection procedure was completed within one week.

PARTICIPANTS

The participating students were randomly selected from the cohort of non-English major second year undergraduate students from a university in northern China. The criterion for selecting this group of student is that the second year students were required to fulfil the general requirements of the College English language study which is compulsory for all non-English major undergraduates in China and hence were more representative than other levels of students. Furthermore, the results of the study obtained from this target group would be more generalisable in the Chinese EFL situation.

The participants were from a variety of academic majors including archaeology, economics, management, physics, biology, business, Chinese language, education and mathematics. The students were averagely 20 years old. There were 125 males (43.1%) and 165 females (56.9%). They were exposed to at least six years of secondary English education and have been in the university for one year learning College English. According to the final examination scores of the last semester, the English language proficiency and reading ability of these students were averagely at the intermediate level of the whole university population.

RESEARCH INSTRUMENTS

The selection of research instruments was determined by the research objectives of the study. In order to find out the type and frequency of the reading strategies that were used by the Chinese EFL tertiary students, the study administered the Survey of Reading Strategies (SORS), an adapted questionnaire from Zhang and Wu (2009). To investigate students' reading test performance, a reading comprehension test was implemented.

THE QUESTIONNAIRE

The questionnaire used to investigate students' use of reading strategies was adapted from the Chinese version of the Survey of Reading Strategies (SORS) (Zhang & Wu, 2009). This version of the SORS was translated and adapted from Mokhtari and Sheorey's (2002, p. 2) questionnaire which is "to measure adolescent and adult ESL students' metacognitive awareness and perceived use of reading strategies while reading academic materials such as textbooks". The SORS was developed based on a comprehensive review of existent research findings on reading strategy use. It was considered to be an effective instrument for this study

as it had been widely tested and used by many research studies due to its high reliability (e.g. Sheorey & Mokhtari, 2001; Karbalaeei & Golshan, 2010; Pereira & Ramírez, 2008).

Mokhtari and Sheorey's (2002) SORS comprises 30 statements covering a range of strategies with a 5-point Likert scale, ranging from 1 (I never or almost never do this) to 5 (I always or almost always do this), which means that the higher the score, the more frequently the strategy is used. It measures students' self-reported reading strategies in the following three categories: global strategies (GLOB), problem solving strategies (PROB) and support strategies (SUP). Zhang and Wu (2009) reduced this 30-item questionnaire to a 28-item Chinese version with the same categories – GLOB (Item 1-12), PROB (Item 13-19) and SUP (Item 20-28).

This study adopted the Chinese SORS due to the consideration of the EFL students' English language proficiency level and the results of the pilot study. Minor adaptations were made on the following issues: Items 12 and 28 were rephrased while keeping the same meaning. Item 21 was incorporated into Item 20 to reduce redundancy. In addition, the labels of the three categories in Zhang & Wu's (2009) SORS were removed in response to the students' feedback in the pilot study that the terms were confusing and distracting. A background information section was also added at the beginning of the questionnaire to elicit students' information pertaining to their ID, gender and major/class. As a result, the SORS used in this study contained 27 items in three categories: GLOB (Item 1-12), PROB (Item 13-19), and SUP (Item 20-27). The internal consistency reliability coefficients of the questionnaire (Overall: $\alpha=.81$, GLOB: $\alpha=.77$, PROB: $\alpha=.71$, SUP: $\alpha=.75$) indicated it as a reasonably reliable instrument.

THE READING COMPREHENSION TEST

In order to measure students' reading test performance so as to examine the relationship of students' reading strategy use with their test performance, a reading comprehension test was conducted. The test items were extracted from the reading section of the original test papers of the National College English Test Band 4 (CET-4) between the years 2007 and 2010. The CET-4 is a large-scale standardised proficiency test administered by the Ministry of Education among all undergraduates in China. As indicated by the Syllabus of College English Test Band 4 (The CET-4 Committee, 2006), the CET-4 measures whether the students' English proficiency meets the general requirements of the College English study. The reading abilities that are measured by the CET-4 include reading for main ideas, major facts and relevant details and making inference about the implied meanings and understanding the author's attitudes and opinions. The CET-4 is administered twice a year among Chinese undergraduates nationwide and has established its validity and reliability at home and abroad (C. Wang, 2010).

In accordance with the reading section of CET-4, the reading comprehension test in this study comprised two parts. Part 1 (Skimming and Scanning) contained a long passage (1028 words) with seven multiple choice questions and three short answer questions. Students were required to finish all the questions in 15 minutes and then hand in their answers. According to the Syllabus of College English Test Band 4 (The CET-4 Committee, 2006), Part 1 measures students' ability to skim the passage for main ideas or major details and to scan for specific information according to the clues. In Part 2 (Reading in Depth), there were three passages in two sections which were required to be completed in 25 minutes. Section A (Cloze) contained a passage (241 words) with 10 blanks. A bank of 15 words was provided after the passage. Students were required to select one word for each blank from the word bank. In Section B (Passage Reading), there were two passages (241 and 366 words respectively). Each passage was followed by five multiple choice questions. As declared by the CET-4 Committee (2006), Section A assesses students' ability to understand and use

words in the textual context and Section B measures students' ability to read for main ideas and major details, to analyse and synthesise, to make inferences and to guess word meaning according to its context. The total administration time for the test was 50 minutes, including the time of distributing and collecting papers. Scoring was done by the first researcher according to the provided answer keys. The right answer for each item was allocated 1 mark and the full mark was 30.

DATA ANALYSIS

According to the suggestion of the instrument designers, Mokhtari and Shoerey (2002) and the Chinese version adapters Zhang and Wu (2009), the SORS data were interpreted at three levels of strategy use frequency: high (≥ 3.5), medium (2.5 – 3.4) and low (≤ 2.4) with the mean scores of each individual strategy, the three categories and the overall strategy. In regard to the reading comprehension test, students' total scores and their scores of each section of the test were recorded.

This study essentially used the quantitative approach and the data were analysed using the Statistical Package for Social Sciences (SPSS) version 19.0. Descriptive analysis of means, standard deviation and frequency was conducted to explain students' use of reading strategies at individual, category or general level. Pearson correlation was done to examine the relationship of students' strategy use to their test scores.

RESULTS AND DISCUSSION

OVERALL PATTERN OF READING STRATEGY USE

Students' overall pattern of reading strategy use is presented in Table 1 below. Generally speaking, the Chinese EFL tertiary students used reading strategies at a medium frequency level ($M=3.2$, $SD=.38$). Their use of PROB strategies were at a high level ($M=3.5$, $SD=.48$) whereas their use of GLOB strategies ($M=3.4$, $SD=.51$) and SUP strategies ($M=2.6$, $SD=.49$) was at a medium level. These results concurred with the findings previously reported by the studies with different measurements or questionnaires or with different groups of Chinese students (Chen, 2004; Zhang & Wu, 2009).

TABLE 1. Overall Frequency of Chinese EFL Tertiary Students' Reading Strategy Use

	Mean	Std Dev.	Level
GLOB	3.4	.51	Medium
PROB	3.5	.48	High
SUP	2.6	.49	Medium
Overall	3.2	.38	Medium

Results in Table 1 show that Chinese tertiary students used PROB strategies most frequently among the three categories of reading strategies. The Chinese EFL students read textbooks mostly targeting to solve specific problems such as reading for language learning or for information. Therefore, PROB strategies which are "the actions and procedures that readers use while working directly with the text" (Mokhtari & Sheorey, 2002, p. 4) were inevitably often used. On the other hand, the Chinese EFL teaching and learning are often test-oriented. In order to acquire high scores in the examinations, students may read textbook passages as reading test passages. Therefore, PROB strategies were used more often to solve specific reading problems.

Compared with the PROB and GLOB strategies, the students used SUP strategies least frequently albeit at a medium level. This may also be explained particularly with the

influence of the test-oriented EFL teaching context in China. The SUP strategies are “basic support mechanisms intended to aid the readers in comprehending the text” (Ibid). Quite a few of these strategies are not approved of in the testing environment, such as using reference materials like a dictionary or reading aloud. Therefore, under the influence of tests and the test-oriented teaching, the students habitually avoided or reduced the use of this type of strategies and turned to using other strategies. Detailed explanations are also provided in the next section to discuss why quite a number of individual SUP strategies were found to be the least frequently used strategies among the Chinese EFL tertiary students.

THE MOST AND LEAST FREQUENTLY USED STRATEGIES

Results of the study showed that among the 27 reading strategies, students reported having used 10 strategies (37.04%) at a high level, 13 strategies (48.15%) at a moderate level and four strategies (14.81%) at a low level (see Table 2). This result concurs with the results in Table 1, as the most frequently used individual strategies were PROB strategies although some GLOB strategies were also used at a high frequency and the least frequently used strategies were SUP strategies.

TABLE 2. Strategies Used by Chinese EFL Tertiary Students Listed from Most Frequently to Least Frequently

Item: Strategies	Mean	Std Dev.	Category	Frequency Level
17: re-read when text becomes difficult	3.96	0.889	PROB	High
19: try to get back on track when lose concentration	3.94	0.753	PROB	High
10: try to guess the content of the text	3.9	0.883	GLOB	High
8: use typographical features	3.87	1.049	GLOB	High
5: use prior knowledge	3.85	0.921	GLOB	High
7: use context clues	3.84	0.873	GLOB	High
20: underline, circle or take note of the key information	3.81	1.168	SUP	High
6: use tables, figures and pictures in text	3.78	1.068	GLOB	High
14: adjust reading speed	3.57	1.057	PROB	High
18: guess the meaning of unknown words or phrases	3.53	0.927	PROB	High
11: check to see if guesses are right	3.36	1.066	GLOB	Medium
3: review text about length, organization and main idea	3.34	1.224	GLOB	Medium
1: have a reading purpose	3.29	1.112	GLOB	Medium
24: go back and forth to find relationships among ideas	3.2	0.89	SUP	Medium
9: check understanding when meet new information	3.19	0.996	GLOB	Medium
15: stop from time to time and think	3.19	0.97	PROB	Medium
13: read slowly and carefully to make sure I understand	3.17	1.083	PROB	Medium
4: decide what to read closely and what to ignore	3.16	1.096	GLOB	Medium
16: visualise information	3.15	1.232	PROB	Medium
22: use reference materials	2.87	0.986	SUP	Medium
27: think in both English and Chinese	2.78	1.039	SUP	Medium
2: think about if the content fits the reading purpose	2.71	1.167	GLOB	Medium
12: critically analyze and evaluate the information	2.7	0.99	GLOB	Medium
26: translate when read	2.18	1.166	SUP	Low
23: paraphrase for better understanding	2.08	1.007	SUP	Low
25: ask questions about the text when read	2.07	0.953	SUP	Low
21: read aloud when text becomes difficult	2.06	1.15	SUP	Low

As shown in Table 2, the strategies that were most frequently used by the students were “re-reading when text becomes difficult” (Item 17), “try to get back on track when lose concentration” (Item 19) and “try to guess the content of the text” (Item 10), all of which had a frequency mean higher or equal to 3.9. The frequent use of these strategies illustrated the Chinese EFL tertiary students’ awareness of the usefulness of reading strategies. It also

indicates that they were able to employ some strategies while reading to enhance their reading comprehension.

Re-reading is a strategy that was found frequently used by skilled readers while encountering reading problems (Grabe & Stoller, 2011; Pressley & Afflerbach, 1995). The highly frequent use of this strategy by the students can be interpreted as a sign of their awareness to use certain reading strategies to help achieve better comprehension when necessary. However, it needs to be pointed out that unnecessary re-reading will hinder fluent reading and effective reading comprehension. Students should not rely solely on re-reading the text to tackle reading problems. The results from Table 2 also show that the strategy of guessing the meaning of the text was reported by the students as the second most frequently used reading strategy. Furthermore, other reading strategies such as using prior knowledge, using context clues and guessing the meaning of unknown words or phrases were used at a high frequency level. This shows that the Chinese EFL tertiary students were able to employ reading strategies rather flexibly to aid and enhance their reading comprehension.

To regain concentration while reading suggests the readers' conscious monitoring of his/her reading process. Students' frequent use of this strategy reflects their metacognitive awareness about their reading process. In addition, it indicates that students were able to control and monitor their reading process and use appropriate reading strategies to get back on track when they discovered their reading problem(s).

The four strategies listed at the bottom of the list were all from the SUP category which included reading aloud, questioning, paraphrasing and translating. Taking into consideration that the SUP strategies were the least used strategy category as shown in Table 1, it is necessary to examine the possible reasons why students seldom resorted to these functional or supportive measures to aid reading comprehension.

Item 21 ("reading aloud when text becomes difficult") was the strategy least preferred by the students among all the 27 items. Though a research study by Alshumaimeri (2011) found oral reading helped comprehension significantly and reading aloud was an effective reading strategy, this may not be the case in the Chinese EFL context. The use of reading aloud to help understand the reading content has much to do with students' listening comprehension. However, students in China were exposed to very few opportunities to listen to or speak in English. Hence, their listening comprehension is no better than their reading comprehension. Therefore, even if the students deciphered the pronunciation of the word, it would still be unhelpful to make sense of it.

On the other hand, it is difficult for the Chinese students to resort to their native language (Mandarin) to help with learning English as a foreign language. The speech units as mapped onto a writing unit vary across languages and orthographies. The Chinese language possesses some peculiar characteristics that are not shared by English. For example, the Chinese language is encoded at the phoneme level based on symbols while syllables are represented in the English language (Cheung, McBride-Chang & Tong, 2011). Therefore, the Chinese students lack the necessary phonological awareness which influences reading performance and achievement. Furthermore, as the Chinese EFL tertiary students were under the traditional test-oriented instruction and they practiced reading mostly with reading comprehension test exercises, the reading strategies that were disagreeable to the test-taking etiquette such as reading aloud were accordingly less practiced.

The infrequent use of the strategies of questioning (Item 25) and paraphrasing (Item 23) can be attributed to the traditional Chinese cultural influence. Chinese students are culturally bound to obey and respect their teachers and authority. Although currently this unconditional respect has been reduced, its influence still prevails. Having undergone more than ten years of primary and secondary education which emphasises the authority of teachers who dictate standardised answers, tertiary students have formed a habit of listening

to the teacher and seldom asking questions either about the text they are reading or about the authority of the author or the teacher.

Similarly, the strategy of paraphrasing was hardly used because of the traditional Chinese culture which upheld strict adherence to the authorised doctrines. In old times, Chinese children were required to memorise and recite the words or books of the sages without making any changes. Although this pedagogy is abandoned nowadays, quite a number of Chinese students still prefer to learn by reciting and memorising information. They lack confidence in expressing their own ideas. Under such circumstances, paraphrasing is not frequently used. It is interesting to note that Item 26 (“translating while reading”) was also one of the least used strategies. Contrary to the common belief that students usually translate what they read into Chinese to help their understanding, the tertiary students in this study reported little use of it. It might be explained from the viewpoint that because of the present popularity of the communicative teaching pedagogy in China, increasingly more teachers and students began to disapprove of the strategy of translating. The medium frequency level of using Item 27 (“thinking in both English and Chinese when reading”) (M=2.78, SD=1.039) also illustrated this point from another perspective.

RELATIONSHIP BETWEEN READING STRATEGY USE AND READING TEST PERFORMANCE

Results of the study about the relationship between the Chinese EFL tertiary students’ reading strategy use and reading test performance are presented in this section. Table 3 shows the general relationship between reading strategy use and reading test performance. Table 4 presents the individual correlation coefficients of each reading strategy to the score of each test type and the total test score. The results shown in Table 3 are discussed in relation to the related data in Table 4.

TABLE 3. General Relationship between Reading Strategy Use and Reading Test Performance

		Part 1	Part 2		Total
			Section A	Section B	
GLOB	Pearson Correlation	.033	.117*	.040	.087
	Sig. (2-tailed)	.579	.047	.494	.141
PROB	Pearson Correlation	-.091	.125*	.045	.039
	Sig. (2-tailed)	.123	.033	.440	.513
SUP	Pearson Correlation	-.121*	.069	.067	.009
	Sig. (2-tailed)	.040	.243	.253	.881
Overall	Pearson Correlation	-.056	.138*	.066	.069
	Sig. (2-tailed)	.343	.019	.265	.243

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

TABLE 4. Relationship between Individual Reading Strategy Use and Reading Test Performance

		Part 1	Part 2		Total
			Section A	Section B	
1: have a reading purpose (GLOB)	Pearson Correlation	.167**	.169**	.158**	.222**
	Sig. (2-tailed)	.004	.004	.007	.000
2: think about if the content fits the reading purpose (GLOB)	Pearson Correlation	-.002	.012	-.006	.002
	Sig. (2-tailed)	.977	.839	.914	.973
3: review text about length, organization and main idea (GLOB)	Pearson Correlation	.000	-.036	-.037	-.033
	Sig. (2-tailed)	.997	.547	.528	.577
4: decide what to read closely and	Pearson Correlation	.024	.015	.006	.020

what to ignore (GLOB)	Sig. (2-tailed)	.689	.801	.923	.737
5: use prior knowledge (GLOB)	Pearson Correlation	.065	.126*	.097	.130*
	Sig. (2-tailed)	.270	.031	.099	.026
6: use tables, figures and pictures in text (GLOB)	Pearson Correlation	-.017	-.066	.033	-.023
	Sig. (2-tailed)	.776	.265	.581	.691
7: use context clues (GLOB)	Pearson Correlation	-.001	.133*	-.073	.029
	Sig. (2-tailed)	.982	.024	.215	.625
8: use typographical features (GLOB)	Pearson Correlation	.059	.103	.002	.075
	Sig. (2-tailed)	.319	.079	.969	.203
9: check understanding when meet new information (GLOB)	Pearson Correlation	.060	.082	.042	.083
	Sig. (2-tailed)	.308	.162	.474	.156
10: try to guess the content of the text (GLOB)	Pearson Correlation	-.092	-.045	.017	-.054
	Sig. (2-tailed)	.119	.447	.776	.361
11: check to see if guesses are right (GLOB)	Pearson Correlation	-.075	.084	.025	.017
	Sig. (2-tailed)	.200	.155	.674	.777
12: critically analyse and evaluate the information (GLOB)	Pearson Correlation	-.010	.141*	-.028	.048
	Sig. (2-tailed)	.864	.016	.632	.411
13: read slowly and carefully to make sure I understand (PROB)	Pearson Correlation	-.156**	-.042	-.038	-.105
	Sig. (2-tailed)	.008	.475	.525	.075
14: adjust reading speed (PROB)	Pearson Correlation	.124*	.103	.043	.121*
	Sig. (2-tailed)	.035	.080	.464	.039
15: stop from time to time and think (PROB)	Pearson Correlation	-.137*	-.009	.033	-.050
	Sig. (2-tailed)	.020	.879	.581	.398
16: visualise information (PROB)	Pearson Correlation	-.154**	.063	-.094	-.080
	Sig. (2-tailed)	.009	.289	.109	.173
17: re-read when text becomes difficult (PROB)	Pearson Correlation	.060	.098	.121*	.126*
	Sig. (2-tailed)	.310	.095	.039	.032
18: guess the meaning of unknown words or phrases (PROB)	Pearson Correlation	-.033	.114	.061	.066
	Sig. (2-tailed)	.577	.052	.298	.263
19: try to get back on track when lose concentration (PROB)	Pearson Correlation	.046	.125*	.090	.118*
	Sig. (2-tailed)	.431	.033	.126	.044
20: underline, circle or take note of the key information (SUP)	Pearson Correlation	.007	.075	.065	.066
	Sig. (2-tailed)	.904	.206	.272	.259
21: read aloud when text becomes difficult(SUP)	Pearson Correlation	-.076	.085	.009	.010
	Sig. (2-tailed)	.198	.147	.874	.859
22: use reference materials (SUP)	Pearson Correlation	-.078	.000	.008	-.031
	Sig. (2-tailed)	.186	.986	.891	.598
23: paraphrase for better understanding (SUP)	Pearson Correlation	-.004	.038	.112	.066
	Sig. (2-tailed)	.946	.517	.056	.264
24: go back and forth to find relationships among ideas (SUP)	Pearson Correlation	-.100	.016	-.006	-.039
	Sig. (2-tailed)	.090	.782	.921	.510
25: ask questions about the text when read (SUP)	Pearson Correlation	-.141*	-.008	.026	-.054
	Sig. (2-tailed)	.016	.895	.665	.356
26: translate when read (SUP)	Pearson Correlation	-.136*	-.080	.017	-.090
	Sig. (2-tailed)	.020	.174	.777	.127
27: think in both English and Chinese (SUP)	Pearson Correlation	.071	.126*	.015	.096
	Sig. (2-tailed)	.227	.032	.804	.102

***Correlation is significant at the 0.01 level (2-tailed).* **Correlation is significant at the 0.05 level (2-tailed)*

Results in Table 3 show that there was no statistically significant relationship between the overall reading strategy use and the total score of the test, that is, students' general reading test performance ($r=.069$, $p=.243$). This indicates that the strategies that students used when taking the test were generally not related to the ones that they used when reading textbook passages. This is in accordance with the findings of other studies (Karami & Hashemian, 2012; Shang, 2010). The reasons for this can be found in Cohen's (2006, p. 308) claim that the strategies that students employ when taking tests included "the separate set of test management strategies" and "a likewise separate set of test wiseness strategies" in addition to a set of language learner strategies. Therefore, the strategies that the Chinese EFL tertiary students employed to take the test may be different to the ones they used to read the textbook passages.

On the other hand, a close examination of the use of individual strategies suggests that students still used some reading strategies while taking the test although their general reading test performance and overall reading strategy use was not significantly related. It is clearly seen from Table 4 that some individual strategies were significantly correlated to the total test performance. For example, the strategy of reading with a purpose (Item 1) was positively correlated at the 0.01 significance level not only to the general test performance ($r=.222$, $p=.000$), but also to each type of test [Part 1 (Skimming and Scanning): $r=.167$, $p=.004$; Section A (Cloze): $r=.169$, $p=.004$; Section B (Passage Reading): $r=.158$, $p=.007$]. Furthermore, the use of prior knowledge (Item 5), adjusting reading speed according to what is read (Item 14), re-reading when text becomes difficult (Item 17) and trying to get back on track when losing concentration (Item 19) were all positively correlated to the test scores at 0.05 significance level. This indicates that although students might be using different strategies when taking examinations, some of the strategies they used when reading textbook passages were still useful to help enhance their comprehension of the reading passages in the test and hence improved their performance in the reading comprehension test. This is supported by research findings from Zhang and Wu (2009) which state that the test-oriented teaching which Chinese EFL students have always been accustomed to provide opportunities for students to practice reading comprehension strategies while using test-taking strategies.

Results in Table 3 showed that students' overall strategy use was positively correlated to the score of Section A (Cloze) ($r=.138$, $p=.019$) at the significant level ($p<.05$) although it had no significant correlation with the other two types of the test. The positive correlation of reading strategy use to the cloze test instead of other test types was an interesting phenomenon that few studies had recorded before. One of the possible reasons might be that this type of cloze test was rather new in the Chinese EFL examinations. Conventionally, the Chinese EFL students take the cloze in the multiple choice format with one right answer mixed with three distractors provided after each blank. Hence, when faced with a new type of banked cloze to choose 10 words from a 15-word bank, the students had a rather difficult time in applying the normally used test-taking strategies. Therefore, they had to resort more to the reading strategies that they used when reading textbook passages.

As far as the three categories of reading strategies are concerned, results in Table 3 show that students' use of GLOB were significantly correlated to their scores in the cloze section (GLOB: $r=.117$, $p=.047$). Furthermore, results in Table 4 illustrate that the individual strategies which were significantly correlated with the cloze test were mostly GLOB strategies (Item 1: $r=.169$, $p=.004$; Item 5: $r=.126$, $p=.031$; Item 7: $r=.133$, $p=.024$; Item 12: $r=.141$, $p=.016$). As aforementioned, students may resort to using reading strategies to complete banked cloze test to complement their inadequate test-taking strategies. Their use of these individual GLOB strategies can also be explained from the test influence. It is very likely for a student to have a clear purpose (Item 1) when reading a passage in a test environment. Similarly, as the aim of the banked cloze is to assess students' ability to

understand and use words in the textual context (The CET-4 Committee, 2006), the students are prone to use prior knowledge or context clues (Item 5 & 7) in order to fulfil the task given by the cloze test. This is also supported by Ulusoy's (2008) findings, that is, focusing on the meaning of the sentences and activating prior knowledge were among the frequently used strategies in answering cloze questions. Furthermore, because of the characteristic of the banked cloze, students had to critically analyse and evaluate the information either in the word bank or in the blanked passage (Item 12). The frequent use of these strategies resulted in the enhanced reading comprehension and hence led to a better test performance.

Although generally speaking, PROB strategies were significantly correlated to the cloze scores as shown in Table 3 ($r=.125$, $p=.033$), significant relationships were found among most individual PROB strategies with all three test types. The majority of PROB strategies, however, were correlated to Part 1 which measures the students' fast reading ability and their use of the strategies to skim and scan. Among the seven PROB strategies, four were found significantly related to Part 1 (Skimming and Scanning), among which one item (Item 14) was positively correlated ($r=.124$, $p=.035$) and three items had significant negative correlations (Item 13: $r=-.156$, $p=.008$; Item 15: $r=-.137$, $p=.020$; Item 16: $r=-.154$, $p=.009$). One PROB strategy (Item 19) was significantly related to Section A (Cloze) ($r=.125$, $p=.033$) and another one (Item 17) was found to be significantly correlated to Section B (Passage Reading) ($r=.121$, $p=.039$).

Part 1 aims to measure students' use of the strategies of skimming for main ideas or major details and scanning for specific information according to the clues (The CET-4 Committee, 2006). As a result, skimming and scanning the passage in a very short and limited time inevitably involves the adjusting of the reading speed when necessary (Item 14), such as when skimming for main ideas the students would read fast and when they located the needed information, they would slow down to find the answer to the question. On the other hand, reading slowly and carefully to ensure comprehension (Item 13) is one strategy that is more often used in careful reading and which may hinder reading speed when employed, therefore negatively correlated to the test of fast reading. In order to grasp the main idea and major details of a passage at high speed, it is also impossible for the students to stop from time to time in their reading process to think and evaluate (Item 15). Neither did they have the time or necessity to visualise the information they got (Item 16).

The same analysis applies to the SUP strategies which were shown in Table 3 as negatively correlated to Part 1 of Skimming of Scanning ($r=-.121$, $p=.040$). For example, as shown in Table 4, the strategies of translating (Item 26, SUP) and questioning (Item 25, SUP) were significantly less favoured by the students though they were helpful with understanding in careful reading because they were very likely to hinder the reading speed. Other examples of negative correlations can also be found among insignificantly correlated strategies. For instance, during the examination, students can neither read aloud (Item 21) nor use reference materials (Item 22). It was noted that students did not paraphrase (Item 23) if they wanted to save time. Although they might look back and forth in order to locate the needed information, they seldom did so with the purpose of finding the relationships among ideas (Item 24) as evaluation of the passage fell into the scope of careful reading. Research findings show that skilled readers use reading strategies flexibly according to their reading purposes (Hudson, 2007; Pressley & Afflerbach, 1995). Therefore, to a certain degree, the negative correlation of certain SUP strategies to the fast reading test performance contributed to the students' strategic reading.

To sum up, although there was no significant relationship between the overall reading strategy use and general reading test performance, students' use of some individual reading strategies was still found to be significantly related to their performance in certain types of reading test. Research shows that different test formats trigger different outcomes from the

readers and hence readers may use different strategies to fulfil reading tasks in different test formats (Alderson, 1990; Ko, 2010). The findings of this study (concerning the significant relationship between students' use of some reading strategies and reading test formats) illustrated the strategies that Chinese EFL tertiary students used to tackle reading problems and provided further data for future research in this area.

CONCLUSION

This study investigated the reading strategies used by Chinese EFL tertiary students when reading textbook passages and the relationship of these strategies to students' performance in the reading comprehension test exemplified by a national examination. It was revealed that generally Chinese EFL tertiary students used reading strategies at a medium frequency level. They used PROB reading strategies most frequently and their least used strategies were SUP strategies. The most frequently used reading strategies were re-reading, regaining concentration and guessing the text meaning. The least frequently used strategies included reading aloud, questioning, paraphrasing and translating. The results also show that the overall reading strategies that students used when reading textbook passages were not correlated to their general reading test performance. This indicates that generally speaking, the Chinese EFL tertiary students used different strategies to take reading comprehension tests and to read academic materials. Further analysis shows that students' use of GLOB and PROB strategies was significantly correlated to their performance in the banked cloze test and their use of SUP strategies had significant negative relationship with their performance in fast reading. Significant relationships were also found between the use of some individual reading strategies and certain types of the reading comprehension test. For instance, students' performance in the banked cloze was positively related to their use of certain GLOB strategies. The use of most PROB strategies was found significantly related to the fast reading performance.

This study involved 290 Chinese EFL second year undergraduates. Although this is a comparatively large sample size, the participants were sampled from one university in northern China, which might limit its generalisability to the whole EFL student population in China. To delimit this, the sample students were randomly selected from various majors and from the second year students whose English proficiency level was in accordance with the general requirements of the College English curriculum of the nation. The data elicited from the study provides new insights into continuing research about Chinese EFL readers. Furthermore, the findings of the study have significant pedagogical implications for future research on the reading strategies used in the Chinese EFL education or other similar contexts.

First, the students reported using overall reading strategies at a medium level. They used PROB strategies more often (at a high level) than GLOB and SUP strategies (both at a medium level). The study found that the Chinese students used some SUP strategies such as questioning and paraphrasing very infrequently (at a low level) due to existing contextual features present in the Chinese EFL education. This highlights the fact that teachers and researchers need to offer students more help on their use of reading strategies although they were moderately strategic in reading. Therefore, reading strategy instruction is suggested to be directed towards raising students' awareness of various reading strategies that can be at their disposal in different reading situations. In addition, it is suggested that students be encouraged to use a variety of reading strategies flexibly towards enhancing their reading comprehension and performance.

Furthermore, this study found that the overall reading strategies that Chinese EFL tertiary students used while reading textbook passages were not significantly correlated to their general reading test performance. Nevertheless, their use of certain strategies was

significantly correlated to certain type of the reading test. These findings provide researchers and educators with rich data about what test formats can be employed while assessing students' use of certain reading strategies. On the other hand, as every test format has its benefits and limitations and is therefore limited in its capacity to explore the reader's complex reading processes (Ko, 2010), it is suggested that a variety of formats be employed in order to elicit richer data about the overall picture of the students' reading strategy use.

The present study is an investigation into the reading strategies used by Chinese EFL tertiary students while reading textbook passages. It also explored the relationship between textbook passage reading strategies and reading test performance. Given the scant number of research studies in this area, more efforts are needed to provide further data and insights. Future research studies may proceed to investigate the reading strategies that students could employ to attain both good academic achievements and reading test performance.

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ABOUT THE AUTHORS

Lijuan Li is Professor at the Foreign Languages Teaching and Research Department, Hebei University, China. Presently she is a PhD student at the School of Humanities, Universiti Sains Malaysia. Her research interests include Teaching English to Speakers of Other Languages (TESOL), reading, learning strategies and teacher education in higher education.

Sarjit Kaur (PhD) is Associate Professor at the English Language Studies Section, School of Humanities in Universiti Sains Malaysia. Widely published, her research interests include English for Specific Purposes (ESP), Teaching English as a Second Language (TESL), Oral Communication, Learner Autonomy, Multiliteracies and policy research in higher education.