The Effect of Reading Strategy Training on University ESL Learners’ Reading Comprehension

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Abstract

The current research examined the effects of note-taking instruction on reading comprehension of college students at undergraduate level. A sample of 63 students majoring English, aged 17-25 (32 males, 31 females), were selected from among students of four classes in three different colleges in Mysore, India. They received 9 weeks of instruction and practice by Cornell method of note-taking. The effects of the note-taking instruction were measured by their performance on two multiple-choice reading comprehension texts. Students’ performance on a proficiency test was used to group students into two levels (high vs. low) and functioned as another independent variable in analysis in addition to gender as another variable in this study.

Results indicated significant treatment effect in favor of the strategy of note-taking instruction on both high and low groups. There was no statistically significant difference between low and high groups after instruction, although such a difference existed between two groups before instruction.

The results suggest that students at college can be instructed to develop note-taking ability that promotes their learning without taking gender factor into account because there was no significant difference between males and females in this study.

Key words: reading strategies, note-taking strategies, reading comprehension

Introduction

In the age of globalization, reading in a second language or foreign language (L2) contexts continues to attract an increasing attention. Therefore, the acquisition of different reading skills including note-taking is a priority for millions of learners around the world. However, as Grabe (2002) points out, due to the complexity inherent in the reading process, reading is also a skill that is accounted as one of the most difficult to develop to a high level of proficiency. Another problem which should be pointed out is that many enter higher education unprepared for the reading demands that are placed upon them as Dreyer and Nel (2003) point out.
Interest in reading skills or strategies, among EFL, ESL, and other second / foreign language practitioners, grew out of several streams of research which began in the late 1960s and early 1970s in different fields including psycholinguists, cognitive psychology and education. One of the streams of research which gave rise to interest in reading strategies focused on investigations in the field of psychology and education. Dickson, Collins, Simmons, and Kameenui (1998) describe strategies as “actions selected deliberately to achieve particular goals” (p.304). More specifically, O’Malley, Chamot, Stewner-Manzanares, Russo (1985) define strategies as “operations or steps used by a learner to facilitate the acquisition, storage, or retrieval of information” (p.557).

Strong Connection Between Reading and Writing

In addition, the strong connections between reading and writing are irrefutable. As Nuttach (1996) expresses, reading and writing are so closely associated as two sides of the same coin that it is natural for work on either to support work on the other. To date, a lot of studies have been done regarding the relationship existing between reading and writing. These studies can be divided into three main categories including those that examine the effect of reading on writing (e.g. Hirvela, 2004; Liv, 2000), those that scrutinize correlations between reading and writing (Eisterhold, 1990; Kennedy,1994; Olson, 2003), and those which examine different aspects on the reading-writing relationship or explain its theoretical bases ( Carson, 2004; Jabbour,2001; Smagorinsky, et al., 2005).

Usefulness and Effectiveness of Teaching Skills Together

What has been drawn as conclusion from the early 1990’s research toward 2000’s is that when these skills are taught together, they involve students in a greater use and variety of cognitive strategies in comparison to when they are taught individually; Furthermore, making use of writing as a learning strategy results in better reading achievement, on one hand, and using reading as a tool for manifesting ideas leads to better writing performance, on the other hand.

Teaching reading skills has been a mainstay of many if not most academically focused adult-level ESL reading classroom for at least the last two decades. In most recent years, skilled-based instruction has become increasingly popular in higher-level English as a second language ( ESL) and foreign language (EFL). While in a general sense, reading skills may refer to a variety of things including word recognition and other so-called “bottom-up” decoding skills, beyond the beginning level the focus tends to have been on “top-down” or meaning-based strategies that proficient readers have recognized as important to employ them in different second language studies.
Some Important Strategies

Among these top-down strategies, we can consider note-taking, skimming, scanning, using contextual and other clues to guess the meaning of unfamiliar vocabulary, to name just a few. The focus such tactics or strategies have received in English classrooms reveals this belief that they have the potential to improve reading comprehension by giving learners clear routines that help them to move beyond centering on decoding process and to facilitate transfer of those things that they may do when reading for meaning in their first language (L1).

Impact of Writing on Reading

Regarding the impact of writing on reading, Langer and Applebee (1987) indicate two kinds of writing tasks which help to develop and shape the readers’ ideas. The first kind of these tasks compromises note-taking, short-answer questions, and summary writing.

For most students, whether in high school or college levels, taking notes is necessary for optimal test performance while listening to a lecture or reading a text. Over 30 years ago, DiVesta and Gray (1972) reached to this conclusion that note-taking serves two functions: encoding and external storage (Kiewra, 1989).

Encoding and Note-Taking

Some other researchers have sought to reveal the existence of encoding during note-taking (Benton, Kiewra, Whitfill, & Dennison, 1993; Hartley & Davies, 1978; Putten & Coppola, 1998; Rickards & Friedman, 1978), because comprehension of the material would be increased if encoding occurs (Budd & Alexander, 1997). Note-taking is an effective strategy to increase students’ recall, comprehension, and retention of subject matter (Czarnecki et al., 1994; Kneale, 1998; Spires & Stone, 1989).

As a whole, students are able to comprehend better when they take notes, as compared with those who do not, because note-taking necessitates that students attend to the information selectively, and that activity contribute to encoding.

Functions of Note-Taking

Both note-taking functions put emphasis on the selective attentive nature of note-taking. In other words, notes simply direct students to pay more attention to important details and less to particular details presented in lectures or textbooks.

In addition, as Armbruster (2000) points out, the act of note-taking has been interpreted as a constructivist activity in its own right. In constructing knowledge, a student must decide to attend to the text at hand, decide on what is important to note and what is not,
and then make connections among the concepts in the reading text and between these concepts and prior knowledge. From this point of view, note-taking can be taken into account as a generative activity which is closely related to conceptions of knowledge-construction activities. Add to it, she also proposed that the more generative the note-taking activity is, the more that learning or comprehending is likely to occur.

**Research on Note-Taking**

Research on note-taking has spawned debates since Crawford (1925) started on his studies in the 1920s, focused his attention on whether note-taking strategy could have any impact on students’ performance. For a long time, researchers in different fields of study have attempted to confirm that note-taking helps students “encode” the information involved (Ladas, 1980). These days, it is very usual for teachers to utilize the note-taking strategy in the ESL reading class because they believe that this strategy can help students to discover the main ideas easily while reading a text, so they are able to enhance their level of reading comprehension to a higher level.

**Effect of Teaching Note-Taking**

Note-taking with a paper and pen is one of the most popular study strategies. According to Bligh (2000), it does not only produce a written record for later review, but also it promotes encoding of the presented materials. However, there are some inconsistent ideas regarding the effect of teaching note-taking in general, and the overall encoding effect, in particular.

For example, Kobayashi (2005) conducted a meta-analysis of 57 studies comparing learning outcomes of note-taking groups with those of no note-taking groups and indicated that the mean weighted effect size (d) was 0.22. According to Cohen’s (1988) criteria, the magnitude of this estimate was in the range of small to medium.

Regarding an explanation for modest encoding effects of note-taking, some researchers (Bretzing, Kulhavy, & Caterino, 1987; Faber, Morris, & Leiberman, 2000; Jonassen, 1984; Kiewra, 1989) came to this conclusion that students are not always competent note-takers, and so their spontaneous note-taking may cause them to encode the presented material in an opposite direction.

On the other hand, Jean E Faber, et al. studied the effect of this strategy instruction on ninth graders’ comprehension of high- and low-interest passage on teacher-made, objective test. A sample of 115 World Cultures students from a suburban junior high school participated as subjects. They revealed a statistically significant main effect for note-taking training.
Focus of This Study

Taking the inconsistency in these results into account, this study was done to investigate more the effect of note-taking intervention on reading comprehension test performance of undergraduate students. Regarding this purpose in mind, the following hypotheses are formulated:

H1: Reading comprehension treatment would impact students’ performance significantly.

H2: Students with different levels of English proficiency would receive different influence through reading comprehension treatment.

H3: There is a significant interaction between gender and reading comprehension.

Method

Participants

Participants in this study were 93 undergraduate students majoring English in three colleges in Mysore, India including Maharaja, Mahajana, and Maharany. All the participating students had completed 12 years of schooling and had graduated from high school prior to their enrollment in college. The students’ ages ranged from 18 to 25. There were 50 males and 43 females. Among these subjects, 51 were coming from urban areas and 42 from rural ones. Six of them were dropped from the study due to their absence in some treatment sessions or incomplete data.

Materials

The following instruments were used for the purpose of this study:

Language proficiency test (TOFEL). This test comprised of multiple-choice reading passage, vocabulary, and grammar sections. In order to test the reliability of the proficiency test, a pilot study was carried out on 20 students. Its reliability through the K-R21 formula turned out to be .75, which was appropriate to take the next step.

Test of reading comprehension in English. The test of reading comprehension in English was from Kit of Reading Comprehension (Rajinder S., 2008.). The time allowed was 20 minutes as determined at the piloting stage. The reading passages used in this study contained a general content, which were of interest to the students. Going through K-R21 formula, it was indicated that reading comprehension test was reliable enough (.72) for the respective goal in the present study. Then after calculating the correlation coefficient (.70) between the TOEFL proficiency test and the test of reading in
English in the piloting stage for the purpose of having a valid test, the test of reading turned out to be suitable for this study.

**Background questionnaire.** In order to elicit information about participants, a background questionnaire was developed by the investigators. It covered issues such as the subjects’ age, gender, place of living, years of studying English, name of college, and medium of instruction (see Appendix 1).

**Procedure**

The investigator approached the college authorities in Mysore during the three months of January, February, and March. After getting the consent by the authorities, the comprehension pretest and TOEFL proficiency test were piloted by 20 students who were randomly selected among the subjects in the three colleges. During this pilot test, some tests were revised and prepared for the main subjects. Then, the proficiency of the participants was determined by TOEFL proficiency test (Mean= 17 & SD= 5.60).

Based on the result of this test, subjects whose scores were one standard deviation above the mean were considered as high and those who got one standard deviation below the mean were considered as low. This extreme groups design resulted in 33 high-ability students and 30 low-ability students. Data for the students whose scores fell between +/- 1 standard deviation were not considered for analysis. Then, all subjects were given two reading comprehension tests including 8 multiple-choice questions (see Appendix 2) but only the scores of high- and low-ability students were considered for analysis.

The treatment sessions were held in the next procedure within a few days interval. In these sessions, students were shown how to take notes using Cornell method (Pauk, 1974). It is a two-column format in which a paper is folded lengthwise with approximately one third of the space on the left of the fold for the recording of main ideas, and the remaining two thirds of the space on the right side of the fold for recording details.

In addition, a self-made pamphlet was given to the subjects for the purpose of practicing this strategy. Note-taking strategy was demonstrated and modeled using the Cognitive Academic Language Learning Approach. This instructional approach was created to help English language learners learn to read English but it was implemented in this study to help ESL students to learn the how of taking notes.

**Five Instructional Phases**

This model included five instructional phases.

First, the teacher defined note-taking strategy in context while reading.
Second, the teacher modeled and practiced the strategy for one session. In this instructional phase, the students were given explicit, direct instruction in the use of note-taking strategy.

Third, the students practiced note-taking strategy taught with familiar contexts and familiar tasks which were provided for them by the instructor; in subsequent strategy practice, the researcher encouraged independent strategy use. Also, the teacher provided scaffolding until they became independent.

Fourth, the students evaluated their own strategy use immediately after each practice session by checking the strategy they had used and monitoring their understanding.

Fifth, to develop a larger repertoire of strategies, the students were asked to apply this strategy to new tasks.

Post-Test

After the treatment sessions which lasted about 2 months brought to an end, the same pretest reading comprehension texts were given to the participants for post-test. Directions were printed for the students to read silently while the instructor read out loud. All subjects were instructed to take notes on the passage while reading these texts and write them on their answer sheet. When the reading and note-taking were completed, the passages and notes were collected and comprehension tests distributed.

Results and discussion

On the basis of their scores from proficiency or prior knowledge test, subjects were first divided into two groups:

a) high: those subjects who scored 1 Standard deviation above the Mean (M+1SD), and
b) low: those subjects who scored 1 Standard deviation below the Mean (M-1SD).

After data were collected, paired T-test and Independent sample test were used to find out the significant difference variables as shown in the following tables.

<table>
<thead>
<tr>
<th>Paired statistics for</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>63</td>
<td>1.63</td>
<td>1.140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>63</td>
<td>3.27</td>
<td>.745</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>-1.635</td>
<td>1.112</td>
<td>-11.675</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note * p< .01 , ** p< .005
Results of data analyses (T-test) in the above table indicate that there is a statistically significant difference between students in reading comprehension performance before treatment (pretest) and after the instruction (posttest) ($t= 11.675; p< 0.001$). In other words, subjects scored higher in posttest ($M=3.27, SD= .745$) than pretest ($M=1.63, SD= 1.140$). With respect to this point, the first hypothesis (H1) is accepted.

### Table 2

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>30</td>
<td>1.07</td>
<td>.888</td>
<td>-4.262</td>
<td>.000</td>
</tr>
<tr>
<td>High</td>
<td>33</td>
<td>2.15</td>
<td>1.121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32</td>
<td>1.22</td>
<td>1.070</td>
<td>-3.148</td>
<td>.003</td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>2.06</td>
<td>1.063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>30</td>
<td>3.10</td>
<td>.712</td>
<td>-1.754</td>
<td>.084</td>
</tr>
<tr>
<td>High</td>
<td>33</td>
<td>3.42</td>
<td>.751</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32</td>
<td>3.13</td>
<td>.751</td>
<td>-1.587</td>
<td>.118</td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>3.42</td>
<td>.720</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note * $p< .01$ , ** $p< .005$

As expected, high-prior knowledge students scored significantly higher than low-prior knowledge ones on pretest ($t = 4.262; p< 0.001$) as Table 2 indicates. In other words, high-prior knowledge students performed better ($M=2.15, SD= 1.121$) than low-prior knowledge ones in reading comprehension test ($M= 1.07, SD=0.868$). However, there was not a significant difference between this ability and the presence of note-taking training (posttest) ($t= 1.745; p< .005$). That is, high-prior knowledge students did not show significantly more or less of an increase in test scores than low-prior knowledge ones. By taking all these results into account, the second hypothesis formulated in the present paper was rejected.

Regarding gender variable as another independent variable in this research, no significant difference was reported between males and females after note-taking strategy was taught (posttest) although such difference existed between them before treatment ( $t = 3.148, p < 0.005$). Therefore, the third hypothesis presented in this research was rejected.

The results of this study provide evidence that college students can benefit from a note-taking training program that emphasizes this strategy during answering reading comprehension test. This finding is consistent with other researchers who have found that strategy instruction improves students' strategy development (Faber et al., 2000); but it is inconsistent with this explanation that the interventions may have improved the quality of the note-taking procedures, but not the test performance (Robin et al., 1977; Bretzing et al., 1987). According to Bjorklund, Miller, Coyle and Slawinski (1997), the use of a
new strategy followed by little or no change in the task performance (i.e. utilization deficiency) is prevalent in the process of strategy acquisition. But, this is not true of the note-taking strategy according to the findings of this research.

When the notes taken from both high and low prior knowledge students who had received the instruction were observed by the researcher, it revealed that almost 70 percent of the students with low prior knowledge used the note-taking technique exactly as taught including recording of main ideas and details. This is an indicative of the presence of the first step in the process of using note for encoding, recognizing the main idea and supporting details (Hartley & Davis, 1987; Randall, 1996; Seitz, 1997). Of the remaining subjects in this group, about 15 percent had only noted the main ideas but others used other self-made methods of note-taking.

Regarding students with high prior knowledge, half of them implemented the strategy as it had been taught in the classroom but 20 percent only noted the main or supporting ideas; others made use of their self-made methods of teaching. The reason behind this fact that some students in both high and low-level knowledge have utilized their own methods for taking notes can be this point that using some strategies during reading or listening have been internalized in students’ mind. So, it is difficult to change them by teaching new strategies.

One of the researcher's concerns was that students with low prior knowledge would not be able to learn note-taking strategy as students with high prior knowledge but the study showed that this group was able to learn and use this strategy during reading comprehension test the same as other students did. One explanation behind this result is that students with lower proficiency are poor note-takers, and they have more room for improvement on the note-taking procedure. On the other hand, these students may not be familiar with other strategies when they are trying to find answers to the questions.

As a result, not-taking did increase the encoding process for students at undergraduate level. Considering that note-taking smoothed the progress of comprehension may pave the way for teachers to integrate this strategy into their courses and to encourage their students to take notes in a strategic way not in a cursory manner. Another conclusion which can be drawn from the findings of this study is that little distinction should be made between ability level of students when teaching note-taking strategy because both high and low prior knowledge students displayed higher level of comprehension after this strategy was taught and practiced during the exam.

This can give implication for the teachers in that they can teach this strategy in a heterogeneous class without taking the proficiency level of their students into account. Also, as far as it is concerned with sex factor in this research, both male and female students took advantage of note-taking strategy in an almost similar manner because there
was no significant difference between these two groups as one of the findings indicates. Consequently, it has an implication for teachers that they can use the same method of teaching for both co-education and mono-sex education class without considering the sex of learners.

**Instructional Implications**

According to the research results, students can improve their reading performance via a note-taking strategy because it can help students concentrate more on the reading text as well as enhance recall. The advantages of note-taking strategy overshadow its disadvantages, so it can be concluded that this strategy is an effective strategy for students to improve their level of reading comprehension.

According to the synthesis of the implications of note-taking strategy on ESL reading comprehension, several suggestions can be presented to ESL instructors: First, students may not know how to jot down key words during the note-taking process, so they will miss some important information which is necessary for comprehension; as a result, it is essential for teachers to effectively teach students the how of taking notes. Carrier and Titus (1981) asked teachers to devote some class time exclusively to a review period before an exam. By reviewing notes, students can be cognitively aware how to take note related to key words and main ideas during reading a text for comprehension. Second, students will not be able to learn note-taking during a short period of time and with little practice on it. Therefore, it is suggested that instructors should dedicate at least two months to teaching this strategy by a strategic method.

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**References**


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**Appendix 1**

**Students Proforma**

*Attention: Please answer the questions honestly. We keep them strictly confidential.*

1. Name of the student: ..........................  
2. Age: ..........................  
3. Gender: ........................................  
4. Name of college: .........................  
5. Class studying: ............................  
6. Medium of instruction: .....................  

Language in India  [www.languageinindia.com](http://www.languageinindia.com)  
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7. I have ………………..familiarity with English language.
   a. complete                            b. average                                c. a little
8. How many years have you been studying English except the usual classes in guidance school and high school? ………….years …………….months
9. What is your purpose of learning English?
   a. continue education             b. travelling                             c. finding a good job
   d. competing with other students   e. job promotion                        d. others (please write)
10. My attitude toward English is………………..  
    a. positive                                    b. negative                          c. no comment
11. My attitude toward European people, especially English-speaking ones is…………  
    a. positive                                    b. negative                           c. no comment

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Appendix 2

Passage 1: Read the passage and take notes in your answer sheet while you are reading.

All around this country, breakfast tables are taking on a new look. Gone are the eggs, bacon, sausage, cream, and buttered toast American have been accustomed to. Here to stay are fresh fruit, whole grains, and low-fat dairy products. Why? Because more and more people are becoming concerned about cholesterol; Research shows that a high level of cholesterol in the blood is a major risk factor for coronary heart disease. Fortunately, you can control cholesterol by making simple changes in your diet and exercise habits. Along with smoking and high blood pressure, cholesterol is one of the major risk factor for coronary heart disease. But, it’s also one of the easiest to control. All other risk factors aside, a 25% reduction in serum (blood) cholesterol can reduce your risk of heart disease by 50%.

Cholesterol is a vital part of everybody’s cell. In the blood, it travels in a “package” coated with protein. “bad” cholesterol (LDL) has a thinner protein coating than “good” cholesterol (HDL). LDL deposits itself on the walls of your arteries causing a waxy build-up called plaque, while HDL carries cholesterol out of the bloodstream. Plaque narrows or blocks the openings of your arteries, which impairs blood flow and can lead to heart attack, stroke, and death.

Saturated fat is a dietary fat that raises the level of cholesterol in the blood. When trying to reduce your cholesterol levels, it is important to reduce your intake of saturated fat as well.

You can also reduce your cholesterol and fat levels by making some simple low-cholesterol, low-fat choices in the foods that you eat.
1. People can have a heart attack and even die if…………………………
a. their HDL level is low
b. they have LDL in their blood
c. the walls of their arteries are wide
d. the arteries are blocked with plaque

2. We can infer from the passage that people who do the following are at the greatest risk of having a heart attack:
a. eat whole grains, fruits, and vegetables every day
b. eat eggs, bacon, sausage, and lots of butter every day
c. drink milk and exercise regularly
d. eat a piece of candy and walk for 20 minutes every day

3. To reduce the risk of heart disease by half, people should…………………………
a. eat only fruits and vegetables
b. reduce their blood cholesterol by 50%
c. eliminate all cholesterol from their diet and blood
d. reduce their blood cholesterol by 25%

4. According to the passage, all of these sentences are correct except……………….
a. fresh fruits and whole grains can reduce the amount of cholesterol in blood
b. cholesterol is easier to control than smoking and high blood pressure
c. HDL is a factor which causes plaque
d. decrease in saturated-fat amount causes decrease in cholesterol amount

**Passage 2**

If our anticipations are working, we will realize now that the world food problem, already inadequate for the majority, will increase in direct proportion to the number of people to be fed. Within ten years, the world’s population may be in access of four billion, of which Communist China will alone include one billion. The demographers tell us that within sixty-five years, people may be crushed to death for the want of standing room.

Forces are working in the contrary direction, to be sure, but they offer no solace. World nuclear war, if it comes, would no doubt reduce population pressure to the point where both the problem and the people might disappear together.

Here, too, we need *anticipation*. Within six to ten years, a dozen countries or more will have nuclear explosives at their ready disposal. Moreover, nations unable to make them will be able to buy them. The basic law of behavior – namely, that the possibility of error increases in direct proportion to the number of people involved - that applies to individuals also applies to nations. The greater the number of the nuclear fuse points in
the world, the greater the danger that one of them could go off by accident or design, killing others.

5. The world food supply at the moment is……………………
   a. satisfactory
   b. barely sufficient
   c. insufficient
   d. pretty strong

6. Within six to ten years , …………………………………
   a. people may be crushed to death for want of standing room
   b. both the problem and the people might disappear together
   c. more countries will be able to manufacture or acquire nuclear weapons
   d. the basic law of behavior will become operational

7. The basic law of behavior suggests…………………………
   a. the more, the happier
   b. the more the people, the greater the possibility of error
   c. the more the people, the less the standing room
   d. the more the mouth to be fed, the more serious the food problem

8. Demographers deal with…………………………
   a. the food supply
   b. population growth
   c. the nuclear energy crisis
   d. the future of the world

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