The Effect of Encoding Cues On EFL Students' Reading Comprehension

Seyed Akbar Mirhassani ■
Prof. Tarbiat Modarres University □ □
Shahin Seif ■
M.S., English language, Tarbiat Modarres University □ □

Abstract

The present study was conducted to find answers to the following questions:

1. Do encoding (underlining) cues related to the answers of the test items improve reading comprehension?

2. Do encoding cues related to the total understanding of a text improve reading comprehension?

3. Do encoding cues deviate the readers' attention from other parts of the text?

One hundred and twenty undergraduates majoring in English from Kurdistan University, Kharazmi Higher Education Center in Sanandaj, and Soroush Language Training Institute in Sanandaj were used as the sample population of Iranian language learners. They were divided into three matched groups on the basis of the Nelson Test. Then one group served as the controlled group and the other two as the experimental groups. The subject of these three groups were divided into three levels (high, low, mid). The two experimental groups took two different tests on reading underlined texts, while the controlled group read the unaltered text. The scores were compared. Though, the two experimental groups scored numerically higher than the controlled group, the mean difference was not significant at 0.05 level. That is, the answers to questions one and two were "no".

The answer to the third question of the study was negative, too. That is, underlining did not deviate the subjects' attention from other parts of the text.

Then to investigaté the correlation of language proficiency and the effect of underlining on reading comprehension, the investigator compared the performance of low-level readers with that of high-level readers and mid-level readers. The result indicated that the low-level readers benefited more than the other two from underlining. The mean difference was significant at 0.05 level (P=0.01).

Key words: Encoding, cues, reading comprehension, effect.

1. Introduction

The nature of the present educational system demands that students learn from prose materials. The determining factor in their success of failure in many activities is, in fact, their ability to learn from prose materials. Many recommendations concerning study skills, such as making outlines, writing precis, taking notes, and underlining may be among the most useful ways to facilitate prose learning. However, research has shown only a very small or no increase of output when these procedures are followed. The reason for this result was the concern of the present study.

It seems that readers use their own outlining, precis writing, etc. While there is no apparent relationship between these activities and the requirements of the output. In other words, what readers encode and underline might not be related to their success in reading comprehension.

A careful look at the problem is indicative of the fact that readers need help. One way to help second language readers is to give them cues for their comprehension *[2]*. Other scholars, like Gibson and Levin (1975), Chall (1997), Grabe and Wallace (1988), suggest that giving cues to second or foreign language readers would help them in their reading comprehension.

The purpose of this study, therefore, was to investigate whether encoding cues related to information needed for the answers of the test items would result in better performance in reading. There are different ways for encoding cues; one way is underlining, another is signaling by astriks, and a third way is using numbers. In this

study, underlining was chosen as a common way of encoding cues.

The basic research question of this study was to find an answer to the following question:

Do encoding cues which provide information required for the answers of the test items influence performance? The other minor questions to answer were:

1. Do encoding cues deviate the readers' attention from the rest of the text? and

2. Do encoding cues which help readers in total understanding of the text influence performance?

Three null hypotheses were selected in this study so as to come up with reliable results.

1. Encoding cues related to the answers of the test items have no significant effect on the readers' reading comprehension.

2. Encoding cues related to the total understanding of the text have no significant effect on the readers' reading comprehension.

3. Encoding cues related to the answers of the test items do not deviate the readers' attention from the rest of the text.

There were limitations to the study. First, the subjects were selected from the population of university students majoring in English, as well as students from Soroush Language Training Institute and undergraduates in majoring English from Kharazmi Higher Education Center in Sanandaj. Kharazmi students were English teachers mostly above 25 years of age. Second, reading comprehension was the only skill to be dealt with as the dependent variable. Third, only underlining was used as a common method of encoding cues. Fourth, only the answers to some and not all of the questions, were underlined in the text. To be exact, the answers to 10 questions out of 25 were underlined. Last, the probable sex and age differences were ignored.

To help readers, Wallace [15] states that language practitioners should give readers a purpose in reading. Readers who are exposed to underlined materials concentrate mostly on the underlined parts. Thus underlining gives them the purpose.

The idea that underlining can produce both incidental and intentional learning has been reflected in different researches. Incidental learning is a learning which

happens unintentionally, that is when one reads for pleasure; whereas intentional learning happens when one studies to learn. Crouse and ldstein *[5]* performed an experiment and indicated that when underlined text segments were given to readers, they recalled significantly more underlined material than those which were not underlined. They concluded that underlining causes the reader's attention to focus on the underlined material.

To study the effect of underlining, Rickards and August *[14]* conducted a research on 90 college students. The study had six different aspects: three subject-generated underlining, two experimenter-provided underlining, and one controlled case with no underlining.

The result showed the group that was free to underline any sentence was the most able to fit the passage with his or her own particular existing knowledge. Result on a recent test also indicated that the same group performed better than the other two groups on overall recall, including recall of incidental information.

What can be concluded from the study performed by Rickards and August *[14]* is the idea that all underlining treatments do not result in the same encoding process, sometimes underlining deviates readers' attention from other information which provide negative effects on the readers' performance.

Knowing that previous investigations related to the effect of underlining as a study technique indicated mixed results, Prinzo et al *[13]* conducted a study. In their study, they examined whether providing college students with materials containing textually important information underlined would improve test performance for those materials. Results indicated that the subjects who were provided with the underlined texts did not obtain higher scores on the comprehension test than those who had unmarked texts.

2. Method
A. Subjects

The subjects of this study were 120 undergraduate students of Kurdistan University and Kharazmi Higher Education Center in Sanandaj majoring in English and the students of Soroush Language Training Institute, who had passed at least 24 and at
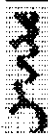
most 44 courses of basic English of BA curriculum including three reading comprehension courses.

B. Material

Two sets of test were used in this study. The first set was a 50 item Standard Test of Nelson (Form 450 A) which included a multiple choice cloze consisting of 25 items and another multiple choice test of sentence comprehension with 25 items. This proficiency test was used to measure the linguistic knowledge of the subjects and to provide a basis for forming the three matched groups. In other words, the total population of the study was divided into three groups of 40 subjects on the basis of this proficiency test. The time allocated for this test was 30 minutes.

The other set of test was another standard test chosen from ARCT (American Reading Comprehension Tests). This test consisted of three passages, each with 8-9 multiple choice items. The passages were culture independent and centered around different subjects. One of them was on "different beliefs about sneezing," the other was a "biography of a she novelist," and the last one was on "speech." None of the passages had a title. They were not more than 300 words. Since they were standard tests, there was no need for standardization. The time allocated for this test was 25 minutes.

C. Design

The design of the study was a subclass of pre-experimental design called "intact group design" in which both the experimental groups and the controlled group received a post test, but the experimental groups received the treatment, while the controlled group did not.

The subjects were divided into three matched groups on the basis of Nelson's proficiency test. The first group was chosen as controlled group, which did not receive any underlined passage; they were provided with unaltered texts. The second group was chosen as the first experimental group called S.O.Q. (Some Of the Questions). For this group, the answer to some of the questions were underlined in the text; That is why it is called S.O.Q. group. The third group was Total U. group

(Total Understanding group) which was the second experimental group. For this group, those parts of the text which helped the subjects in total understanding of the content were underlined. That is why it is called Total U. group.

Underlining for the second experimental group consisted of the main ideas, logical connective phrases, and transitionals as done by Loman and Mayer [9] in their study. Loman and Mayer conducted a study to investigate the effects of underlining on reading comprehension.

3. Procedures

The whole procedure of this study was divided into two phases in which the subjects took a test and then underwent the research. The first phase was the proficiency test, and the second phase was the experiment.

A. Proficiency Test

The proficiency test was Nelson Standard Test (Form 450 A). This test was used as a basis for dividing the whole population under the study into three matched groups. The statistical analysis showed that there was no meaningful differences among the three groups.

The means for the three groups are shown in table 1.

Table 1. The Means of the Three Groups

groups	Mean
S.O.Q.	20.45
Total U.	20.51
Control	20.01

F prob (0.091) indicated that these three groups are almost equal and therefore matched.

B. Experiment

In the second phase, two different experiments were conducted. The first experiment was that of the S.O.Q. group in which the subjects received the three reading

passages of ARCT, along with the answer sheets required. The subjects were asked to read the instructions and follow them. The instructions for the S.O.Q. group read: "Read the following passages carefully and then mark the best answers in your answer sheet. The underlined parts are the answers to some of the questions." Then the instructions were translated into Farsi by the instructor. The time allocated was 25 minutes.

The result of this experiment shown in table 2 indicated that the mean for the S.O.Q. group was almost equal to the mean of the controlled group.

Table 2. First Experiment: The Means of the S.O.Q. and Controlled Group

groups	Number	Mean	SD	
S.O.Q.	38	15.84	3.5	0.57
Controlled	37	16.05	3.04	0.50

$P = 0.16$ which is more than $P = 0.05$

The second experiment was that of Total U. group. The subjects of the second experimental group received the same passages with different underlining. For this group, those parts of the text helpful for total understanding were underlined: transitional markers, main ideas, and logical connective phrases, as done by Loman and Mayer [9], were marked. The instructions for this group read: "Read the following three passages carefully then mark the best answers in your answer sheet. The underlined parts help you in total understanding of the passages." Then the instructions were translated into Farsi by the instructor. 25 minutes was allocated for this experiment.

The performance of the Total U. group was compared with that of the controlled group and the result (given in table 3) revealed that the means of the two groups were almost equal, which proved that underlining did not help the readers in the Total U. group.

Table 3. Second Experiment: The Means of the Total U. and Controlled Group

groups	Number	Mean	SD	
Total U.	34	20.51	4.72	0.75
Controlled	41	20.07	5.20	0.81

There was no significant difference between the means in
Total U. and the controlled group.

4. Results

The results of the study indicated that the performance of the subjects in S.O.Q.
group, for whom the answers to some (10 out of 25) of the questions were
underlined, was similar to that of the subjects in the controlled group, who received
texts with no underlining. The mean for S.O.Q. group was 15.84 and for the
controlled group 16.05; Therefore, the result was not significant. It seems quite clear
that underlining the answers to some of the questions will not affect the readers'
performance significantly.

Regarding the second question of the study, that is, whether underlining those
parts of the text helpful for total understanding of it affects the readers' performance
in reading comprehension, the result of the study indicated that there was no
significant difference between the performance of the Total U. group and that of the
controlled group. The mean for the Total U. group was 16.41, and for the controlled
group was 16.05. Since the difference between the means of the two groups was not
significant at the level of 0.05 (P=0.25), one may conclude that underlining those
parts of the text helpful for total understanding does not affect the subjects'
performance significantly.

As for the third question of the study, that is, whether underlining some parts of
the text deviates the readers' attention from other parts, the readers' performance in
no-underlined part was compared with the rest. The result indicated that the mean
difference for no-underlined part equaled 0.24 at P=0.19.

In table 4 the comparison of the mean for the S.O.Q. group with that of the
controlled group in no-underlined part indicates no significant difference.

Table 4. Comparison of Means in No-Underlined Part

groups	Number	Mean	SD	
S.O.Q.	38	7.95	2.51	0.40
Controlled	37	8.16	2.02	0.33

There is no significant difference between the means.

Therefore, the null hypothesis indicating that underlining did not diviate the readers' attention from the rest of the text was not rejected.

In the final part of the experiment, the researcher decided to determine whether the result pertained to the high level readers, mid level readers, or low level readers. The first 25 percent of the ranked list was considered as high level, the last 25 percent as low level, and the remaining 50 percent as mid level readers.

To find an answer to the question, the performances of these three sub-groups in the S.O.Q. group were compared. The means were 17, 16.6, and 12.8, respectively from high to mid and to low level readers.

The analysis of data indicated that the means were significantly different at the level of $P = 0.05$. Therefore, the researcher came to the conclusion that underlining the answers to some of the questions will significantly affect the performance of low level subjects in comparison with high and mid level readers.

5. Discussion

The answers to the three questions of the study were negative. Firstly, it was found that underlining the answers to some of the questions in a text does not improve the readers' reading comprehension. Secondly, underlining some parts of the text helpful for total understanding does not affect the readers' performance. Thirdly, underlining some parts of the text does not deviate the readers' attention from the rest of the text.

There are many possibilities to account for these findings. One possible reason might be that the parts being encoded were so distinguished that the subjects did not need any encoding to learn them.

Another possible reason might be the length of the passages. The passages were not long enough to make underlining helpful to the readers. In a study similar to the present study, conducted by Crouse and Idstein *[5]*, the length of the passages were 6000 words, and underlining caused an improvement of 87 percent.

The third possible reason might be related to the fact that some readers do not read and do not comprehend and/or do not pay attention to the instructions. By the time they encounter passages with multiple choice items, they start reading and try to answer the questions.

The last possible reason might be due to the lack of treatment. It seems that if the subjects had some practice on reading underlined texts, they might have made a better use of underlining.

To sum up, underlining was not found to be beneficial with short texts of about 300 words; however, Crouse and Idstein *[5]* in their study indicated that encoding cues in texts of 6000 words improved reading comprehension. So underlining cues is not recommended to be applied to short passages, but it is recommended to be used in novels and novellettes when used as outside reading or extensive reading.

The investigators deem it necessary to suggest further researches. First, this study was done on the effects of encoding cues on reading comprehension; a similar study can be done on listening comprehension. Secondly, as mentioned before, this study used text of 300 words; another study may be done with longer texts. Thirdly, this study did not differentiate test items. That is, test items were both factual and conceptual, and the performance on factual and conceptual items was investigated at the same time. However, it might be possible that readers perform better on factual questions than conceptual ones when reading underlined texts. Then, another study can be done on differentiating factual and conceptual items. Fourthly, underlining was used in this study as an encoding method, another study may use other ways of encoding such as italics, highlighting, etc.

In conclusion, it is hoped that the gap between research and practice be filled in near future, and teachers as well as learners be provided with appropriate materials, and learners be taught according to the techniques suitable for their purposes.

6. References

[1] Augstein, E.S., *Reading Strategies and Learning Outcomes*, Unpublished Ph.D. Thesis, U.S.A., Brunel University, 1971.

[2] Bowen, J. Donald, Harold Madsen, Ann Hilfert, *TESOL Techniques and Procedures*, U.S.A., Newbury House Publishers, 1985.

[3] Carrell. P.L. and J.C. Eisterhold "Schema Theory and ESL Reading Pedagogy", in Michal H. Long and Jack C. Richards (Eds.), U.S.A., Newbrry House Publishers, 1983.

[4] Cashen, W.M. and K.L. Leicht, "Role of the Isolation Effect in a Formal Educational Settin", *Journal of Educational Psychology*, 61, 1970 484-486.

[5] Crouse, Y.H. and P. Idstein, "Effect of Encoding Cues on Prose Learning, *Journal of Educational Psychology*, 63, 1972, 309-313.

[6] Gibson, Eleanor J., and Harry Levin, *The Psychology of Reading*, The Massachusettes Institute of Technology, 1975.

[7] Grabe, William, TESOL Quarterly, Vol. 25, No. 3, 1991.

[8] Hatch, E. and H. Farhady, *Research Design and Statistics for Applied Linguistics*, Newbury House Publishers, Inc., 1982.

[9] Loman, Nancy & Richard E. Mayer, "Signaling Techniques That Increase the Understandability of Expository Prose", *Journal of Educational Psychology*, 757, Jun. 1983, 402-412.

[10] Long, Michael H. and Jack Richards, *Series Editor's Preface in Interactive Approach to Second Language Reading*, Patricia L. Carrel, Joanne Devine and David E. Eskey (Eds.), Cambridge University Press, 1988.

[11] Mackay, Ronald, "Teaching the Information Gathering Skills", in Michael H. Long & Jack C. Richards (Eds.), *Methodology in TESOL: A Book of Reading*, Rowley, Newbury House Publishers, 1987.

[12] Mayer, R.E., "Forward Transfer of Different Reading Strategies Evoked by Testlike Events in Mathemathics Texts", *Journal of Educational Psychology*, 67, 1975, 165-169.

[13] Prinzo, O. Veronika and Joseph H. Danks, *Does Providing Underlined Text Improve Subsequent Test Performance to That Material?*, Presented at the

Annual Meeting of the Midwestern Psychlogical Association, Chicago, II, May 1984, 3-5.

[14] Rickards, J.P. and G.J. August, "Generative Underlining Strategies in Prose Recall", *Journal of Educational Psychology*, 67, 1975 860-865.

[15] Wallace, Catherine, *Learning to Read in a Public, Multicultural Society*, Prentice-Hall Publication, 1988.

[16] Yorkey, R., *Study Skills, for the Students of English as a Second Language*, New York, McGraw-Hill, 1970.