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THE EFFECTS OF QUICKSTER; A COMPUTER READING SOFTWARE ON THE STUDENTS' READING SPEED, READING TIME AND READING COMPREHENSION.

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ABSTRACT

The introduction of computer in language learning over the past few years has indeed given tremendous impact on the learning and teaching process per se. Research carried out overseas has shown positive impact on the students who have been exposed to the usage of computer in learning. This study was carried out to look at whether the same noble effect of computer in learning applies in the Malaysian educational setting. The study carried out was aimed at testing the effectiveness of Computer Assisted Language Learning in the UiTM Pahang branch setting. It used a computer reading software to test the effectiveness of reading instructions in helping the students to read better, faster and understand more

Keywords: Computer reading software, reading speed, reading time, reading comprehension

INTRODUCTION

In second language teaching/learning situations for academic purposes; especially in higher education in English medium universities, or other programs that make extensive use of academic materials written in English, reading is paramount. Quite simply without solid reading proficiency second language readers cannot perform at levels that they should in order to succeed and they cannot compete with their native English speaking counterparts (Carrell, Devine, & Eskey, 1988)

This quotation has given us a bit of the general idea about the situation in hand. Having been involved in teaching the language for same time, most teachers and lecturers find that this quotation tends to sum up a situation that is very familiar and true.

At UiTM Pahang Branch, for example, from the researcher's experience, students do not really like to read English materials, and some do not even like to read at all. If they read, it will only be a preparation for a presentation or a test. Most of the students mention that it is difficult to read in English, as the activity requires them to go through some routines, which they do not really like. Routines such as flipping through the pages of a book again and again and opening the dictionary to find meaning of words that they do not know have been classified as tedious and boring. This leads to the slow pace of the reading speed, and in the end, makes reading boring. Once the students have experienced boredom in reading, they will say that is it difficult to read English materials. In the end, this will affect their ability to acquire the language proficiency required and gradually it will affect the standard of the language mastery among the students.

As the outcome of the problem, over the years that standard of English language in Malaysia has been decreasing gradually at the level that could be defined as alarming. This is evident from the results of various national examinations conducted every year. In 1991, the Prime Minister made a press statement highlighting concerns regarding the poor results in the national English language examination, which is conducted at the end of secondary education (The Star, May 4, 1995). Another follow-up statement in 1995 by the Minister of Education announcing a quantum leap was needed to improve the English language standard, therefore the problem is considered serious.

The interesting fact about the statement made by Carrell, Devine, and Eskey (1988) is that it stresses the need to have a good reading proficiency that will help the students in understanding what is being learned at college level. This is very true as most reference books in most disciplines are still written in English. By exposing the students to reading habits, it could help upgrade the proficiency level of the language as Krashen and Terrell (1988) mention that reading can serve as an important source of comprehensible input and may make a significant contribution to the development of the overall proficiency. Therefore, the need to acquire good reading skills should be exposed to the students so that they could improve their English language proficiency. If this skill is not nurtured in the students, they will find it difficult to comprehend what is being read in the reference books, especially when they read books in English. They will not be as competent as they should be at their level as college students. Williams in Tickoo (1995) mentions that based on the nature the competency, for those pupils who do not read in their native language, then learning to read and learning a new language will become almost simultaneously problematic.

Once the idea of reading is already a problem to the students, another problem crops up when they read. Due to lack of interest in reading, the students tend to read too

slowly. This will lead to boredom and inability to comprehend what is being read. In order to comprehend the printed text a continuous process is required to supply the idea of the text piece by piece in order to make it complete. Once the speed is at a slow rate, the mind will regard that it is boring and difficult to comprehend. Spafford and Grosser (1996) state that speed in word recognition is a major factor when constructing text meaning. If too many cognitive resources are spent on decoding, there will be a concomitant loss of meaning. That explains the boredom and inability to comprehend the text, which has been read too slowly. The problem that the students faced is none other than the inability to read with an appropriate speed. In the process of comprehending the text, students must read with an appropriate speed so that the idea of the text will be continuously supplied to them and the possibility of losing the meaning of the text from point to point could be avoided.

Not only students in Malaysia but also students in the United States face this problem. As Bowen, Madsen, and Hilferty (1985) mention that "the inability to vary speed in reading is a serious drawback for students in the United States in general and it is a more serious problem for second language readers than for the natives". In order words, the problem is actually a universal one. To those students who find reading boring and difficult, they can be categorized as slow readers and those who are interested in reading are good readers. From the statement above, the needs to acquire certain reading speed can be very important to help the students in comprehending printed text.

THE STUDY

From what has been discussed on the reading aspects, the question that arises would be: Can these poor readers be transformed or trained to become good readers with the help of computer? Or, can they be trained to acquire the necessary reading skills required that can make them good readers while practicing reading with computer? Balajthy (1989) sums up that the basic principle of learning to read is "spend a lot of time reading". In other words the more the students read the better reader they will become. Therefore, poor readers can be exposed to using appropriate reading model and strategies in order to transform them in becoming good readers. If this question has been answered, then another question arises; " How do we encourage the students to read without getting bored and at the same time are able to increase the reading speed as well as the comprehension? In other words, how can these poor readers be motivated to read without feeling bored of the reading process? What can be used as a treatment for these poor readers?

The purpose of the study was to find out the impact of QUICKSTER: a reading pacer on the students' reading speed, reading time and reading comprehension. In order words, the study was carried out to assess whether poor readers could be transformed

into good readers and if the students are already good readers, they could be transformed into better readers with the help of computer.

RESEARCH DOMAIN

The domain of the study is to investigate the effectiveness of a computer reading software on the students' overall achievement in their reading speed, reading time, and reading comprehension. This study is not intended at investigating the reading strategy or models adopted by the students while the reading practice takes place. It is designed solely in finding the effects of computer reading software on 9 students who volunteered to participate in the study.

METHODOLOGY

Student were induced to participate in the study during class meetings before the study took place. After the induction, nine students volunteered to participate in the study.

These subjects were taken to the computer laboratory where they were introduced to the program. Subjects were not immediately allowed to practice using the program as some of them were not very comfortable with the machine. After a few sessions of familiarization, subjects then were given other CALL programs to practice with. This was meant to ease the anxiety level of the subjects when dealing with the computer later in the study. Subjects were given the liberty to practice either individually or in groups. They were also given the freedom to practice on any CALL program they feel comfortable with. Among the CALL programs used for the preliminary task were *Sequiter, Eclipse, Verbalist, Dropin and Headline.* After that the subjects were allowed to practice with QUICKSTER. This was to make sure that the subjects were comfortable with the program's flow and also with the control keys as well.

After a few sessions of preliminary practice, the subjects were given the pre-test. This pre-test was meant to look at the subjects' initial reading speed. The calculation for the pre-test score was done manually. The subjects were required to read the reading comprehension passage entitled "Hints for Effective Reading I". They were asked to record the time they spent on reading the passage. This subjects started to read at the same time and stopped when they finished. The subjects recorded their starting and ending time reading the passage. Once they had done that, they then proceeded to answering the comprehension question prepared after the reading. Each subject was asked to read the passage three times. Each time they finished, they were asked to calculate their initial reading speed. The calculation was made based on Wade E. Cutler's formula used in his book "Triple Your Reading" (1993). This is how it was done:-

(i) Subtract the starting from the finishing time.
(ii) Convert the whole minutes into second by multiplying the minute with 60.
(iii) Add to this any extra seconds.
(iv) Then divide the total seconds by the number of words in the passage to a single decimal point. This will give the rate for words per second.
(v) The figure is then, multiplied by 60 to get the actual number of words per minute.

For example, if a student took about 2 minutes and 20 seconds to read a passage of 400 words. Therefore, in order to calculate his initial speed:-

Convert the whole minute into seconds.

$$(2 \times 60) + 20 = 140 \text{ sec.}$$

So the student took 140 seconds to read 400 words. Therefore, the number of words that he or she read per minute would be:

$$\frac{60}{140} \times 400 = 171.4 \text{ wpm}$$

Once the initial reading speed had been determined, the subjects were asked to fill in the student's reading progress sheet. The subjects recorded the time of their reading which they used it to calculate their reading speed using the steps mentioned. The subjects were also asked to record the correct answers that they got for each reading. The answers to the questions were disclosed to the students after they have read the passage for 3 times. The final figure used for the data analysis would be taken from the average of the 3 readings. All these calculations were done manually by the subjects and then were cross-checked by the researcher. After that, the subjects were asked to fill in all the details into the Subject's Reading Progress sheet, (as shown below)

TABLE 1a: Subjects' performance during the reading activities

	Reading I	**Reading II**	**Reading III**	**Average**
Time	150 sec	160 sec	140 sec	140 sec
Speed	200	195	212	202.3
Correct Answers	6/10	5/10	7/10	6

Therefore, the figures for the particular student's pre-test performance will be:-

Time taken 140 sec = 2 minutes and 20 seconds

Speed 202.3 words per minute

Comprehension 6/10

These 3 elements would be used to look at the improvement of the students after the treatment. After the treatment, the students would sit for another test using the same passage in looking at the impact of reading using QUICKSTER. A comparison based on the 3 elements mentioned will be used to look at the students' performance. The students were asked to read 3 times because by taking the average of the 3 reading practices should give a better picture of the elements being studied.

After the pre-test, the subjects then started going to the computer lab on weekly basis to practice reading using QUICKSTER. The subjects were asked to go to the lab only once a week and they would read only a passage for every session. The program was copied into diskettes, and was upgraded every week with new passages. Every week the subjects were given the diskettes, and were told which passage that they should read and the subjects were reminded to work individually. After every session, the diskettes were collected. Similar to the pre-test, subjects were asked to read the passage for 3 times after which they would record all their reading activity profile showed on the screen illustrated by the program into the student's reading progress sheet. The only thing that differs was the calculation of the speed, time, and correct answers, which was being done automatically by the computer. This was meant to give some motivational impact to the subjects, as they were able to look at their performance or progress from the practice.

The same passage was used for the pre-and the post-tests because the study was looking at the improvement in the reading speed, time taken to read the passage, and comprehension. By making comparison on the subjects' performance based on the same passage, it would be easier to look at the improvements.

The post-test was administered during the 16th. Week. Apart from the post-test given, the subjects were also asked to answer a questionnaire that consisted of ten questions relating to the motivation level and interest cultivated during the study. This was used to look at their acceptance and also the influence of computer during the study.

Once the subjects had been exposed to QUICKSTER, which was used as the treatment that will help upgrade the poor students reading speed to a speed

that could be accepted as the speed that they should acquire for reading at their level, their reading speed will be compared to the list prepared by Mosback and Mosback (1985).

TABLE 1b: Mosback Reading Speed For Passages of 500 Words

Reading time Min/Sec	Speed (WPM)	Reading Time Min/Sec	Speed (WPM)	Reading Time Min/ Sec	Speed (WPM)
1.00	500	2.30	200	4.00	125
1.10	427	2.40	188	4.10	120
1.20	375	2.50	174	4.20	116
1.30	334	3.00	167	4.30	111
1.40	300	3.10	138	4.40	107
1.50	273	3.20	150	4.50	104
2.00	250	3.30	143	5.00	100
2.10	231	3.40	137		
2.20	215	3.50	131		

The values and the times stated in the table are based on the reading passages of 500-word length.

On the question whether poor readers can be transformed into good readers, it will be answered from the comparison made between the reading speed that the subjects acquired during the pre-test and the post-test. The second question that is "Once the poor readers have been transformed into good readers, they should read faster and comprehend better", will be answered by the reading comprehension questions that are set after the reading which act as the post-test activity.

FINDING

An overview

Table 2 summarizes the data collected form the pre-test. Under the column with the heading "Subject", information regarding the subjects' gender, and the SPM English result are stated. Column with the heading "Element" is meant for the elements being tested. It stated the three elements that are under studied. The last two columns are figures pertaining to the subjects' performance during the pre-and post-tests. They show the average figures of three readings.

TABLE 2: Summary of data colleted

SUBJECT	GENDER	ENGLISH	READING SPEED	READING TIME		COMPREHENSION	
		SPM RESULT	Pre-Test Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
1	MALE	C3	152.5 290.0	3m 18s 51s	1m	6.3	9.0
2	MALE	C6	155.1 394.6	3m 22s 18s	1m	8.7	9.7
3	FEMALE	P7	209.8 348.4	2m 23s 38s	1m	6.7	8.3
4	FEMALE	C3	153.9 238.6	3m 15s 06s	2m	8.7	8.0
5	MALE	P7	239.1 270.2	2m 06s 51s	1m	5.7	6.6
6	FEMALE	P7	171.7 249.5	2m 56s 00s	2m	7.0	8.0
7	FEMALE	P7	145.3 171.6	3m 26s 58s	2m	5.0	6.0
8	FEMALE	P8	150.0 206.5	3m 21s 25s	2m	9.0	9.3
9	FEMALE	C5	327.7 475.1	1m 35s 03s	1m	7.7	8.7

From the overview of the subjects' overall performance, it could be concluded that all subjects had improved themselves in the three elements being studied. In the effort to look at the subjects' acceptance to using computer in the study, they were given a questionnaire consisting of 10 questions after the treatment. From the ten questions, 3 questions were meant to examine the subjects' enjoyment of working with the computer. The other questions were trying to assess the subjects' self-reported comprehension of the reading exercise (Goertzen, 1998). From the questionnaire that was given after the post-test, it was found out that all the subjects agreed on these following items:-

(i) They like computer.
(ii) They enjoy using computer to practice reading.
(iii) The program helps them improve their reading.
(iv) They would like to read using the computer again.
(v) They would recommend the program to their friends.
(vi) Computers are good for English learning.
(vii) They read faster compared to their reading speed before the study.

(viii) They would enjoy reading using the computer more if they were given more time to practice with it.

8 subjects mentioned that they understood better when they read using the computer and only 2 subjects from those 9 stated that they were not comfortable using the computer. All subjects stated that they liked computer, and they enjoyed using it to practice reading. They would like to read using computer again if they were given the choice because they believed that the program had helped them in improving their reading speed and also comprehension. In addition, they would recommend the reading program to their friends. All the 9 subjects stated that computer was good for learning English. All of them agreed that they now read faster using computer rather than read manually. This is true as shown in the post-test results. As mentioned earlier, all subjects including the low achievers (subjects got P7 and P8 for English papers in their SPM examination) improved their reading speed. Subjects 5 and 9 stated that they were not comfortable using the computer. As a result of this, both subjects were not able to record significant improvements in their performance. This was evident from the percentage of their reading speed. Both subjects recorded only 13% and 32.8% improvement respectively. These two figures were the second and the third lowest from the overall percentage for the reading.

READING SPEED

Pre-Test

In the pre-test, the average reading speed recorded was 192.79 words per minute, with the slowest reader read about 150 words per minute and the fastest was 357.7 words per minute. From the pre-test curve, only 3 subjects had quite a high reading speed compared to others. They were subjects 3,5 and 9. Their initial reading speed was above 200 words per minute while for the others it was between 145 to 172 words per minutes.

Post-Test

For the post-test the average reading speed was 293.8 words per minute with the slowest reader read about 171 words per minute and the fastest 475 words per minute. From the post-test curve, only one subject recorded a reading speed below 200 words per minute. The other 8 recorded an increase of between 200 to 400 words per minute.

Subject 9 remained as the fastest reader with 475.1 words per minute, and the slowest was still subject 7 whose speed was also the slowest in the pre-test. Subject 5's reading speed went down from the second fastest to the fifth after the post-test.

Subject 5's place was replaced by subject 2, whose reading speed rose to 394.6 words per minute from 155.1 words per minute. Although subject 9 remained as the fastest reader, the highest improvement was that of subject 2. Subject 2 reading speed increased as many as 239.5 words per minute compared to subject 9 who recorded an increase of 137.5 words per minute. Although all subject improved their reading speed after the treatment, only 4 subjects managed to increase their reading speed above 100 words per minute.

READING TIME

Pre-Test

During the pre-test that was before the treatment, subject's average reading time was 171 seconds (2 minutes and 52 seconds). The fastest time was recorded by subject 9. She took only 95 seconds and the slowest was subject 7 where the time taken was 206 seconds (3 minutes and 26 seconds). From the pre-test it was found out that 3 subjects, subject 3, 5 and 9 recorded a reading time below 150 seconds (2 minutes and 30 seconds) Reasons for this achievement would be the reading time was an indirect proportion of the reading speed.

Post-Test

In the post-test some significant improvements had been recorded by some subjects. They were subjects 1, 2 and 4. Subject 2 improved as fast as 1 minute and 44 seconds while subject 1 recorded a reduction of 1 minute and 27 seconds and subject 4 recorded a difference of 1 minute 9 seconds. The improvement of the other subject was less than 1 minute.

The average reading time during the post-test was 1 minute 57 seconds. The fastest time recorded was 1 minute and 2 seconds while the slowest was 2 minutes 58 seconds. Subjects 5, 7 and 9 were able to improve not more than 1 minute in the time taken to read the passage. The reason to this would be they were not comfortable using the computer. This was true for subjects 5 and 9 while subject 7 was actually a very slow reader.

READING COMPREHENSION

Perhaps the most important element in this study was the comprehension. As it shows the overall impact of the reading software used on the subjects' reading habit. As the only mechanism that is being used to determine the successfulness of any reading

activity, the comprehension will demonstrate the subjects' ability to understand what they have read during the test.

Pre-Test

In the pre-test, the average reading comprehension was 7.2 with the lowest was 5 out of 10 questions and the highest was 9. The lowest comprehension was still subject 7, and ironically, the highest was not subject 3 but it was subject 8. Subject 8 was not that prominent in the other two elements under study. She was only the 8th fastest for reading speed and reading time. The rest of the subject performed between 6.3 to 7.7 out of 10 comprehension questions.

Post-Test

From the data collected, it was found out that 8 out of 9 subjects improved their comprehension. Subject 4, showed a slight decrease in comprehension from 8.7 to 8.0 out of 10 questions. The average comprehension scored during the post-test was 8.7 with 5 subjects recorded and increment of 1 mark each. The remaining 4 subjects comprehension increment was between the ranges of 0.3 to 2.7. The highest improvement was recorded by subject 1, which was 2.7 marks. Subject 4's reduction of comprehension may be due to not having the appropriate reading skills as she stated reading as her third choice of her interest. Subject 1's 2.7 increment was due to the exposure he had at home and also from his reading habit though it was only his second choice of interest.

SUMMARY OF DATA COLLECTED

TABLE 3 : The Summary of the Percentage of Improvement

		PERCENTAGE %		
SUBJECT	**SPM RESULT**	**SPEED**	**TIME**	**COMP.**
1	C3	90	41.4	42.9
2	C6	154.6	61.4	11.5
3	P8	66.1	31.5	32.9
4	P7	55	35.4	8.1
5	C3	13	11.9	15.8
6	P7	48.3	46.7	14.3
7	P7	18.1	13.6	20
8	P8	37.1	27.9	3.3
9	C5	32.8	33.7	13

From Table 3, it shows that the percentage of the improvement of the 3 elements that are being studied. These elements are reading speed, reading time, and reading comprehension.

Under column 1, it shows the subjects participated in the study. It also tells us the respective subject's the English score during the SPM examination. The speed column shows the percentage of reading speed improvement recorded by each subject. Meanwhile, the time and comprehension columns demonstrate the percentage of performance of the 2 elements respectively. The figures tabulated are not meant to compare, and socioeconomic status background. They are only meant to show how much had each subject improved during the study. Generally from the figures tabulated, all the subjects have shown some improvement in all the 3 variables that are being studied. Only one subject recorded a slight drop in the comprehension. On the whole, the impact of QUICKSTER on the students' reading habit had been very promising based on the study carried out. This is being supported by the all the subjects' performance during the study. All the subjects, even the slow readers and the low achievers, were able to be transformed into good and better readers.

CONCLUSION

Based on the data analysed in the study, the outcome shows that CALL reading software is able to give positive impact on the students' reading performance. QUICKSTER, used in this study, managed to train the subjects' eye movements to read faster by reading more words in one fixation. This is evident based on the performance demonstrated by all the subjects involved in the study. Regardless of their SPM English language results, socio-economic backgrounds, and interests, all subjects had shown improvement in all the elements being studied after using QUICKSTER in their reading exercises. This is evident from the comparison made between the post-test and the pre-test results. All subjects had improved themselves in all the elements under study.

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