

EFFECT OF SCREEN TEXT IN IMPROVING STUDENTS' READING RATE AND READING COMPREHENSION

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Abstract

Reading comprehension is a complex process, it does not happen automatically. The process of comprehension begins when the reader encounters some new content, working memory is activated in order to capture the information already stored in long-term memory. Among some factors that influence students' reading difficulties are low prior knowledge, lack of vocabulary and rate or fluency in reading. The reader is really required to consistent in maintaining reading rate of the text understanding and focus attention or concentrate fully on reading in order to understand the discourse content as a whole. In increasing the students' reading ability, technology can be used as teaching tool. They are computer, mobile phone, tablet, or LCD. It has a big influence in education especially teaching reading. Most of students have experience reading a text from those technologies, or it can be said reading a text on screen, in their daily life. Therefore the objectives of this research was conducted to know the effect of using screen text in improving the students' reading rate and reading comprehension. The population is students at English Education Study Program of Baturaja University in academic year 2018/2019 and 36 students as sample. The research method was pre-experimental design, with pre-test and post-test, which to know the improvement after giving the treatment. Tests were used in collecting the data, silent reading rate test and reading comprehension test. Based on the result, it found that screen text have not only affected students' reading rate but also comprehension.

Key words: screen text, reading rate, reading comprehension

Background

Reading as one of the language skills presented in teaching learning activity takes important role in acquire information and knowledge. It can increase and enlarge the students knowledge and achievement, because most of communication in written form. According to (Dechant, 1991) stated that by mastering reading skill, it can help students achieve good achievement in their learning process at school and in their lives in general. While, to become a good reader, reader must be able to recognize words in order to understand individual sentences as well as to combine their meanings in order to provide an interpretation of the text as a whole. The process of comprehension begins when the reader encounters some new content, this way the working memory is activated in order to capture the information already stored in long-term memory. It requires word identification, attention to understand and interpret written language, auditory memory, visual memory, structural analysis and context of language, logic synthesis, vocabulary, comprehension and rate or fluency in reading.

Some factors that influence for students' reading difficulties are low prior knowledge, lack of vocabulary and rate or fluency in reading. Consistent in maintaining the information that is reading requires good reading rate. It really requires to focus attention or concentrate fully on the reading in order to understand the content and context of the discourse as a whole. According to Nurhadi (2005) reveals that reading rate contains various implications such as reading goals,

habits, reasoning, and reading material. A fast reader does not mean applying the same reading rate to every situation, atmosphere, and type of reading it faces. Furthermore, the study about the correlation between reading rate and reading comprehension was proved by plenty studies () and many studies have shown that increasing the reading rate will improve reading comprehension (e.g.; Chang, 2010; Chung & Nation, 2006; Fuchs, Fuchs, & Hosp, 2001; Fujita & Yamashita, 2014; Iwahori, 2008; Macalister, 2010; Rozakis, 2000; Sayenko, T., 2011, Settiawan, 2018).

The ability to read and interpret texts and other assigned material effectively is a critical component of success at university level. Furthermore, the university students are require in a good level in reading rate and reading comprehension. According to Carver (1982), the optimal silent reading rate for English university students is between 250 and 300 words per minute (wpm). However, many studies found the rate in average and low level (Alhajaj, 2006, Fraser, 2007, Rozakis, 2000, Nation, 2005), at around 100-150 wpm.

Text of reading is as one of the vital term. Digital media become popular that serve plenty of kind reading text and experiences for the reader. In this era, technology like computer, mobile phone, tablet, or LCD that can be used as teaching tool and develop students' reading ability. Most of students familiar reading a text on screen in their daily life. They become easier to read from computer screens or mobile phone. In order that, many researchers also conduct a research about screen text (Kazanci, 2015, Mangan, et al., 2013, Rossa, et. al., 2017).

Accoding to the explanation above, the objective of this research are formulated in following question: (1) Was it significantly effective to use screen text to improve the students' reading rate?, and (2) Was it significantly effective to use screen text to improve the students' reading comprehension?

Literature Review

A. Reading rate and reading comprehension

The correlation between reading rate and reading comprehension was proved by some researchers done with difference topics and individuals with learning difficulties. Nuttall (1996) describe that by increasing reading rates, the reader can get into the "virtuous cycle of the good reader." By reading faster the reader is encouraged to read more, and with more reading. Students who do not understand often slow down their reading rates and then do not enjoy reading because it takes so much time.

Both negative and positive correlations between reading rate and comprehension have been reported as these are two different types of correlations: between-individual and within-individual. When an individual increases his or her reading rate, his or her comprehension decreases (Poulton, 1958), which is a within-individual negative correlation. However, people who naturally read fast also tend to demonstrate a high level of comprehension (Jackson & McClelland, 1979).

Reading rate is part of the broader umbrella of fluency and is measured in words read per minute, while fluency is a bit more subjective. Rate is a key factor in fluency as a whole. Ideally, that an increase in rate has paralleled with an increase in comprehension. In recent studies, reading fluency is often used to measure the variable of reading rate, when words read correctly per minute (wcpm) is usually calculated.

Rate is quite simply words read per minute. It involves the automaticity of reading. The more automatic reading is, the higher the rate will be. Rate is measured by counting the number of words in a specific passage and timing the reader. According to Carver (1982), the optimal silent reading rate for university students is between 250 and 300 words per minute (wpm). Similar to Widiatmoko (2011) classify similar level: 1) Level of elementary school (in Indonesia) is 140 wpm, 2. Middle school level is 140 to 175 wpm, 3. High school level is 175 to 245 wpm, and 4. Level of college 245 to 280 wpm, 5. For professionals, reach 500 wpm. Furthermore, to determine the level of reading ability based on the rate level according to Widiatmoko (2011) as

follows: 1) 150 wpm Average reader 2) 150 - 250 wpm Slow reader 3) 250 - 350 wpm Medium reader 4) 350 - 500 wpm High reader 5) 500 - 1500 wpm Fast reader 6) 1500 wpm up Power reader.

B. The use of technology in reading

The use of technology to support both teaching and learning has stated by some experts and researchers (Kevin, 2014, Gunuc and Nuru, 2017, Patru, 2002). By using technology, students can increase their engagement and motivation, and also make the lesson become more productive, fun and learning becomes more effective.

Recently, the people dependency on technology tend in high frequency. Most of the activities use it, not only students but also include the teachers, staff or officer in school. The number of devices available for displaying digital text has increased exponentially, device on display a plenty text or device to evaluate the reading skill. They can be downloaded freely and easy to access even in mobile phone, like text-to-speech (TTS) and Kindle e-reading device.

C. The Concept of Screen Text

According Ileri (2012) cited in Akkaya (2015) screen text is the act of reading electronic or digital through a screen like computer monitor and mobile phone. In other antonym define screen text by contrast with printed text or paper page. Kretzschmar et. al., (2013) did a study that compared reading effort on three different media: a paper page, an e-reader (e-ink) and a tablet computer. They studied eye movement, brain activity and reading speed. The participants also answered a few questions to determine reading comprehension. The interesting thing was that all participants said that they preferred reading on paper, even though the study found no support for it being more effortful to read on digital media. On the contrary, the older participants read both faster and with less effort on the tablet computer, due to the back lighting giving a better contrast, and because of this being better for older eyes. The results of this study show that the problem with screen reading is more psychological than technological.

Some experimental studies showed that reading from paper material is better for proofreading or visual search tasks and also indicated that reading from screen may lead to greater fatigue and slower reading times (e.g. Chen, et al., 2014, Dundar & Akcayir, 2012, Kim & Kim, 2013, Zeynep & Ergun, 2012). Comprehension was worse and reading was slower in the screen condition. The most common finding is that reading from screen is slower than reading print. Dyson and Haselgrove (2001) also found a trade-of between reading rate and comprehension when readers were trained to read from screen at a faster speed. Walczyk et. al., (1999) have found that mild time pressure, encouraging people to read slightly faster than normal from screen, can improve comprehension. Muter and Maurutto (1991) extended the application to reading from screens, discussing the importance of investigating skimming from screens because of the widespread use of email, on-line abstracts, information retrieval, etc. As there are differences between reading from screen and print in terms of the process and outcomes of reading, it is important to extend the study of legibility on screen. There are few studies examining typographic variables on relatively recent display technology.

Method

The research method is pre-experimental design, give pre-test and post-test, which to know the improvement after giving the treatment. The research was conducted for eight meetings. The class was a computer laboratory, because the treatment and the tests, both pre and post test, used computers. The population is students at English Education Study Program in academic year 2018/2019. The total population were 72 students at the first semester, third semester, fifth semester and seventh semester, with the sample were 36 students.

In collecting the data, it used tests, silent reading rate test and reading comprehension test. The instruments were ready-made. In measuring the reading rate, the test and scoring adopt from Mikulecky and Jeffries (2007), it contain three a different reading passages (range 900-950 word). scoring reading rate by (1) calculate number of minutes (words per minute) and (2) divide the total number of words you read by the number of minutes.

In measured reading comprehension, the test material adopted from Devana (2013), consisted of 7 passages with 25 questions focuse on students reading comprehension, such as scan or skim for relating the main idea to supporting details (details in text), skim for main idea, discuss direct references to text, answer correctly the question based on causal effect relationship in text, interpret on complex massages, and use context to identify (predict or guess) of meaning words. The readability of the written texts was analyzed by using Flesh-Kincaid Method. It indicated the grade a person would have to be able to understand the text. For example level 13 means that a university student in the first and second semester would be able to understand the text (Readability Index Calculator, 2009).

The sample in this reseach were university students, thus the reading test choosed were level 12, 13, 14, 15, and 16. (include level below and level above). Scoring the students' answer by divided the correct answer with the total item, with the score criteria 80 – 100 (very good), 66 – 79 (good), 56 – 65 (fair), 41 – 55 (poor) and 0 – 40 (fail).

In analyzing the data used paired sample t-test, by analyze the improvement of means score from pre test to post test for both test of reading rate and test of reading comprehension.

Finding and Discussion

The effectiveness of screen text toward students reading rate

The following is the result of analysis related to mean scores of reading rate tests for pre-test and post-test. The test was oral reading rate, by record the time of start reading until finished time reading.

Table 1. Table descriptive analysis of pre-test and post-test of reading rate

Paired Samples Statistics

	Mean (wpm)	N	Std. Deviation	Std. Error Mean
Pair 1 Pre-test of Reading Rate	105.25	36	27.583	4.597
Post-test of Reading Rate	176.25	36	57.138	9.523

Table 1 indicated the students' mean score in pre test (M=105.25, SD=27.583) was different from the post-test (M=176.25, SD=57.138). It means that the mean score of the post-test was greater than the pre-test. There was different between students' score of reading rate before and after treatment in reading by screen text. On the other hand, unfortunately, the students' reading rate level was not appropriate with their grade. From the table above, it can be known that the students' reading rate level was (176.25 wpm) in similar with high school students level (175-245 wpm).

The data analysis showed that the students' mean score improved from pre-test to post-test. screen text was effective to improve the students' reading rate with the percentage (66.5%) from the mean score (105.25) on pre- test to be (176.25) on post-test. In order to find out the significance difference reading ratebefore and after treatment in reading by screen text, it was calculated the result of pre-test and post-test by using paired sample t-test, the result was in table2.

Table 2. Significance difference between mean score of pre-test and post-test of reading rate test

Paired Sample Test					
	Mean	SD	t	df	Sig. (2-tailed)
Pre-test of Reading Rate – Post-test of Reading Rate	-71.000	53.016	-8.035	35	.000

From the table above, the value of Sig. (2-tailed)= 0.000 less than significance level ($\alpha = 0.05$). It can be said that it was significantly effective to use screen text to improve the students' reading rate among the English Education Study Program at University of Baturaja.

The effectiveness of screen text toward students reading comprehension

Table 3 was the descriptive analysis of mean score of pre-test and post test of students' reading comprehension. The score showed there was a significant improvement score from pre-test (58.86) to post test (77.98).

Table 3. Table descriptive analysis of pre-test and post-test of reading comprehension

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 2 Pre-test of Reading Comprehension	57.8589	36	8.38229	1.39705
Post-test of Reading Comprehension	77.9842	36	6.74106	1.12351

Table 4. Significance difference between mean score of pre-test and post-test of reading comprehension test

Paired Sample Test					
	Mean	SD	t	df	Sig. (2-tailed)
Pre-test of Reading Comprehension –Post-test of Reading Comprehension	2.012531	6.87673	-17.559	35	.000

Table 4 present statistical analysis that measured the significance difference before and after the treatment applied. From the table, significant effect were found that value of sig. (2-tailed) = 0.000 less than significance level ($\alpha = 0.05$). It can be said that it was significantly effective to use screen text to improve the students' reading comprehension among the English Education Study Program at University of Baturaja.

Conclusion and Suggestion

The results of this study point to several things. Firstly, teaching reading by using screen text can improve the students' reading rate and comprehension. All of the students make improvements in reading rate and comprehension which are influenced by the practices of using screen texts that also involve the use of reading comprehension strategies via teacher's instruction. Secondly, the factors influencing the changes of the students' reading rate and comprehension are providing a variety of reading texts or materials, using appropriate reading

level, practicing reading strategies. The use of reading via screen text should consider these factors. Thus, it is recommended that the use of this reading activity should be continued.

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