

THE USE OF MULTIMODAL TEXT IN ENHANCING ENGINEERING STUDENTS' READING SKILL

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Abstract

It is believed that the students' low reading proficiency, as shown in their TOEIC scores, is due to their poor reading habit. One of the ways to overcome such a problem is by facilitating them with a lot of reading practices in an extensive reading program. Since today non-printed multimodal texts (NPMT) and Linear texts (LT) are available in the society, an experiment on which mode is most effective to enhance the students' reading proficiency needs to be done. This study aims to investigate the effect of implementing non-printed multimodal text in an extensive reading program on the students' reading comprehension. Two groups of students undertaking engineering major at a polytechnic in Surabaya, one group was exposed to NPMT and the other to LT in a one-semester extensive reading program, were chosen to be the subject of this quasi experimental study. A pretest and posttest on TOEIC were conducted to measure the students' reading proficiency (only the reading scores of the test were analysed for the purpose of the study). The t-test analysis using SPSS for windows 23 shows that there is a significant difference in achievement between those who are exposed to NPMT and LT after the reading program ends (p -value = 0.010). The NPMT group gain better reading proficiency than that of the LT. It means the use of non-printed multimodal text in extensive reading can boost the students' reading comprehension.

Keywords: Multimodal Text, Linear Text, Extensive Reading, TOEIC

INTRODUCTION

Based on the issue of students' low reading score in TOEIC, the researcher considered some factors that might contribute to their low achievements in reading. A report on TOEIC score of PPNS students (UPT Bahasa PPNS, 2016) showed that the average scores of reading section (section 2 of TOEIC) was below 50%. The percentage of average correct numbers of 100 reading questions was 31, 40%. The report of students' TOEIC scores also revealed that students often did not complete the last part of the TOEIC test (part VII) which has 40 questions of reading comprehensions (UPT Bahasa PPNS, 2017). Those facts showed the possibility that students could not complete the reading section because they had low reading speed and comprehension. Thus, the researcher believed that students' difficulties in their

reading speed and comprehension were the causes of their low TOEIC scores.

The urgency of mastering reading skill for engineering students was inevitably. This issue was based on the facts that students needed this skill not only as the requirement to graduate but also as the assisting skill in understanding the engineering materials written in English. Unfortunately, engineering students' reading skills did not meet those requirements. As a matter of fact, their reading skills as measured by TOEIC were considered low. The report of students' TOEIC scores also indicated that students often did not complete the last part of the TOEIC test (part VII) which has 40 questions of reading comprehensions (UPT Bahasa PPNS, 2017). It showed the possibility that students could not complete the reading section because they had low reading speed and comprehension. Therefore, it could be

assumed that engineering students' difficulties in their reading speed and comprehension were the causes of their low TOEIC scores. Therefore, this study attempted to analyze the effect of using extensive reading program in boosting students' TOEIC scores. In this case, this study aimed to find out whether there were significant differences in engineering students' reading comprehension skills (as measured by TOEIC) between the students who read non-printed multimodal text, and linear text after the Extensive reading program. Moreover, this study also reveals the students' responses on the use of non printed multimodal texts during the extensive reading program.

LITERATURE REVIEW

Indeed by implementing extensive reading program, students could develop their reading skills by a lot of reading practices. As reported by Morgan and Fuchs (2007) that many students who spend little time in involving with reading activities usually are not able to increase their reading skill as "skilled readers". It means that students need a lot of practices to read in order to improve their reading speed. Thus, by receiving a lot of exposure of English texts, students can obtain a lot of 'vocabulary, syntax, and other language expertise' that can assist them in using the target language.

Moreover, one of the reasons why this study implemented extensive reading program was also caused by the minimum input of English received by the students. In reality, students did not often take any initiative in getting English courses outside their classroom. They only obtained English during the lesson in the classroom. As a result, considerable input is necessary for the students to boost their language skill especially reading skill. It means that meaningful comprehensible input that can be obtained through extensive reading is what is needed by students. In fact, the advantages of extensive reading program have already been acknowledged by many researchers around

the world since 20th century (Elley, 1991; Mason & Krashen, 1997; Nation, 1997; Day & Bamford, 2000, Nakanishi, 2011).

The meaning of Extensive reading (ER) has been defined by many researchers around the world during these recent years. In 1990, Susser and Robb define extensive reading as "reading (a) of large quantities of material or long texts; (b) for global or general understanding; (c) with the intention of getting pleasure from the text". However, Richard Day and Julian Bamford (2002) has expanded this definition and explained in more details by listing 10 basic principles of ER.

To attract students' interests in performing extensive reading program, the use of non-printed multimodal text as the reading materials was implemented during the program. Walsh (2006) characterizes multimodal texts as the texts which consist of more than one "mode" (a kind of meaningful sign or symbol) so that the meaning of the text can be conveyed through a "synchronization of modes". It means that the meaning of multimodal texts can be understood by bringing together all of the different modes included in that text. In this case, students may read the multimodal text on a piece of paper (printed) or on the electronic screen (non-printed) such as computer which also include sound. Furthermore, Bearne (2007) describes any multimodal text might combine elements of a variety of semiotic resources including "gesture, movement, posture, facial expression, images (moving and still, real or drawn), sound (spoken words, sound effects and music), writing (including font and typography)".

The reasons of this present study in using non-printed multimodal text from authentic materials from the internet during extensive reading program were supported by much research. One of the researchers, Gilmore (2007), states that authentic materials are "inherently more interesting than contrived ones because of their intent to communicate a message rather than highlight target language". It means that authentic materials

are more preferable than the deliberately created materials. Moreover, Floris (2008) indicates the need for implementing authentic materials in the course design because authentic materials are “interesting, engaging, and relevant”. This idea is also supported by Huang (2005) who prefers “current popular authentic materials, because they are superior in relevance to learners' lives here and now as well as in display of easy but realistic, ready-to-use language”.

METHODOLOGY

This study was set in a quasi experimental design because individual randomization was quite difficult to be applied. In this case, the subjects of this study were two intact classes of engineering students semester 6th. Each class of these groups consisted of 30 students which were selected because they had the same age, level and the same engineering background.

To know students' reading comprehension skills, both groups were tested with the TOEIC test before and after the treatment. This test consists of two sections; 100 questions for Listening and 100 questions for Reading with “minimum score of 200 to a maximum possible score of 990”. However, this study only used the result of reading section of TOEIC test because it focused on students' reading skill. The results of the reading section of TOEIC test were then analyzed by using the SPSS program (the independent t-test for equality of means).

The second instrument used in this research was students' worksheet that should be filled by the students and submitted to the teacher after the extensive reading program in the classroom (in Class ER) and once a week during the out of class ER. The students' worksheet provided information on students' responses during the Extensive Reading program.

There were two activities of extensive reading program that were performed by the students in this research. The first activity was performed in the classroom (**In Class ER**) which took once a week in about 15 to

20 minutes before every English lesson was performed in experimental group classes. However, the second activity of this program took place outside the classroom (**Out of Class ER**).

The LT group was provided some linear texts material for the students to read in and outside the classroom. There were three kinds of linear texts that were given to the students; short (max 4 pages), long (max 8 pages) and book (max 100-250 pages) linear texts. On the other hand, the use of non printed multimodal texts as the reading material during the ER program made use of the technology to support the reading activities that take place in and outside the classroom. In this case, it was important to make sure that the students were familiar with the use of internet in finding some articles or e book. Therefore, for the first 4 meetings, the teacher directly asked them to open certain website containing some article suitable with students' needs. In this case, students were not asked to open different website during the first weeks of extensive reading program until they are used to do the searching on the internet. This activity was meant to make the students' familiar with the online reading program.

The reading activities in this program involved individual activity. It means that every student in the experimental group read individually and reported the activity on the students' worksheet. After they ended the reading activity, sometime the teacher asked them to share in front of the class about what they have already read. In this case, students must follow the teachers' guidance regarding the implementation of In Class ER whose detail activities can be seen in table 1.

Table 1: In Class Extensive Reading Activities

Non Printed Multimodal Text

Ask the students to read on the computer some short non-printed multimodal text materials on the selected website for about 4 meetings

Ask the students to read on the computer some longer non-printed multimodal text materials on the selected website for about 4 meetings

Ask the students to select and find their own reading materials to read on the computer (based on given topics) for about 4 meetings

Linear Text

Provide some short linear texts material (max 4 pages) for about 4 weeks.

Provide some longer linear texts material (max 8 pages) for about 4 weeks.

Ask the students to select and find their own reading materials to read in the classroom (based on given topics) for about 2 weeks (max 4 pages linear texts) and max 8 pages linear texts for the next 2 weeks.

The second activity asked the students to spend their time reading the extensive reading materials outside the classroom. Thus, to control the activity, students were asked to report the topics and the time of their reading in students' reading log once a week for 16 weeks. The following table showed the detail activities of the out class ER during the implementation.

Table 2: Out Class Extensive Reading Activities

Non Printed Multimodal Text

Provide some selected topics that should be searched in certain website for about 4 meetings

Provide some longer topics from certain websites to read at home for about 4 meetings

Ask the students to select and find their own reading materials for about 4 meetings

Provide some selected e-books to be read as the final assignment 4 meetings

Linear Text

Provide some short linear text (max 4 pages) to read at home for about 4 weeks

Provide some longer linear text (max 10 pages) to read at home for about 4 weeks
Ask the students to select and find their own reading materials based on given topics for about 4 weeks

Provide some selected books to be read as the final assignment (4 weeks)

Material Selection

Prior to the extensive reading program, it was important for the teachers to prepare the appropriate reading materials that were suitable for engineering students' needs. In this case the writer performed the need analysis to know the specifics topics of reading materials that are suitable with students' needs. Based on the result of the need analysis delivered to the stake holders (Engineering lecturers, industry, alumni, and students), the writer developed the reading materials for the extensive reading by selecting the suitable topics for engineering students.

Since this study performed extensive reading program, the next step was making sure that those reading materials were easy to understand. In this case, "Flesch Kincaid *Readability Analysis*" on the internet (<http://www.readabilityformulas.com/freetests/six-readability-formulas.ph>) was used to check the reading ease and the grade level of the articles given to the students. The range of the ease score is between 0-100 in which the higher the score the easier to read the article. For the detailed scores of reading ease can be seen in table 3.

Table 3: Flesch Reading Ease

| | |
|--------|------------------|
| 90-100 | Very Easy |
| 80-89 | Easy |
| 70-79 | Fairly Easy |
| 60-69 | Standard |
| 50-59 | Fairly Difficult |
| 30-49 | Difficult |

0-29 Very confusing

Moreover, the grade level shown in the result of readability analysis indicates students' grade at schools for example if the grade level is 10 then the articles can be read by 10th grade students. Since grade levels below 12 were for college students, the levels of the extensive reading materials used in this study were between 8 and 11. In fact, those levels of reading materials were selected because they were within the students' level. As suggested by Renandya (2016) that in the extensive reading program the material used should be "within their current level". It means that the reading material used in this program should be near the "students' current level" of reading comprehension. Thus, the result of the readability analysis to some of the articles given to the students can be seen in table 3

Table 4 shows ten examples of the readability analysis results on the reading materials for the extensive reading program. Those articles were selected because their ease score and grade level were suitable with engineering students. Mostly the levels of the reading materials used in this study were below 12 which indicated *not too difficult* or "within the students' level" for college students.

Table 4: Result of Readability Analysis

| No | Titles | Ease | Grade | Meaning |
|----|--|------|-------|--------------------------|
| 1 | "Climate change not as threatening to planet as previously thought, new research suggests" | 50,4 | 11,7 | Fairly difficult to read |
| 2 | "There's a second huge plastic garbage patch in the pacific" | 55,5 | 10,9 | Fairly difficult to read |
| 3 | "What's the best cheap laptop for university?" | 67,8 | 7,9 | Standard |

| | | | | |
|----|--|------|------|--------------------------|
| 4 | "How do scientists measure sea level?" | 55,4 | 10,5 | Fairly difficult to read |
| 5 | "How to reduce machining time with 3-axis turning" | 52,9 | 11,3 | Fairly difficult to read |
| 6 | "How can we make manufacturing smarter?" | 43,6 | 12,3 | Difficult to read |
| 7 | "How to use a drill press machine" | 63,9 | 8,4 | Standard |
| 8 | "Does an Indonesian who doesn't speak the language belong in the country?" | 50,1 | 11 | Fairly difficult to read |
| 9 | "You don't need to remember your passwords anymore thanks to this new security device" | 65,7 | 7,1 | Standard |
| 10 | "Dogs more intelligent than cats, scientists say" | 52,6 | 11 | Fairly difficult to read |

The results of the selected materials were then given to the students in two formats; non-printed multimodal texts and linear texts. The group of students who read non-printed multimodal text directly read the articles on the internet. Meanwhile, for linear text groups, the writer provided some printed texts which are in linear mode. The example of some non printed multimodal texts material used by engineering students can be seen in figure 1.

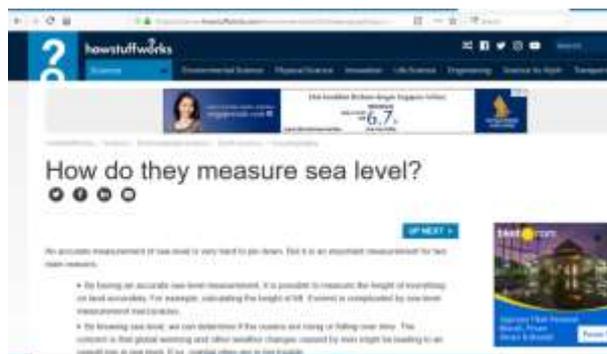


Figure 1: screenshot from howstuffworks.com

Figure 1 shows a model of non printed multimodal texts that was used by the students during the extensive reading program. This website (www.howstuffworks.com) contains many choices of multimodal texts which are suitable with students’ engineering background. In fact, students could not only read the articles from this website but also watch some interesting videos related with the engineering topics.

FINDINGS AND DISCUSSION

Findings

After following the extensive reading program by using different forms of reading materials Non-Printed Multimodal Text (NP) and Linear Text (L), the students were tested by Post TOEIC Test. Thus descriptive statistics of the pre and post reading section of the TOEIC test of the two groups can be seen in table 5.

Table 5
Descriptive Statistics of TOEIC tests

| Variables | Min | Max | Mean |
|------------------|-----|-----|--------|
| Pre Test | | | |
| NPMT | 45 | 330 | 173.16 |
| LT | 70 | 255 | 146.83 |
| Post Test | | | |
| NPMT | 95 | 360 | 225.5 |
| LT | 105 | 275 | 183.83 |

Table 4 shows that the lowest of pre test and post test of reading TOEIC score is gained by Non Printed Multimodal Text group (Pre Test=45, Post Test=95). Whereas

the biggest score of pre test and post test of reading TOEIC score is gained by Non-Printed Multimodal Text group (Pre Test=400, Post Test=400). However, the lowest mean score of students’ pre and post test reading skill is obtained by Linear Text Group (Pre Test=146.83, Post Test=183.83). Meanwhile, Non Printed Multimodal Text group obtained bigger mean scores of pre test and post test of students’ reading skill than linear group scores.

Table 6
The T-test result of TOEIC

| t-test for equality of means | | | | |
|------------------------------|-------|------|-----------|-----------|
| t | df | Sig. | Mean diff | Std error |
| 2.659 | 58 | .010 | 41.67 | 15.67 |
| 2.659 | 53,27 | .010 | 41.67 | 15.67 |

The finding of this study as shown in table 6 shows that the p-value is less than 0,05 which indicated there was a significant difference between the TOEIC scores of Non-printed multimodal texts group and Linear texts group. Moreover, the mean score of Non-Printed Multimodal text group (225.5) is higher than linear text group (183.83). Thus, it revealed that the use of non printed multimodal text material in extensive reading program was proven significant in improving students’ TOEIC scores than the use of linear texts.

The next finding of this research derived from the students’ responses on the program. Students’ responses during the extensive reading program using non-printed materials mostly indicated positive reactions. Some of their positive responses could be seen in the following responses;

“I can know the point of a text in a faster way”

“We can get much information around the world by reading. This program can make us exercise to read fast and get the point of information”

Based on the finding, it can be concluded that engineering students' were proven more motivated in performing reading activities that involve the use of technology. As students said that they started to like English when they read non printed multimodal text during the extensive reading program.

"Online extensive reading can make me start to like English, increase knowledge and improving my vocabulary"

Those responses also revealed students' beliefs that by using non-printed multimodal texts they could learn English in a new interesting way. They believed this program could increase their knowledge, their English vocabularies, and their reading skills. Moreover, students also believed that by reading non printed multimodal text, they can read and get the point of the information from texts faster.

Discussion

The significant difference between the TOEIC scores of Non-printed multimodal texts group and Linear texts group proves that the use of non printed multimodal texts was proven significant in improving students' TOEIC scores than the use of linear texts. This finding was also supported by the positive students' responses to the program. Based on these findings, the use of technology in learning English is inevitably useful in improving students' skill and motivation.

In this case, the benefits of using non-printed multimodal texts as the materials used by the students during the extensive reading program could be experienced by engineering students in improving their interests in reading activities. They were interested in learning English because the use of non-printed multimodal texts conveyed the message of the texts through different modes; visual, sound and motion. Moreover, by reading non-printed multimodal texts on the internet students were also given the opportunity to comprehend the texts supported with the visual images and the

sounds. As Mayer (2005) stated in "cognitive theory", students are able to comprehend a text easier when it is presented in the two channels; "visual and the auditory channels". In this study, Mayer's theory supported the idea of using the non printed multimodal texts which facilitate the use of not only written texts but also the visual, sound, image and the motions that students can read from the internet.

However, using non-printed multimodal texts as the materials for extensive reading cope with many challenges both for the teachers and the students. Therefore there are some considerations that should be taken into account before implementing non-printed multimodal text. Since the use of non printed multimodal texts requires the students to directly read from the internet, the first matter would concerns with the feasibility of the technology supporting the program. In this case, students should be provided with the computers and internet networks. Indeed, without the supporting technology, the program would be absolutely failed.

The second challenge that should be contemplated was on teachers' skill in operating the technology used in this program. Teachers who intended to implement this instruction should be prepared by some information technology trainings. By upgrading their skill, teachers can train the students how to use the *search engine* in internet during the program. Moreover, the need to master this knowledge is very important in assisting the students to read online faster.

The third challenge faced by the students in using non-printed multimodal texts is on the complexity of the texts itself. As stated by Hill & Hannafin (1997), "internet texts were parts of a complex open-ended information system" which presented numerous contents including some "distracting advertisements, inconsistent text structures, broken links and access to an infinite amount of information completely unrelated to their intended reading purpose"(Nielsen, 2002). These complexities sometimes confused students' main objective in reading some engineering

articles. Therefore, students' skills in using search engine should be prepared before reading non-printed multimodal texts on internet.

IMPLICATIONS

Based on the result of the research, there are some implications that can be benefit to the English teachers especially those who teach engineering students. The first implication deals with the need in selecting reading materials suitable with students' interest. In this case, teachers should find interesting materials which can stimulate and motivate learners. In fact, various constructs of reading motivation include the aspect of involvement which refers to "the pleasure gained from reading a well-written book or article on an interesting topic" (Wang and Guthrie, 2004). Therefore, teachers should be able to select interesting materials to encourage creativity and offer new ideas and information to learners. Of course, those materials should be grounded on students' existing knowledge and previous experience. By selecting interesting materials, it is hoped that students' passivity or negative attitude toward reading can be overcome.

The second implication related to the need in selecting the reading materials suitable with students' level. Since this study performs extensive reading program, teachers should make sure that non printed multimodal text are easy to understand. In this case, English teachers can make use of the Flesch Kin-caid **Readability Analysis** program on the internet (<http://www.readabilityformulas.com/freetests/six-readability-formulas.ph>) to check the reading ease and the grade level of the articles given to the students. Thus, students would not feel frustrated in performing the activities in extensive reading program.

The third implication deals with teaching methodology that would affect students' engagements during the learning process. In this case teachers should give more variations of the assignments for the students during the extensive reading program. There are some examples of the extensive reading practices

that have already done by other researchers using different kinds of reading text (linear text) such as reading short stories, novel or any interesting books. However, in assigning the reading activities, teachers should consider students' needs.

Hence, the last implication that all teachers should consider before implementing non printed multimodal text into extensive reading program is preparing the students to comprehend the strategies in reading online. In this case, teachers should always perform experiments in the classroom to find out the best approach to use with a particular group and then adjust the learning activities accordingly.

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