

## Teaching Reading Comprehension by Using Computer-Based Reading: An Experimental Study in Indonesian English Language Teaching

**Asmi Rusmanayanti**

English Department, Faculty of Teacher Training and Education  
LambungMangkurat University, Banjarmasin, Indonesia

**M. Laili Hanafi**

English Department, Faculty of Teacher Training and Education  
LambungMangkurat University, Banjarmasin, Indonesia

### Abstract

This study was conducted to know whether there is a difference in students' achievement in reading comprehension through the use of computer-based reading method at the eighth-grade students of Junior High School 13 Banjarmasin, Indonesia. The design used is a quasi-experimental with purposive sampling technique. Sixty students of Junior High School 13 Banjarmasin were used as the samples. 8-E was chosen as the experimental group and was taught by using computer-based reading in three meetings, while 8-F was chosen as the control group and was taught without using computer-based reading in three meetings. Three instruments were used to gather the data, they are documentation, observation, and tests. The results showed that both groups gained change in their achievements. From the calculation result, the experimental group got the average score of 53.33 in pre-test and 63.33 in post-test. The control group got average score 47 in pre-test and 49.5 in post-test. After conducting a t-test, it was revealed that the calculated t-value was greater than t-table ( $3.597 > 2.00$ ) at the significance level 0.05. Thus, there are different achievement between the experimental group and the control group. Therefore, it can be concluded that the proper use of computer-based reading can upgrade students' reading comprehension ability. It is suggested to teachers to consider the use computer-based reading as the method of teaching reading comprehension.

*Keywords:* computer-based reading, ICT, Indonesian students, reading comprehension, teaching reading

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## Introduction

### *Background of the study*

English as a foreign language in Indonesia has big roles in several aspects, such as education, international relationship, technology, economy, etc. Furthermore, English becomes a compulsory subject in Indonesian Junior High School, Senior High School, and University. Moreover, there are also some regions in Indonesia that introduce English since kindergarten and elementary school.

In the English language, listening and reading considered as receptive skills, and speaking and writing considered as productive skills. Reading as one of those skills is essential for students to master because it will influence their ability in communication. Furthermore, reading is considered essential because it is used to learn and gain access to alternative explanations and information which then used to be interpreted in academic settings.

These days, many media which could be used in teaching and learning reading, especially in term of reading comprehension. One of those media is a computer. The usage of computer in language teaching can be referred to as Computer Assisted Language Learning (CALL). According to Sakai (2007), there are several reasons to use CALL. Those are experiential learning, enhance student achievement, motivation, greater interaction, and authentic materials for study, independence from a single source of information, global understanding, and individualization. Furthermore, the government these days also began to instruct all schools to prepare for conducting *Ujian Nasional Berbasis Komputer* (UNBK) or computer-based final examination.

### *Statement of the problems*

This research focuses on the question “Is there any different achievement between students who are taught reading comprehension using computer-based reading and the students who are taught reading comprehension using paper-based reading at the eighth-grade students of Junior High School 13 Banjarmasin?”

### *The objective of the Study*

This research is conducted to find out the differences between students who are taught reading comprehension by using computer-based reading and those who are taught using paper-based reading

### *Hypotheses*

There are two hypotheses which are proposed in this study. They are as follows:

1. Null Hypothesis ( $H_0$ )

There is no different achievement between students who are taught reading comprehension using computer-based reading and the students who are taught reading comprehension using paper-based reading at the eighth-grade students of Junior High School 13 Banjarmasin academic year 2017/2018.

2. Alternative Hypothesis ( $H_a$ )

There is different achievement between students who are taught reading comprehension using computer-based reading and the students who are taught reading comprehension using

paper-based reading at the eighth-grade students of Junior High School 13 Banjarmasin academic year 2017/2018.

### ***The scope of the Study***

The scope of the study is intended for the eighth-grade students of Junior High School 13 Banjarmasin. The research focuses on two variables, students' reading comprehension achievement as the dependent variable and the use of computer-based reading in teaching reading comprehension as the independent variable. The focus of this research is to investigate the achievement of students who are taught by using computer-based reading and students who are taught without using computer-based reading. There are three subskills of reading comprehension which studied in this research. Namely finding the main idea, finding specific information, and guessing the meaning of a word based on the context.

### ***The significance of the Study***

This research is expected to give an input on teaching and learning reading comprehension skill, especially about information related to the usage of computer-based reading in teaching reading comprehension in junior high school. The result of this research also expected to be an additional source, especially to another researcher who wants to conduct research on the same topic, either at the same level or different level.

## **Literature Review**

### ***Reading Comprehension***

Wooley (2011) states that reading comprehension could be defined as a process of making meaning from text to understand overall information in the text, and not only decipher meaning from isolated sentences or words. This statement is strengthened with statement from Surjosuseno (2011, p. 131), which said that reading is more than acquiring information from the printed. Thus, to get an overall understanding, the readers have to integrate the meaning of the sentences or words with their background knowledge to understand the text as a whole. Furthermore, Snow (2002) defines that reading comprehension as simultaneously extracting and constructing the meaning of the written language. Hence, based on the explanation above, it can be concluded that background knowledge plays an important part in achieving comprehension.

### ***Information and Communication Technology (ICT) for Learning***

Asnafi, as cited in Ebrahimi (2008, p. 1) states that Information and Communication Technology (ICT) is the technologies that can record, process, store, transfer, retrieve, and receive information in order to help its user. Moreover, it could also be referred to as techniques and disciplines which used in data handling and processing. The usage of ICT in the learning process widely known as E-learning. In Indonesia, E-learning developed under a program called E-education. Rusman (2012, p. 286) states that E-education concerned on the use of ICT as media. Such as telephone, video, computer, radio, internet, and the other audiovisual media. Darmawan (2011, p.2) also states that all kinds of hardware software, content, and computer infrastructure are included in ICT.

### ***Computer Assisted Language Learning (CALL)***

Gordon (2007, p. 179) interprets technology, especially computer, has many benefits. One of them is to be used as a tool in teaching and learning process since the computer has the ability to present

many different kinds of media (Queen, 2017, para. 1). It is in line with Ward (2007, p. 33), who mentioned that Computer Assisted Language Learning (CALL) could be defined as the language learning process which uses the computers as a medium. CALL, which began in the early 1980s, typically required the learners to respond to the stimuli on the computer screen. The students also required to be able to carry out various tasks such as filling in the gapped texts, doing multiple choice activities, etc.

Nowadays, CALL has been evolved. It does not only provide simple tasks such as CALL in its early days. These days, CALL has reached the level where the teacher could use computer educational games in teaching and learning process. There are many benefits to using CALL, such as raising students' attention toward teaching and learning process, motivate the students by providing them with new educational experiences, etc. For instance, most of the students are curious about learning and give full attention to the teacher's explanation due to the material which is given by using a computer.

### ***Computer-Based Reading***

Nowadays, reading is not only in conventional ways which are only in printed materials but also in electronic devices such as a computer. Solak (2014, p. 203) states that computer-based reading is reading text from a computer screen including tablets and e-book readers from a source such as the internet or from the computer itself. With the rapid development of computers, people nowadays do not have to stick with printed information. They were able to acquire information through the internet, online newspapers, online articles, and even online textbooks. In the teaching and learning process, computer applied as assistive media.

### ***Previous Studies Related to the Topic***

The implementation of Computer Assisted Language Learning (CALL) is not a new issue. There are several studies did by researchers concerning on the use of the computer as assistive media in the scope of English language learning, especially reading skill. One of them is a research conducted by Fard and Nabifar (2011). The result of this study showed that the computer has a positive effect on reading comprehension. They also said that using a computer in other instruction can have the same result. The other study was conducted by Bhatti (2013). In that research, pre-test and post-test were used as the instrument to collect the data. A paired one-tailed T-test was used to analyze the scores. Results show that CALL was 35% more effective than the traditional instructor-led class. Two researchers above discussed the use of CALL in reading teaching-learning. Based on the result of their research CALL is a useful application for teacher and students.

## **The methodology of the Research**

### ***Approach and Type of Research***

This research used a quantitative approach. The type of research which used is experimental research. Since it was not practicable for the researcher to use random assignment, quasi-experimental design was chosen.

### ***Variables***

As stated before, there are two variables which used in this research. They are as follows:

1. The independent variable: the use of computer-based reading in teaching reading comprehension.
2. The dependent variable: students' reading comprehension achievement.

### ***Population and Sample***

The population in this research is all of the eighth-grade students of Junior High School 13 Banjarmasin. There are about 28-31 students in each class, with the total number of population is 177 students. The sample taken in this research is based on the classes. The method of selecting the sample is nonrandom sampling. The type of the sampling which is used is purposive sampling based on the suggestion of their English teacher. Thus, the researcher takes only two classes, which are class 8-E and class 8-F.

### ***Instrumentation***

In this research, there are three instruments used by the researcher. They are documentation, test, and observation. The required document for this research is the syllabus of *Kurikulum 2013* that is used in Junior High School 13 Banjarmasin which used as the core in making lesson plans for both groups. The second instrument is test. The test used in this research is reading comprehension test.

Table 1. *Distribution of the Test Items Based on the Three Subskills*

No	Reading Comprehension Sub-skills	Number of Questions				Total
		Text 1	Text 2	Text 3	Text 4	
1	Finding Main Idea	2	1	2	2	7
2	Finding Specific Information	2	2	1	2	7
3	Guessing Meaning of Word from the Context	1	2	2	1	6
Total Number of Test Items						20

The last is observation. In this research, observation sheet is used to record and observe both groups' teaching and learning process. It is designed based on the lesson plans. The observation sheets for both groups consist of two parts, namely the teacher's performance and students' performance. The scoring was done based on this scale: 4 (very good), 3 (good), 2 (fair), or 1 (poor). Furthermore, to keep the objectivity, the observation needs to be done by two observers; the researcher himself and eighth-semester student of English department who is asked by the researcher to become his collaborator in conducting observation in this research.

### ***Data Collection***

As stated before, in collecting the data in this research, the researcher uses three techniques. They are documentation, test, and observation. First is the documentation. As has been mentioned before, the document which is collected in this research is the syllabus of *Kurikulum 2013* used by Junior High School 13 Banjarmasin. The second is giving reading comprehension test. The test is administered twice in both groups, pre-test, and post-test. Before there are treatments given to the samples, they need to be given pre-test first. After the treatments are given for three meetings, the post-test is administered. The last one is observation. It is done to obtain the description of teaching and learning process in both groups.

### *The technique of Data Analysis*

There are some steps that the researcher does to analyze the data from documentation and test. The following are the steps:

1. Collecting the syllabus of *Kurikulum 2013* used by Junior High School 13 Banjarmasin.
2. Measuring the reliability of reading comprehension test after the try-out test is administered by using K-R20.
3. Analyzing the observation sheet of teacher's performance and students' performance from both groups.
4. Analyzing the students' pre-test and post-test scores.
5. Testing the homogeneity of the two classes' variances.
6. Testing hypotheses by using t-test.

## Research Results and Discussion

### *Documentation*

As mentioned in the previous part, the document which is required to be collected by the researcher was the syllabus of *Kurikulum 2013* for junior high school which used in Junior High School 13 Banjarmasin. The syllabus gives important information about core competencies and basic competencies used in teaching and learning process.

Table 2. *Core Competence and Basic Competence for Eight-Grade in the Area of Recount Text*

Core Competence	Basic Competence
3. Understand and implement the knowledge (factual, conceptual, and procedural) based on students' curiosity related to knowledge, technology, art, and culture in their environment.	3.11 Comparing social functions, the structure of the text, and the linguistic elements of some personal recount text whether it is spoken or written by giving and asking information related to personal experiences in the past, in accordance with the context of its use.
4. Processing, serving, and reasoning concrete realm (using, parsing, composing, modifying, and creating) and abstract realm (writing, reading, calculating, drawing, and composing) based on what they have learned at school and from other sources which have the same point of view/theory.	4.11 Recount text 4.11.1 Capture meaning contextually related to social function, the structure of the text, and the linguistic elements of some personal recount text whether it is spoken or written, short and simple, related to personal experience in the past (personal recount) 4.11.2 Composing personal recount text, whether written or spoken, short and simple, related to personal experience in the past (personal recount), by paying attention to social function, the structure of the text, and the linguistic elements, correctly and contextually.

Source: *Silabus Mata Pelajaran Sekolah Menengah Pertama/Madrasah Tsanawiyah (SMP/MTs) Mata Pelajaran Bahasa Inggris*

### Test

Before conducting the test, the researcher has to measure the reliability of it by using K-R20 formula. Based on the calculation using the formula, the reliability coefficient of the test was 0.557. It was higher than the  $r$ -value of  $r$  table, which was 0.355 with significance level 5%. Therefore, the test is reliable.

After the researcher makes sure that the test was reliable, a pre-test was administered to both groups. It was to measure the students' ability prior to the treatment, especially their ability in the three subskills, which is finding the main idea, finding specific information, and guessing the meaning of the word from the context. After three meetings after the pre-test was conducted, the researcher proceeded to the next step which is giving post-test to both groups.

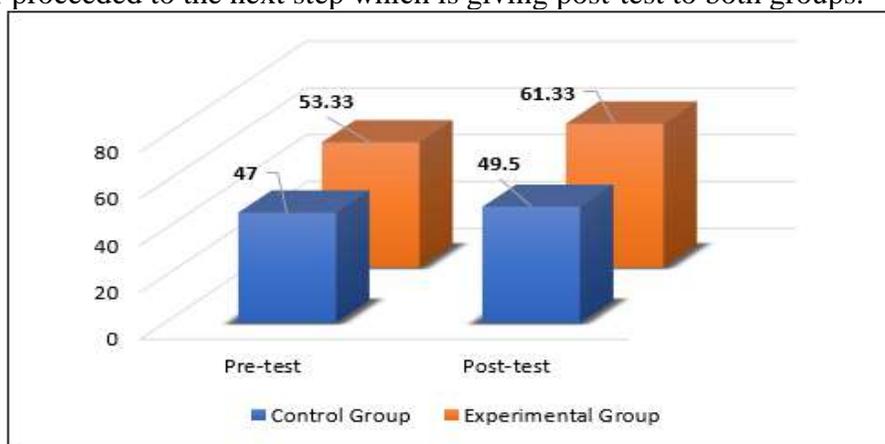


Figure 1. The Comparison of the Changes in Average Scores of Pre-Test and Post-Test between the Experimental and the Control Group

Similar to the average scores in pre- and post-test, the students' achievements in the three subskills also showed changes.

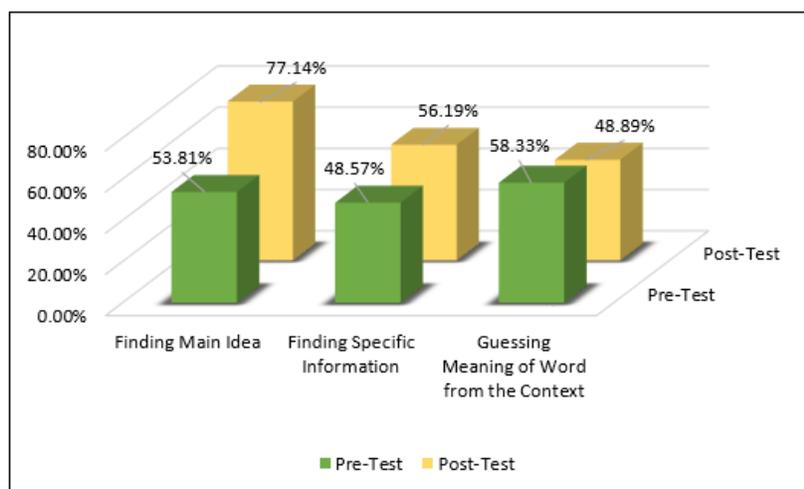


Figure 2. The Percentage of Students' Achievements from Pre-Test to Post-Test Result on Three Subskills of Reading Comprehension in Experimental Group

After three meetings were finished, there are changes in students' subskills. Which is 23.33% higher in finding the main idea, and 7.62% higher in finding specific information. However, the students' results in guessing the meaning of the word from the context went down 9.44%. Thus, it still can be said that generally there were advancements in students' abilities in the subskills.

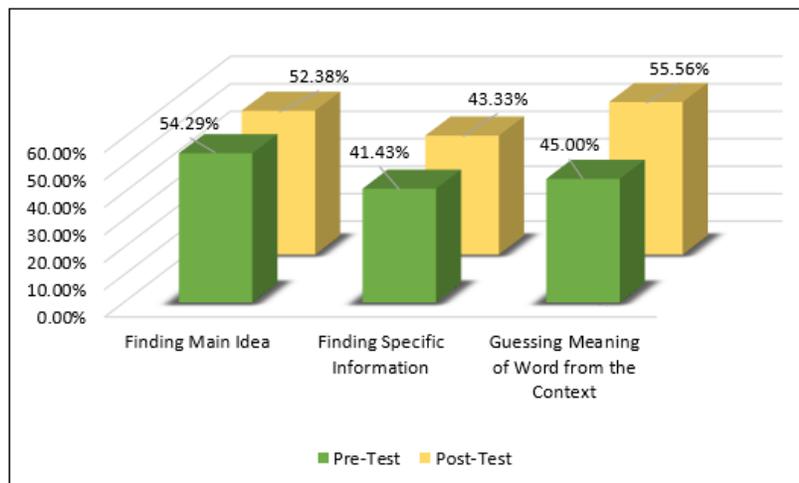


Figure 3. The Percentage of Students' Achievements from Pre-Test to Post-Test Result on Three Subskills of Reading Comprehension in Control Group

It is showed that there are changes in students' three subskills. Which is 10.56% higher in guessing the meaning of the word from the context, 1.9% higher in finding specific information. However, the results of finding the main idea went down 1.91%. Hence, since the result was mainly improved, it still can be said that there were advancements in students' ability in the subskills.

Since the experimental group made higher changes than the control group did. It could be concluded that the use of computer-based reading method helps the students increase their reading comprehension ability, especially in finding the main idea and finding specific information.

After analyzing the result of post-test from both groups, the researcher proceeded to the next step which is conducting a homogeneity test of the two samples variances. The calculated variance value of the experimental group was 130.92, and the control group was 191.98. The calculated F value was 1.47, while F table value for significant level 0.05 was 1.86. Since the F test < F table, it shows that the two samples are homogenous.

After that, the researcher conducted the *t*-test to analyze which hypotheses that could be accepted. Since the result of *t*-test was 3.597 and the *t*-table was 2.00. It means that the *t*-test is higher than *t*-table (3.597 > 2.00). In conclusion, the alternative hypothesis ( $H_a$ ) is accepted. In other words, teaching reading comprehension by using computer-based reading gave difference toward the students' achievement in reading comprehension.

### Observation

In this section, the result of observation is described in two parts, which is the result of observation for teacher's performance in both groups, and the result of observation for students' performance in both groups. Before proceeding to the result of observation, we have to measure the reliability of the observation first. This research used percentage agreement to measure the reliability of the observation. Here are the results of the percentage agreement between both groups.

Table 3. *Percentage Agreement of Observation Instrument for Teacher's Performance in Experimental and Control Group*

Total/Teacher	Meeting 1		Meeting 2		Meeting 3	
	Exp. Group	Control Group	Exp. Group	Control Group	Exp. Group	Control Group
Agreements	10	9	12	10	13	10
Disagreements	3	1	1	0	0	0
Percentage agreement	76.92%	90%	92.31%	100%	100%	100%

Table 4. *Percentage Agreement of Observation Instrument for Students' Performance in Experimental and Control Group*

Total/Students	Meeting 1		Meeting 2		Meeting 3	
	Exp. Group	Control Group	Exp. Group	Control Group	Exp. Group	Control Group
Agreements	11	8	10	8	12	9
Disagreements	1	1	2	1	0	0
Percentage agreement	91.67%	88.89%	83.33%	88.89%	100%	100%

Since all of the results of the percentage agreement were over 75%, the observation is considered excellent. Therefore, the observation instrument in this research is reliable. After the observations were stated to be reliable, the researcher proceeded to the next step which was analyzing the observation results for both groups.

Table 5. *The Interpretation of Observation Result for Teacher's Performance*

Class	Meeting	Average Score	Category
Experimental Group	Meeting 1	89.42	Very Good
	Meeting 2	89.42	Very Good
	Meeting 3	90.38	Very Good
Control Group	Meeting 1	86.25	Very Good
	Meeting 2	87.5	Very Good
	Meeting 3	90	Very Good

From the observation result, it can be concluded that the teacher's performances in both groups were equal, which is indicated by the category of his performance. Even though there were obstacles in teaching in the learning process, especially in the experimental group since several students did not accustomin using computers, the teacher could overcome those obstacles splendidly.

Table 6. *The Interpretation of Observation Result for Students' Performance*

Class	Meeting	Average Score	Category
Experimental Group	Meeting 1	73.96	Good
	Meeting 2	89.58	Very Good
	Meeting 3	91.67	Very Good
Control Group	Meeting 1	65.28	Poor
	Meeting 2	68.10	Poor
	Meeting 3	77.78	Good

According to the table 6, the performance of students in the experimental group was categorized as good at the first meeting and raised to very good performance in the last two meetings. On the contrary, the control group was into the poor category at the first and second meeting and then raised to the good category at the last meeting. These results could be caused by the use of computers in the experimental group's teaching and learning process which makes them more interested, while the control group only taught using the same method as usual.

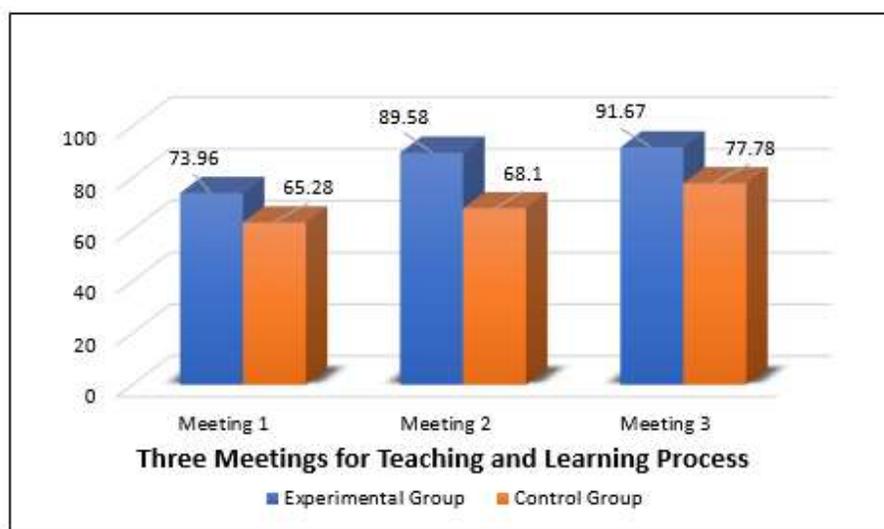


Figure 4. The Change of Students' Performance in Experimental and Control Group

From the results of observation on teaching and learning process for three meetings in both group, we could infer that the students' performance in the experimental group was higher when compared to the students in the control group. Thus, it can be said that the use of computer-based reading method affects the students' performance and attitudes in teaching and learning process on reading comprehension.

## Conclusion and Suggestion

### Conclusion

As stated previously, the objective of this research is to find out whether or not there is different achievement between students who are taught reading comprehension using computer-based

reading and the students who are taught reading comprehension using paper-based reading at the eighth-grade students of Junior High School 13 Banjarmasin. After the research was conducted, there were important results that had been found. Based on the calculation in testing the hypothesis using the Fisher formula as t-test formula, the result of the t-test is 3.579. Since the significance level of t-table (0.05), and  $df$  (58), the t-table is 2.00, it means that the t-result is higher than t-table. Therefore,  $H_a$  is accepted: "There is different achievement between students who are taught reading comprehension using computer-based reading and the students who are taught reading comprehension using paper-based reading at the eighth-grade students of Junior High School 13 Banjarmasin academic year 2017/2018." The students' average score in the experimental class also raised from 53.33 (their average score in pre-test) to 61.33 (their average score in post-test).

However, even though the result of post-test in the experimental group was higher than its' pre-test, the score in their post-test was still considered as fair, which still have not reached the *Kriteria Ketuntasan Minimal* (KKM) or the Minimum Completion Criteria. From the observation done in the process, it was due to the technological barrier which has been experienced by several students in experimental class and made the teaching and learning process using computer-based reading could not reach its' full potential. However, it still could be concluded that the proper use of computer-based reading can upgrade students' reading comprehension ability. Having said that, the teacher has to make sure in advance that the students were proficient in using computers and ready to learn and participate in CALL.

### **Suggestions**

It is suggested that English teachers consider the result of this research to apply computer-based reading in the classroom especially in teaching reading skills. However, the teacher need to know the ability of their students to use computers and ready to learn and participate in CALL. It is also suggested that another English teachers conduct and use more various classroom activities and techniques and creatively design an ideal classroom management to make the students feel more interested and enthusiastic toward teaching and learning process.

### **About the Authors:**

**Asmi Rusmanayanti** is a lecturer at English Education Department, Faculty of Teacher Training and Education, Lambung Mangkurat University. She obtained her bachelor degree at Lambung Mangkurat University and continued her Master degree at Educational Effectiveness and Instructional Design at Groningen University, Netherland. <https://orcid.org/0000-0001-6795-9804>

**M. Laili Hanafi** is a graduate student from English Department, Faculty of Teacher Training and Education Lambung Mangkurat University in Banjarmasin. He is active in teaching as the main duty. <https://orcid.org/0000-0003-4217-3973>

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