The effects of using whiteboard animation toward Indonesian students’ vocabulary and grammar mastery

Syafirizal Syafirizal a, Muhajir Muhajir b, John Pahamzah c, Fajar Furqon d

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Abstract

English has been a particular subject at schools. Most of the students have difficulties in mastering its vocabulary and grammar. Therefore, at this time the researcher conducted a research which aimed to reveal the effects of using whiteboard animation toward the student’s vocabulary and grammar mastery. The researchers used the experimental research. The sample of research consisted of two groups from the eighth grade students at Indonesian Junior high school. For data collection were taken from pre-test and post-test. The results of were analysed using T-test to verify the hypothesis of the research. The results of this research indicate that whiteboard animation has positive effects on mastering English vocabulary and grammar. There was 58.9% improvement from the experimental group for the vocabulary. While for the control group, there is 37% improvement. For grammar test, the experimental group shows impressively significant difference with more than 100% improvement. While the control group shows 50.5% improvement in the grammar test. In conclusion, the researchers found that students who learn vocabulary and grammar through whiteboard animation show more significant improvement than the control group taught by conventional teaching method. The researchers also measured the effect size between vocabulary post test score with R squared of 0.321 and grammar post-test score with R squared of 0.485 from the experimental group. Based on the results of the research, the researchers concluded that whiteboard animation has significant effect towards both students’ vocabulary and grammar with more improvement on grammar mastery though.

Keywords: vocabulary; grammar; whiteboard animation; learning media; positive effects

1. Introduction

Today, there has been a significant massive evolution of English-speaking communities, and persons around the world, through a greater number of English speakers. According to the British Council's report on January 2020, English is currently spoken by 1.75 billion people worldwide, one out of every four people on the planet. People commonly speak English with different purposes such as to do business, in communicating with non-native English-speaking countries, for academic reasons, or simply to do work. Focusing on Indonesia, English has long been a particular subject at schools. There is a transformation in local academic curricula that today English starts to be taught

1 Corresponding author.
E-mail address: syafirizal@untirta.ac.id
since the first grade of primary school. Students are encouraged to be able to communicate in English, both in writing and orally. By the fact that the English subject is implied in the annual National Examination in Indonesia, learning English is compulsory.

As a foreign language learning, the value of vocabulary is so paramount that makes it a must to learn and teach. Harmer (2001, p.13) describes its importance stating that using rules of language might be a little things can be addressed, and also using vocabulary could not be effected well. More than that, vocabulary is an essential component of standards-based curriculum alignment. On the other side, most students hesitantly learn English since they feel like they don’t have enough of a vocabulary to write or speak in the classroom. At the same time, students also prepare to work on National Examination at the end of their academic year at school. So, one of the key indicators of the students on that standardized test is their vocabulary.

To be more specific, the researchers focused on discussing the mastery of vocabulary and grammar by students. Through direct observation, the researchers had figured out that most of the students at Junior high school were below standard in passing English score. The researchers also found that students lack vocabulary and grammar mastery.

Teaching vocabulary and grammar was proved to be challenging. The lack of prior knowledge, misapplying the words, and inability to construct correct sentences grammatically were the students' common obstacles for studying English. Teachers needed to take lots of time to repeat the same explanation so the students might understand the material being taught. It is line with Gulden (2021, p.3) explanation which explained that it is natural for students who aims to learn the target language to try to make sense of the experiences related to that language by comparing them with the templates he / she created in his / her native language. Given this, the researchers had explored the development of whiteboard animation as innovative teaching and learning media to improve students’ vocabulary and grammar.

In that kind of situation, the implementation of whiteboard animation as a teaching media might help the classroom to be more interesting for the students. Not only grabbing the students’ attention but also inviting them to participate actively in classroom activities. According to the study conducted by Moreno and Mayer (2007, p.310), multimedia learning improves attention and motivation of the learner. Along with that statement, Sadiman, et al., (2008, p. 9) cited in Khalidiyah (2015) defined the use of audio-visual aids as animated video functions applied in conveying the message or the information in the study.

Whiteboard animation or known by other terms such as video scribing, sketch videos, explainer videos, and doodle videos is a technique for making multimedia through symbols or pictures that are on the whiteboard. The goal of whiteboard animation is to help viewers to draw concepts of what is explained through the videos. In line with that explanation, Plass, et al., (2014) also stated that in multimedia instruction, animation creates line drawings is considered as an emotional design which describes visual design elements in a multimedia learning environment that affect the emotions of students and foster learning.

1.1 Literature Review

1.1.1 Vocabulary

Vocabulary has been widely known as one of the key roles in acquiring a second language. Birinci and Saricoban (2021, p. 2) mentioned that without learning foreign language vocabularies no one can learn, communicate, and form sentences in the target language. Moreover, Nation (2008, p.7) cited in Pahamzah (2018), the most important group of words is the high frequency words of the language. Vocabulary is one of the very significant necessary for learners to understand the text in reading. As
explained by Richards (2002, p.255) vocabulary is the core component of language proficiency and provides much of the basis for how well learners speak, listen, read, and write a foreign language. More simply, Takac (2008, p.4) defined that vocabulary as a set of words. Not too much different, Nunan (2003) stated that vocabulary is the entire set of words of a language. While deeper, Harmer (2001, p.16) summarizes that knowing a word (vocabulary) means knowing about meaning, word use, word formation, and word grammar.

There were different types of vocabulary based on how they are used contextually. Hiebert and Kamil (2005, p.3) stated that there are two types of vocabulary which are oral and print. Oral vocabulary is words that they recognize and know the meaning when they speak or listen. Print vocabulary is words that they recognize and know the meaning when they write or read. Moreover, Hiebert and Kamil (2005, p.3) It is said that the recognition of the meaning of word usage can be done in two different forms, namely receptive and productive. Receptive vocabulary is a series of words that have meaning for other people when communicating while productive vocabulary is a series of words used when having a conversation.

1.1.2 Grammar

Grammar is a systematic structured pattern and has a series of patterns that are understood based on its pragmatic nature. Larsen-Freeman (2001) defined grammar as rules of a language. Along with that, Wersi (2013) referred grammar to the understanding of correct rules of English language by changing the form of words correctly and joining them into sentence. Brown (2007, p.420) also stated that grammar is the system of rules governing the conventional arrangement and relationship of words in a sentence. Further elaborated, Hornby (2005) defined grammar as the rules in a language for changing the form of words and joining them into sentence. More detail, Huddleston & Pullum (2005, p.6) described two grammatical subdivisions which are syntax and morphology. Syntax (grammar outside the word) deals with the structure and classification of phrases, clauses and sentences (Nuhiu, 2012:5). Morphology (grammar inside the word) deals with the internal structure of words and of the rules by which words are formed (Kabashi, 2000:12). In brief, grammar is a series of rules about what and how words can be formed in a sentence and finally the language used is formed.(Cowan, 2008:3).

Focusing on the rules, Crystal (2004) explained that grammar is the study of all the contrasts of meaning that it is possible to make within sentences. The 'rules' of grammar tell us how. By one count, there are some 3,500 such rules in English. People who have English as their mother tongue do not need to learn grammar, because unconsciously they learn the rules of the language as they learn their first language. Dykes (2007) stated that all people use grammar since they are able to speak. The generative grammar stored in the brain that allows a speaker to produce language that other speakers can understand is mental. However, for non-native speakers, like Indonesians, English grammar is essential to learn in order to be able to construct correct and meaningful sentences.

1.1.3 Teaching and Learning Media

Learning media is not something new in the academic world. Nowadays, teachers or tutors are encouraged to create more active teaching learning process through certain media. According to Syafirizal (2017) the use of e-learning as media to beyond what the experience in the real world, using lens techniques, camera’s angels and shots, music and film editing to ensure that viewers are not passive and stimulated by the power of video. Moreover, Heinich et.al (2002, p.9-10) stated that media are all aids used by the teacher to deliver the material. Thus, Smaldino et.al (2011, p.7) argued that to facilitate the delivery of material to students, a message or material should be included and displayed in a media format whose physical form can be seen and even heard such as markers (visual and text), slide power point (text and visual), CD (sound and music), DVD (video), or computer multimedia (audio, text, and video).
Using media in teaching learning process can make learning process more effective and interesting. Harmer (2001) stated that a range of objects, pictures, or animations can be used as instructional media to present and manipulate language and to involve students in teaching-learning activities. The more students active in the learning process the more knowledge the students gain. According to Brinton (2001, p.15), media have undoubtedly always facilitated the tasks of language learning both instructed and none instructed learners as a tool for language learning or teaching. In other words, media is an equipment or tool which can help the students to learn certain material easier. In this present study, the researchers will study about the implementation of whiteboard animation as a learning media and its effect on improving students’ vocabulary and grammar. It will be applied to the material of degree of comparison.

1.1.4 Implementation of Whiteboard Animation as Teaching Learning Media

Chalkboard animation is a popular educational media pattern today. However, there is also a lot of research on this matter of developing rich whiteboard animation, the understanding of its use and implementation in this animation is still very minimal.

Furthermore, it is said that blackboard animation is a medium used for teaching which has several components, namely hand-drawn illustrations with voice narration. This blackboard animation is depicted through complete visualization so that it can give attention to students. Hegarty et.al (2003) explain the advantages and advantages of visualization methods that will stimulate students 'interest in learning because they directly see objects of motion which also stimulate students' motor skills in understanding learning, while in fact there are still many teachers who provide traditional learning material which has a tendency passive learning for students which can have an impact on the low quality of learning and decreased motivation in learning (for example, Barak, Ashkar, & Dori, 2011). Furthermore, this method appears to be used as a good visualization tool for dynamic pursuits. (Lowe, 2004). Moreover, students will feel the teaching-learning process more joyful. When students enjoy the teaching learning process, it will ease them to learn more about the material given in the classroom.

Harmer (2006) stated that video can give essential extra benefits for students’ learning experiences; enrich the students’ experience about language in use, improve their cross-cultural understanding, develop their creativity, and increase their motivation in learning. However, in this advanced technology era, the teachers encounter some challenges in applying the video in the classrooms. The first challenge that the teachers have to face relates to their capability in deploying video in the classroom and utilizing other technology devices. Computer, laptop, projector, earphones, and some other programs or tools are commonly found in EFL classrooms. The teachers have to be the one who knows very well how to use the devices to assist the students during the teaching and learning process.

1.2 Research questions

This present study was concentrated on the crucial part of the material which is vocabulary, especially the adjectives. In comparing something or somebody, students are also required to construct the comparison with correct grammar. As whiteboard animation is applied as the experimental media, the students are expected to use the grammatically and contextually correct vocabulary they have learned. The following research questions guided the study:

1. Is there any effect in mastering students’ vocabulary by using whiteboard animation?
2. Is there any effect in mastering students’ grammar by using whiteboard animation?
3. Is there any different effect between vocabulary and grammar mastery by using whiteboard animation?
2. Method

This study employed true experimental design. The true experimental design was considered appropriate as this research, because it was concerned to know the effect students’ vocabulary and grammar mastery by using whiteboard animation. Two classes were taken as sample classes such as: experimental group and control group. Pre-test was given to these groups to determine the capability of students. The experimental group was treated using whiteboard animation as a media of teaching while the control group was treated using web and blog. After that, the post-test was given to them to see the result of students’ achievement. Here is the representation of the design:

The research used quantitative method since this research analysed data. According to Creswell (2009:145) quantitative method involves the process of collecting, analysing, interpreting the results of a study. Moreover, Muhartoyo (2007:11) states that Quantitative research is a deductive method. It begins with a hypothesis or theory then searches for evidence either to support or to refute that hypothesis or theory. The data collected for this type of research is called quantitative data i.e., data which are recorded in numerical form.

2.1 Sample / Participants

The population of this research was eight-grade students of junior high school. There were eight classes consisting of 240 students. According to Arikunto (2003 p, 161), population is the whole subject of the research, while sample is a part of the investigated population (Arikunto 2003 p, 163). Two classes were taken for this study. The first class was the experimental group and the second one was the control group. Each class consists of 30 students.

2.2 Instrument(s)

The test was consisted of twenty-five vocabulary questions and twenty-five grammar questions. So, the total question in the achievement test was 50 questions. The form of the vocabulary test was filled in the blank, synonym, antonym and picture identification. While, the grammar test was given in the form of arranging random words and tenses. Both experimental and control group followed the test.

2.3 Data collection procedures

Post-test in the form of achievement test was employed as the instrument to collect the data in order to be able to answer the first and second research question. The test consisted of twenty-five vocabulary questions and twenty-five grammar questions. So, the total question in the achievement test was 50 questions. The form of the vocabulary test was ‘fill in the blank’, synonym, antonym and picture identification, while the grammar test was given in the form of arranging random words and tenses. Both experimental and control group took the test. In scoring the test, the right answer is marked one (1) point and the wrong answer was marked zero (0) point, so the overall raw score from the right answers in this achievement test was 50 points.

2.3 Data analysis

In analyzing the data, researchers used Kolmogorov-smirnov’s formula to analyze the normal distribution, and Levene’s formula to analyze the variance of homogeneity. Then, the researchers analyzed the post-test score by using T-test to investigate the significance difference between experimental and control group’ means in post-test. Moreover, to verify the influence of independent variable to the dependent variable and to know how well the treatment works, the calculation of effect
size was performed. To determine the effect size, the researchers used independent variable upon dependent variable.

3. Results

The researchers put the result of vocabulary and grammar test from experimental group and control group.

Table 1. Descriptive analysis of students’ Pre-test and post-test score at experimental and control group

<table>
<thead>
<tr>
<th>Research Object</th>
<th>Experimental Group</th>
<th>Control Group</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Vocabulary skills</td>
<td>47.73 7.856 75.87 8.303</td>
<td>47.07 7.100 64.53 9.321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grammar skills</td>
<td>35.47 7.628 74.80 11.610</td>
<td>36.40 8.997 54.80 9.227</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table indicated that there was different score and standard deviation in students’ vocabulary and grammar test. The distribution score for experimental and control group in posttest showed the difference from the posttest. The data showed the difference of students’ vocabulary (47.73 < 75.87) and grammar (35.47 < 74.8) in experimental group and also vocabulary (47.07<64.53) and grammar (36.4 < 54.8) in control group. It could be seen that there was an increase of students’ vocabulary and grammar in the posttest.

There was 58.9% improvement from the experimental group for the vocabulary. While for the control group, there was 37% improvement. For grammar test, the experimental group showed impressively significant difference with more than 100% improvement. While the control group showed 50.5% improvement in the grammar test. So, the experimental group showed much better improvement than the control group. To confirm the results, the researchers then conducted a statically test to find out the measurement of the whiteboard animation effect size treatment to experimental group.

As already described in the previous chapter, effect size was a statistical concept that measures the strength of the relationship between two variables on a numeric scale. In this study, the researchers calculated the effect size to measure how large the effect of whiteboard animation to the improvement of participants’ vocabulary and grammar was. By calculating the effect size, the researchers could find out the effect size of using whiteboard animation to be applied as teaching media in terms of improving students’ vocabulary and grammar.

Table 2. The effect size of vocabulary post-test scores

<table>
<thead>
<tr>
<th>Dependent Variable: Vocabulary Post-test Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>Control Group</td>
</tr>
<tr>
<td>Experimental Group</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
From the Descriptive Statistics box, it could be seen that mean for control group is 64.53 and its standard deviation is 9.321. Then the experimental group’s mean was 76.27 with standard deviation of 7.995. The total samples were 60 from both groups.

Table 3. The effect size of vocabulary

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>2065.067a</td>
<td>1</td>
<td>2065.067</td>
<td>27.387</td>
<td>.000</td>
<td>.321</td>
</tr>
<tr>
<td>Intercept</td>
<td>297369.600</td>
<td>1</td>
<td>297369.600</td>
<td>3943.774</td>
<td>.000</td>
<td>.986</td>
</tr>
<tr>
<td>Group</td>
<td>2065.067</td>
<td>1</td>
<td>2065.067</td>
<td>27.387</td>
<td>.000</td>
<td>.321</td>
</tr>
<tr>
<td>Error</td>
<td>4373.333</td>
<td>58</td>
<td>75.402</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>303808.000</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>6438.400</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .321 (Adjusted R Squared = .309)

As the displayed of table above, the R squared (Partial Eta Squared) is 0.309. Since the r value > 0.243 and < 3.71, hence this result was categorized as medium effect size.

Table 4. The effect size of grammar post-test scores

Descriptive Statistics

<table>
<thead>
<tr>
<th>Dependent Variable: Grammar Post-test Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Control Group</td>
</tr>
<tr>
<td>Experimental Group</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Within the box, it could be seen that mean for control group was 54.8 and its standard deviation was 9.227. Then, the experimental group’s mean was 74.8 with standard deviation of 11.61. The total samples are 60 from both groups.

Table 5. The effect size of grammar

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>6000.000</td>
<td>1</td>
<td>6000.000</td>
<td>54.566</td>
<td>.000</td>
<td>.485</td>
</tr>
<tr>
<td>Intercept</td>
<td>251942.400</td>
<td>1</td>
<td>251942.400</td>
<td>2291.247</td>
<td>.000</td>
<td>.975</td>
</tr>
<tr>
<td>Group</td>
<td>6000.000</td>
<td>1</td>
<td>6000.000</td>
<td>54.566</td>
<td>.000</td>
<td>.485</td>
</tr>
</tbody>
</table>
As displayed in the table above, the R squared (Partial Eta Squared) was 0.485. Since the r value > 0.371 then this result was categorized as large effect size. The difference in the calculated result was statistically significant. The effect of the whiteboard animation on students’ performance was also practically impressive. So, the difference between control group and experimental group in performing grammar after whiteboard animation implemented to the experimental was large.

4. Discussion

Understanding the importance of vocabulary and grammar in building sentences during learning English, the researchers started a study about the appropriate learning media that might enhance students’ performance on vocabulary and grammar. As explained by Richards (2002, p.255) vocabulary is the core component of language proficiency and provides much of the basis for how well learners speak, listen, read, and write a foreign language. Meanwhile, Larsen-Freeman (2001) defined grammar as rules of a language. Grammar is a system of meaningful structures and patterns that are governed by particular pragmatic constraints.

The purpose of this research was to find out whether the whiteboard animation can improve the students’ vocabulary and grammar. To find out the implementation of the whiteboard animation, the researchers employed pretest and post-test for all the research subjects. As the results in the previous section showed, students from experimental group who was taught by whiteboard animation showed more significant result than the control group. It is along with the study of Harmer (2001) stating that a range of objects, pictures, or animations can be used as instructional media to present and manipulate language and to involve students in teaching-learning activities. The more students active in the learning process the more knowledge the students gain.

However, the students from control group also showed some improvement, even though not as significant as what the experimental group performed on the post-test. It proved that whiteboard animation as the learning media has improved the performance of experimental group on vocabulary and grammar better than the control group who did not get the same treatment. It has been highlighted by Brinton (2001, p.15), that media have undoubtedly always facilitated the tasks of language learning both instructed and none instructed learners as a tool for language learning or teaching.

5. Conclusions

As explained in the findings section, both groups actually made some improvement on their understanding of vocabulary and grammar. However, statistically, it was proven that whiteboard animation helped participants to better understand the material provided by the teacher during the teaching-learning process. That means the whiteboard animation that was conducted to experimental group works significantly in increasing students’ vocabulary mastery. The effect size was categorized into medium effect size.

According to the results of the research, it could be concluded that whiteboard animation could increase the students’ grammar mastery. The data showed that there were differences on mean between control group and experimental group. Mean of the control group was 54.80, while the experimental group was 74.80. The effect size told how big the difference was, the researchers found that the result of calculation showed that there was large effect size between control and experimental
group on grammatical mastery after experimental group had whiteboard animation as their learning media. Based on the conclusion, there were some suggestions for teacher, students, and researchers as follow:

1. For teachers

The teaching media is vital. Appropriate media will give significant improvement on student’s achievement. Whiteboard animation can be the media to deliver the material for the students, it can make the students pay more attention to the material and make the students memorize word easily. Teachers should make sure that all equipment needed is already well-prepared. Well collaboration of the good methods with the good teachers’ performance will create the atmosphere of teaching and learning process more enjoy, impressive, and meaningful.

2. For Students

Whiteboard animation is a video animation media to make it easier to the students to understand the material and keep the word in mind longer. The video will make the students have fun and enjoy learning the material.

3. For Researchers

For anyone who is interested to conduct a study in the same field with this study, may better find another effective way in implementing whiteboard animation media rather than let the participants sit and watch. It was done in order to gain more reliable results of study.

References


AUTHORS BIO DATA

Syafrizal Syafizal was born on January 30, 1976, in Banjit, Lampung, Indonesia. He graduated from English Education Department in Lampung University, Faculty of Teachers Training and Pedagogical, Indonesia, 1999. And continued for his Master and Doctoral degree at State University of Jakarta and followed Sandwich Program in Ohio State University, USA to finish his dissertation in 2013. He had worked as Lecturer, Assistant Associate since 2001 in University of Sultan Ageng Tirtayasa. Currently he is Associate Professor at English Education Department for S1 degree and Postgraduates Program. He has published many articles in Language teaching and learning, especially teaching English as a Foreign Language (TEFL), Language assessments. Affiliation: University of Sultan Ageng Tirtayasa.

Muhajir Muhamad was born on December 28, 1970, in Kebumen Central of Java, Indonesia. He graduated from Islamic Religion Education Department in IAIN Sunan Kalijaga Yogyakarta, Faculty of Tarbiyah, Indonesia, 1995. And continued for his master and Doctoral Degree at UIN Syarif Hidayatullah Jakarta and followed Training of spoken English at India, 2015. He had worked as Lecturer, Assistant Associate since 2003 in UIN Sultan Maulana Hasanuddin Banten. Currently he is Associate Professor at Islamic Religion Education Department for S1 degree and Postgraduates Program. He has published article in Islamic Education, Indonesian Favourite Islamic Curriculum Model, Based on Cultural Perspective. Affiliation: UIN Sultan Maulana Hasanuddin Banten.

John Pahamzah is a lecturer in English Department, the Teacher Training and Education Faculty, Sultan Ageng Tirtayasa University, Indonesia. He completed his Doctoral program in Teaching Language in Postgraduate Program of State Jakarta University in August 2014. Currently, he is actively researching several issues related to teaching English using media. Affiliation: Dr., Associate professor at English Department, Teacher Training and Education Faculty, Sultan Ageng Tirtayasa University, Indonesia.