

ENHANCING STUDENTS' ENGLISH ACHIEVEMENT THROUGH INTERACTIVE DIGITAL

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Abstract

The research aimed to discover whether interactive digital media effectively improves students' achievement in learning English. In order to obtain data, a quasi-experimental approach was used. This quantitative study featured third-semester classrooms at Borneo University Tarakan, one designated as the experimental class and the other as the control class. Pre- and post-test instruments were employed. The pre-test was used to determine the participants' initial learning framework, and the pre-test mean scores were used to do so. After conducting the selected lessons that employed interactive digital media in the experimental class and interactive non-digital media in a post-test was administered to the students in the control group. An independent t-test was used to compare the gain scores of the two classes. According to the results, the significant value was less than the significance level, which was $0.000 \leq 0.05$. It means that interactive digital media effectively improves the students' achievement. It is highly appropriate that using interactive digital media in teaching and learning is beneficial, especially in teaching English.

Keywords: Students' Achievement, Interactive Digital Media, Learning English

INTRODUCTION

It is easier for students to internalize their learning when multimedia technology is used in the classroom. In the classroom, multimedia technology allows teachers and students to have a more important conversation, which improves the learning process. The incorporation of multimedia technology applications into the classroom can assist students in gaining a greater grasp of the subject being taught and overcoming space, time, and infrastructural constraints. In mechanical technology, something is available means that it is still in use. Multimedia technology can be employed in various interesting ways, changing formerly monotonous lectures into dynamic two-way information exchanges. According to Mayer (2017), cognitive science has three rules for learning. Humans use two information processing systems: visual and auditory and verbal information. It means that each of these systems can only process a limited amount of information, and active learning

requires a coordinated set of cognitive processes to be used during learning (i.e., active processing assumption).

However, technological advances in multimedia offer new possibilities for developing engaging educational products. Advances in technology make it easier to construct learning material that incorporates real-world occurrences, such as fact films and movies from ordinary life, into the classroom (Vega, 2019). Technology has had a significant impact on education and taught and learning. Computer technology enables the transformation of text and visuals, the manipulation of color and sound, and the utilization of effects from other computers to produce dynamic and animated information presentations (Vega & Eppendi, 2021). Students acquire multimedia knowledge when they create mental representations of the words and visuals (e.g., printed texts and illustrations or narratives and animations). It is not

good when new technology is not used to help students learn. It is not easy to combine technology and media. The study's findings from Francom (2020) illustrate the difficulties that instructors face when they do not have enough time to check out a new digital tool or resource and plan for how it might be used to improve teaching and learning. As long as teachers do not have enough time to find and use digital tools and resources, we will likely see more teacher-centered practices that do not utilize technology's power to help students learn in new ways.

It is possible also happen in the border area in Indonesia, especially North Kalimantan. In North Kalimantan, the largest university is Borneo University Tarakan, in Tarakan. It includes seven faculties and eighteen departments, and it has about 5,000 students. As a higher education institution, Borneo University Tarakan must equip students with a curriculum that leverages the newest digital technological advancements, dubbed the "Industrial 4.0" era. Incorporating information technology into instructional media is becoming more prevalent in today's teaching and learning processes. It could be a feasible option for students who struggle to comprehend course material (Vai et al., 2020). Students at Borneo University Tarakan come from diverse backgrounds and experiences. Moreover, Using multimedia technology applications in the classroom can help students learn the topic more thoroughly while also overcoming space, time, and technology limitations.

Learning English Achievement

For some people, mastering a new skill is a complex undertaking. English is a foreign language to the Indonesian people, as it is not their first tongue. Since the last quarter of the twentieth century, sociolinguists and educators have been concerned about factors affecting school students' language acquisition achievement. Smit et al. (2015) studied children at a small rural school; the same

teacher is in charge. Students in rural schools were shown to have worse communicative abilities than students in urban schools. Furthermore, students in urban schools provided more descriptions and speaking acts. With the dawn of the twenty-first century, the problem has sparked renewed interest.

In line with this, a study conducted by Lee (2015) discovered that learning attainment refers to the change in a student's self after completing a learning process. A response given by students is referred to as a learning result. The learning outcomes discovered include information and a shift in student conduct from negative to good. According to another study by Krick Oborn & Johnson (2015), learning attainment is knowledge mastery or skill development by subject. It is used to demonstrate learning through a teacher's mark or grade. It is possible to say that achievement is one of the parameters used to assess a student's level. If the kids demonstrate high levels of learning achievement, the learning process has been successful.

On the other hand, poor performance by kids indicates that the educational process has failed. The current state of the Covid-19 epidemic has altered the system and the learning process. In most cases, learning is done immediately a normal meeting between the teacher and the students is when they meet face to face. Teachers can more easily regulate the learning results of their students with such a learning system. Teachers can also better assist students struggling with their studies by conducting face-to-face discussions. However, the ongoing covid-19 pandemic necessitates adapting the educational system to a new normal existence (Nashruddin & Tanasy, 2021). In this new normal environment, everyone is responsible for implementing virus prevention policies in all activities, including teaching and learning activities. Face-to-face learning has been turned into distant learning in the classroom, now

used in various schools and colleges. The abrupt change in the system, combined with various hurdles, can significantly lower students' willingness to learn. In general, a loss in motivation for studying impacts student accomplishment. As a result, the researcher is interested in discovering how interactive digital media is affected by the Covid-19 epidemic. In addition, in the current Covid-19 epidemic situation, the researcher looked at the relationship between students' achievement, particularly English learning.

Learning Media

According to Brame (2016), three elements provide the media as an effective educational tool. Cognitive load is a step before storing information in long-term memory, which is almost always full. Due to the local working memory capacity, During the learning process, the learner must be selective about which sensory memory information to focus on, which has significant consequences for the development of instructional materials. Cognitive load theory postulates that all learning experiences consist of three components. The first is intrinsic load, which is the amount of work that the subject under study has to accomplish on its own. It is based partly on how connected the subject is and how much work it has to do. Then, student engagement. It has been shown that using conversational rather than formal language in multimedia instruction can help students learn more. It may be because a conversational style encourages students to form a sense of social partnership with the narrator, which leads to more engagement and effort (Mayer, 2017). One of the advantages of employing interactive educational media for instructors is reusing them for subsequent classes and semesters.

However, while designing or selecting interactive digital media, it is crucial to assess whether they were designed for the

setting in which they will be used. The last element is active learning. Schacter & Szpunar (2015) characterized online learning as self-regulated learning, and they propose a conceptual framework for enhancing learning through the use of educational films as interactive digital media. Students must self-regulate their learning by monitoring their progress, identifying learning obstacles, and responding to these judgments; in other words, they must actively develop and probe mental models while performing metacognition about the learning process.

The first is intrinsic load, which refers to the amount of labor required of the subject under study on its own. Ediyani et al. (2020) suggested that several elements must be examined when selecting learning media to ensure that the educational process works effectively and is inconsistent with the objectives that have been established. The following are some criteria to consider when selecting learning media:

1. In conformity with the goals that must be met, the media are selected according to the instructional goals established in mental, emotional, and psychomotor development.
2. Facts, concepts, principles, and generalizations need adequate media to support them.
3. Media must be useful, adaptable, and durable. It does not have to be forced if there is no opportunity, money, or other resources ways to generate. Expensive and time-consuming media does not always imply that it is the best. As a result, the instructor can select from various readily available media that are easy to obtain and create. The chosen media can be utilized everywhere and anytime using current equipment in the environment, and it is lightweight and portable.
4. Teachers can use the media well and skillfully with the help of these tools. The teacher should be able to use the media in the classroom effectively.

Other high-tech tools are useless if the teacher cannot put them to use in the classroom for instructing and learning. It includes transparency projectors (OHP), overhead projectors, and films.

5. **Technicality:** The creation of visual images and photography must adhere to strict technical standards. Examples: The visuals and information or texts that are important should not be muddled by other things in the background, such as other slides.
6. The material used must be appropriate for the students' cognitive abilities.
7. The media utilized must be capable of assisting and assisting students in comprehending the lesson for the learning process to function smoothly and concerning the learning goals to be accomplished.

Interactive Digital Media

Teachers are expected to use and create interactive learning media in an increasingly sophisticated technology environment. Its purpose is to help students understand the complete material delivered by the teacher. Teachers must be able to produce and use interactive digital media in a variety of formats and variants in order to communicate with their students. According to Gazzaley & Rosen (2016), Media are employed as instructional aids, with the term "instructional aid" referring to anything that can be used to help students learn more successfully and efficiently. In the meantime, Wicaksono (2016), interactive multimedia combines multiple media, such as video, audio, photographs, graphics, and text, packaged in an integrated and interactive manner. It can make multimedia more attractive, which could be very useful for learning. To summarize, interactive learning media is a collection of text, animation, images, sound, video, and graphics that incorporate interactive features to foster effective communication and engagement between teachers and students.

It is easier for students to get more helpful information and connect with learning groups and other educational systems when they use digital media in school. Due to digital media trappings, students and institutions have various options to build new knowledge approaches. Modern education relies heavily on digital media to help students acquire helpful information. Digital media is becoming a more and more vital aspect of our lives daily. As a result, it is quickly becoming a critical component of education. Teachers think that the growth of digital media offers tremendous opportunities to revolutionize education. In the educational system, digital learning has caused a revolution. Modern classrooms, which are infused with cutting-edge technology, provide endless entertainment. Even in smaller places across the country, access to digital media has become a reality. These cities inform even the most humble scholars and establish new educational practices. The entire educational ecosystem has not only changed students' attitudes toward learning but has also greatly aided teachers in improving their delivery (Cannon, 2018).

As a result, the media are inextricably linked to the process of teaching and learning. It was shown that students learned more effectively when they were exposed to multimedia presentations that included animated videos with text, audio, and games on interactive master slides as part of a tutorial approach. When using this interactive learning technology, teachers are expected to observe more than simply verbal forms in descriptive words provided by the teacher or writing in books. The study recommends that subject matter be delivered via interactive learning tools to assist the teacher in being more engaged in the teaching and learning process.

RESEARCH METHOD

This study employed a quasi-experimental design. Because of the nature of a quasi-experimental study, which allows the researcher to vary the conditions in the teaching and learning process, the researcher offered treatments to the experimental group and then compared the students' achievement changes to the control group. Furthermore, the control group was the one that was taught without receiving the treatment. In this case, a quasi-experiment is utilized since the experimenter cannot create an artificial group because it is prohibited in the study setting. The researcher does not have complete control over the scheduling of experimental stimuli (including when and to whom they have been exposed and the ability to randomize exposures). The researcher can incorporate elements of experimental design into his data collection procedures (for example, the when and to whom he measures) even though he does not have complete control over the scheduling of data collection procedures (for example, the when and to whom he measures). As a whole, these conditions can be classified as quasi-experimental designs. Borneo University Tarakan was the site of this quasi-experimental study. Because the researcher cannot control all possible variables in this experiment, volunteers can be randomly assigned to groups. Two classes will serve as the experimental group in this study, while one will be the control group. There were forty-two students in each class. The variables in this study are classified into two categories: independent and dependent variables. The independent variable is where the dependent variable does not influence it. The dependent variable is the variable that is influenced by the independent variable. This study examined the effect of interactive digital media (Borneo e-learning, word wall, vocaroo, edpuzzle, voicethread, padlet, flipgrid, i-spring) and interactive non-

digital media such as posters, pop-up books, pictures, layers, lapbook, task cards, snake and ladder, puzzle, tenses dice etc. Students' proficiency in English language acquisition is the dependent variable, with interactive digital media serving as the independent variable. Pre – and post-testing were used in this study.

Because the study's sample was not chosen at random, the pre-test was created to guarantee that the control and experimental groups were equivalent. Before the students in this quasi-experiment received the experimental treatment, the pre-test measured some traits or qualities that the researcher assessed for them (Creswell, 2014). The researcher then devised reading exams as a post-test to assess the students' progress in learning English. The post-test provided researcher with information on a measure of an attribute or characteristic tested for student participants following the experimental treatment (Weskamp, 2019). Achievement exams are used to assess students' progress and the success of a plan. Multiple-choice questions were used in both the pre-test and post-test. The researcher established a consistent scoring and grading process using multiple-choice test items.

FINDING(S) AND DISCUSSION

The pre-test results revealed the level of English proficiency among the students. Following the pre-test results, the researcher treated the students by providing interactive digital material in the experimental class and Interactive Non-Digital Media in the control class. Students were interested in joining the session when it began and remained engaged throughout the lecture. The study's investigators conducted post-treatment testing. Experiment class is a group of students who were given an English test treatment using interactive digital media. Before administering the treatment, the researcher provided an English pre-test to the control class. Forty-

two students in the class took the pre-test and post-test. Maximum and minimum scores ranged from 75 to 40. The mean score of students in the pre-test was 63.21, according to the SPSS 26.0 version. A post-test in English was administered to the experimental class to see whether or not students' achievement improved due to the learning activity employing interactive non-digital media.

Most students got a score of 95, and the least students got a score of 65. The post-test means a score of students was previously known to be 82.98. The Control Class is a group of students who received an interactive non-digital media treatment during the English test. The researcher conducted the teaching and learning activities conventionally or using non-digital media. The researcher provided a pre-test to the control class before administering the treatment. In the control class, 42 students took the pre-test. The most significant possible score was 85, while the lowest was 40. It was reported that the average pre-test score of 42 students was 65.48. The highest score for the post-test of the control class was 90, the lowest score was 60, and the mean score was 73.21.

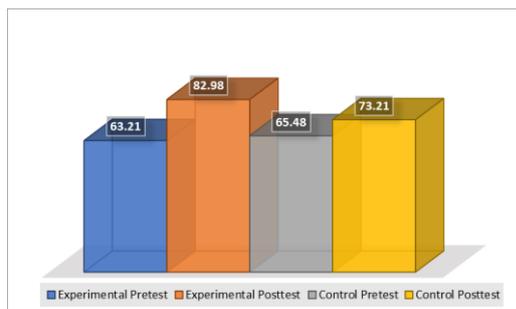


Figure 1: Mean Score

The result, as mentioned earlier, indicated that the experimental class was more proficient in English than the control class taught using interactive non-digital media. It was shown that students taught using interactive digital media performed significantly better on an English test than those taught using interactive non-digital media.

Table 1: Independent Sample Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|-----------------------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|---|--------|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Students' Achievement | Equal variances assumed | .158 | .692 | 5.490 | 82 | .000 | 9.762 | 1.778 | 6.225 | 13.299 |
| | Equal variances not assumed | | | 5.490 | 81.811 | .000 | 9.762 | 1.778 | 6.225 | 13.299 |

Table 1 shows the differences between the control and experimental groups based on the data analysis, it means $p > 0.05$ on the pre-test acquired value significance, did not differ significantly or are regarded as equal ($p = 0.692$ or value of 0.05). A p -value of 0.000 or a p -value of 0.05 indicates differences between the experimental and control groups that are statistically significant. The significance value of the t-test and the value of the t-test can be used to interpret the data (Sig). To examine the data and test the hypothesis, the researcher employs both. The t-test is compared to the t-table in situation, and if the t-test is greater than the t-table, null hypothesis (H_0) is rejected. Furthermore, if the significance value is greater than or equal to 0.05 ($Sig > 0.05$), H_0 is accepted. However, if it is less than or equal to 0.05 ($Sig \leq 0.05$), H_0 is rejected. The output independent sample t-test results are shown in Table 1. The total number of t-tests is 5.490 , while the total t-tables is 1.682 . The computed value is $5.490 \geq 1.682$, and the significance level is 0.05 ($0.000 \leq 0.05$), indicating that H_0 is rejected and H_a is accepted. It indicates that H_a shows a substantial difference in students' English achievement in the third semester at Borneo University Tarakan, who were taught utilizing interactive digital media, is acknowledged. Whereas H_0 , which asserts that there is no substantial difference in accomplishment between students taught using interactive non-digital media and those who are not, is rejected.

Based on the results of the post-test control, the mean score for the students is 73.21 points on average. The post-test experiment class's mean score is 82.98 .

The t-test result (5.490) is also greater than the t-table result (1.682). It implies that after receiving treatment utilizing interactive digital media, students obtain higher levels of accomplishment, and the researcher has seen that after receiving treatment, students' attention is focused on learning, and they understand the lesson more easily. According to Gazzaley & Rosen (2016) and Wicaksono (2016), interactive digital media helps teachers and students communicate and connect more effectively. As a result of the previous explanation, it is highly appropriate that using interactive digital media in the teaching and learning process is beneficial, especially in teaching English. According to the findings of this study, there were substantial disparities in student achievement before and after employing interactive digital media to teach. As a result, it can be inferred that the use of interactive digital media to improve students' accomplishment is effective in the teaching-learning process at Borneo University Tarakan's third semester.

CONCLUSION

Students can better understand the topic being taught by utilizing multimedia technology apps in the classroom. Technology advances have made it easier to create learning materials that incorporate real-world events into the classroom, such as fact videos and movies. Education, teaching, and learning have all been impacted by technology. When students make mental representations of words and images, they develop multimodal knowledge. When new technology is not employed to assist students in learning, it is not positive. Teaching and learning processes are increasingly incorporating information technology into instructional material. Borneo University Tarakan must provide students with a curriculum that uses recent technological breakthroughs in digital technology. The present Covid-19

outbreak has changed the system and the learning process.

In most cases, learning takes place face-to-face between the teacher and the students in normal conditions. The abrupt system change and various obstacles can dramatically reduce students' willingness to study. According to cognitive load theory, every learning experience has three components. Surprisingly, employing conversational rather than formal language in multimedia training can help students learn more. Teachers are expected to use and create interactive learning media in an increasingly complex technological world. Expensive and time-consuming media does not always equal superiority. High-tech tools are meaningless if the teacher cannot instruct and learn in the classroom. Modern education increasingly relies on digital media to assist students in obtaining useful information. Teachers believe that the rise of digital media presents an enormous opportunity to transform education. The use of digital media is intrinsically tied to the teaching and learning process. When students use digital media in school, it is easier to obtain more useful information.

The researcher used a quasi-experimental method, which allows him to change the teaching and learning process settings. The experimental group was given treatments, and the results were compared to the control group's achievement changes. Volunteers are randomly randomized into groups since the researcher cannot control all possible variables in this experiment. The impact of using interactive digital media on students' English language acquisition was investigated in this study. Word wall, vocaroo, edpuzzle, voicethread, padlet, flipgrid, and i-spring were among the interactive media used. This study used pre-and post-testing to confirm that the control and experimental groups were equal. Based on the results of the post-test control, the students' average score is 73.21 points. The mean score for the post-

test experiment class is 82.98. The result of the t-test (5.490) is also higher than the result of the t-table (1.682). It means that students achieve higher levels of achievement after receiving treatment using interactive digital media, and the researcher has observed that after receiving treatment, students' attention is focused on learning, and they understand the lesson more easily. According to the findings of this study, there were significant differences in student achievement before and after using interactive digital media to teach. As a result, it can be concluded that the employment of interactive digital media to promote student achievement is beneficial in Borneo University Tarakan's third-semester teaching-learning process.

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