



## Improving Student Text Writing Ability by Utilizing the Use of Augmented Reality Feature

Fitria Meisarah<sup>1✉</sup>, Cut Susan Octiva<sup>2</sup>, Purwo Agus Sucipto<sup>3</sup>, Ika Rahayu Satyaninrum<sup>4</sup>, Asri Ady Bakri<sup>5</sup>

<sup>1</sup>Universitas Kutai Kartanegara Tenggarong

<sup>2</sup>Universitas Amir Hamzah

<sup>3</sup>Universitas Jayabaya

<sup>4</sup>STAI Al-Hamidiyah Jakarta

<sup>5</sup>Universitas Muslim Indonesia

[fitriameisarah@unikarta.ac.id](mailto:fitriameisarah@unikarta.ac.id)

### Abstract

This study used a quantitative methodology. Experimental research is used, with a post-test-only control design as the study design. There were 100 students in the study's population, and students from classes A (the experimental type) and C (the control class) made up the sample. This study uses assemblers as a learning medium applied to those classes. Two variables are used in this study: the independent variable (the augmented reality feature in the assembler application) and the dependent variable (the ability to write descriptive texts for class students). Data collection techniques used are interview techniques, documentation, and observation. The application used to process research data is SPSS. This study's results show an influence between using augmented reality features and students' writing abilities. This is evident from the average value of the experimental class and control class.

**Keywords:** Experimental Class, Control Class, Student, Augmented Reality.

*SISFOTEK is licensed under a Creative Commons 4.0 International License.*



### 1. Introduction

Humans today have many advantages compared to humans who lived in the past. One example is farming activities that still rely on human or animal power, such as cows, buffaloes, etc. Now humans have been greatly helped by technology, such as rice field plowing machines, to facilitate the working processes of farmers. Just like the example above, in the realm of education too. The existence of current technological advances significantly reduces human life because they can help teachers and students carry out learning activities. Learning activities are generally always carried out traditionally, with the teacher as the center of knowledge in the classroom and students receiving knowledge from the teacher. Such a method makes students sit and listen or acquire knowledge the teacher transfers. The media used by the teacher in the classroom is also limited, so students tend not to understand what is explained [1]. The situation of students who sit and listen to the teacher's explanation often makes them get bored quickly. This results in students being unfocused or even sleepy in class. Currently, learning activities are increasingly modern. From the beginning, students were only passive objects; now, they can actively participate in learning activities. Based on what has been explained above, it is fitting for teachers to participate in improving how they teach students. One way is to use the currently available technologies [2].

Teachers can use many kinds of applications as learning media, one of which as PowerPoint, Canva, and many more. Using applications as learning media can foster students' interest in learning. In addition to making the atmosphere of learning activities in class more fun, students will also not feel sleepy or bored. Although it should be noted that repeatedly using applications as learning media can also result in decreased student interest in learning, teachers can experiment with using a variety of learning media that they feel are suitable for the material being taught. The researcher chose students because, based on the search results of researchers at the school, students were less able to write a text, one of which was descriptive. Based on the results of the discussion between the researcher and the teacher, the cause was students' difficulty in describing objects they had not seen. Therefore, to help students describe things even better, researchers will use a learning medium called Assemblr, which has an augmented reality feature [3].

Assembler is a learning application that uses augmented reality features or a combination of virtual and real worlds. This application works by using objects already available in the application, and then these objects are displayed in the real world with the help of a smartphone or gadget. This allows students to see things as if they existed. The Assembly application is expected to make teaching and learning activities in the classroom less tedious and more

exciting and foster students' interest in learning. This application has various objects (animations and images) that can be used for learning activities. Still, generally, users use the application more as a learning medium for subjects related to the natural sciences. This is because the objects in the Assemblr application are more suitable for use in science subjects, such as animations or pictures of the solar system, the structure of living things, and so on [4]. Even so, it is possible that this application can also be applied to Indonesian subjects, one of which is material about writing descriptive texts. In short, the descriptive text describes an object clearly and in detail. Therefore, writing descriptive text requires a thing that can be defined so that later it will be written into an explanatory text. The objects used to write this text can be those around us, both those that can be touched and those that cannot be connected, such as pictures on the internet [5].

Descriptive text is this class's initial material or chapter in Indonesian subjects. This is because the descriptive text is used as a basis for students to learn other texts. Students who cannot write explanatory texts will most likely have difficulty writing other texts, such as exposition texts, explanations, etc. Writing is also one of the language skills that must be mastered by students because the higher the level of education, the higher the need to write. Especially when the Coronavirus was still hitting Indonesia, teaching and learning activities were diverted to distance learning so that the delivery of material became hampered, and students ended up not understanding, being lazy, and being sleepy. Of course, this will be a problem for students, especially in this class, because it causes their writing skills not to develop. The teachers also acknowledged that delivering material through online learning activities was not optimal. Therefore, efforts or ways are needed to increase students' writing skills, especially in descriptive text material [6].

As explained in the previous paragraph, the Assembly application uses a feature called augmented reality. Augmented reality is a feature that can combine a virtual object with the real world. This feature has been widely used in various fields, including the game *Pokemon Go!* The game uses augmented reality features so that the players can feel they are in the *Pokemon* world. In addition, augmented reality can also be used in education to help students understand more about the structure of the human body, the solar system, and so on. Researchers want to try these applications and features on Indonesian subjects, especially descriptive text material. This study uses the Assemblr application as a learning medium for Indonesian subjects because Assemblr is expected to help students make explanatory texts more efficiently. In addition, in the Assemblr application, some pictures and animations are engaging for students to make descriptive text objects. The Assembler application also has an attractive appearance and many features. Assemblr application users can see and use works that other users have made, so they don't have to bother anymore when using Assemblr [7]. Assembly got a high score on the Play Store, 4.8 out of 5 (the highest score), with more than 1 million downloads. This proves that Assemblr has the most popular augmented reality features compared to similar applications in the Play Store.

Researchers use several relevant studies as primary reference in this research. The first study used classroom action research techniques that were carried out in two cycles, and each cycle had four stages: planning, action, observation, and reflection. The results of this study show that the use of Mind Map media significantly improves the skills of writing descriptive texts for class A students. This is evidenced by an increase of 30% from the initial stage to cycle I and 25% from cycle I to cycle II. The difference between this study and Gregory's is the learning media used. Gregory uses mind map learning media, while this study uses Assemblr learning media with augmented reality features. The second study used a class action approach (class action research) using cycles I and II. In each process, two meetings were held. The result of this study was an increase in the ability to write descriptive paragraphs for 7th-grade students at SMPN 2 Liliriaja. In the first cycle, out of 23 students, only 16 students, or 69%, reached a classical level of 76%; in the second cycle, there was an increase of 22 out of 23 students whose scores went Minimum Mastery (KKM) with a classical level of 85.08%. The difference between this study and the research conducted by Yusuf is that this research uses Assemblr learning media with augmented reality features, while Yusuf uses the problem-solving method [8].

The third study used a qualitative descriptive research method to see the results of explanatory texts written by students after viewing regional tourism videos. Based on research conducted using restricted travel videos, students are less able to write descriptive texts well. This is evident from the results of an analysis of students' writing skills with average breakdown scores of 41, 43, 45, 46, 48, 50, 51, 52, 53, 54, 56, 57, 62, 64, 65, 66, 68, and 70. The visible difference between the research conducted by the researchers and that done by Robiatul is that this research uses Assemblr learning media with augmented reality features. In contrast, Robiatul's research uses video learning media about regional tourism. Finally, the fourth study uses a quantitative approach using experimental research types. All pupils comprised the study's population, and the samples used were classes A and B. Class B was designated the control class, and Class A served as the experimental group. The pre-test and post-test in the prior researcher's study used a Likert scale [9]. The study's findings demonstrate a substantial relationship between the experimental class, which receives therapy, and the control class, which does not. A significant difference between this study and previous researchers is the number of subjects used [10]. The researcher above used the thematic issue in the elementary class, while this research used the Indonesian language subject in junior high school.

## **2. Research Methods**

This study uses quantitative research methods to help answer the problems to be studied. The quantitative method used is an experimental approach. This study uses a post-test-only control design as a research design. Post-test-only control design is one of the two types of designs in actual elemental design. The group that received treatment in this study was Class A as the experimental class, and the group that did not receive treatment was Class C as the control class. Both of them will later conduct a post-test to see whether the use of the augmented reality feature in the Assembler application can affect the ability to write descriptive texts for the experimental class. The population used in this study was all students. Class students have 100 students, with details of classes A and B having 50 students and class C having as many as 50 students. The samples used in this study were students in classes A, with a total of 50 students, and C, with a total of 50 students. The data collection technique used in this study is observation, interviewing, and documentation. The research instrument used in this study was a test. This study used two data analysis methods: prerequisite testing and hypothesis testing. The prerequisite test has two kinds of techniques: the normality test and the homogeneity test.

## **3. Results and Discussion**

When the research was conducted in class A, the researcher used the augmented reality feature in the Assemblr application to see its effect on students' ability to write a descriptive text. While research conducted in class C did not use the Assemblr application, its function is to see a comparison between the type that received treatment and the course that did not get treatment or to see if the class that received treatment was able to get a higher score than the class that did not get treatment, if it was the same or just the opposite. The researcher enters the course with the teacher, and then the teacher introduces the researcher to the students. After that, the learning activity begins by reading a prayer together, then doing an apperception to determine whether the students still remember the material about the descriptive text. The next researcher used PowerPoint to explain descriptive text to students and showed a video that the researcher had made at home to display objects that were displayed using the augmented reality feature. The researcher also indicates how this raised reality feature works and asks students to see things displayed using smartphones. Next, the researcher asked the students to write a short descriptive text about rabbits and cats. The researcher then conducted interviews with several students. After the bell signaling the end of class hours rang, the researcher asked students to collect the results of their work. Three students were absent when the research was taking place, so the researcher only examined 47 students in class A.

The following research was carried out in class C. The researcher and the teacher entered the class and introduced themselves. Teaching and learning activities begin with reading a prayer together, followed by a brief introduction to the students. After that, the researcher assessed to find out whether the students still remembered the material about the descriptive text or not. Then, learning activities begin with presenting explanatory text material to students without using the augmented reality feature in the Assembly application. After the presentation of the material was finished, students were asked to write a short descriptive text about animals. After the school bell that signaled the end of Indonesian language lessons rang, students were asked to collect their assignments. All students in class C attended the learning activities at that time. When the entire series of learning activities have been completed, the researcher closes the learning activities by reading a prayer, after which the researcher, teacher, and students take a group photo.

After knowing the grades of five students with the lowest scores and five with the highest scores, the researcher continued analyzing the descriptive text of class C students to conduct an assessment. The result is that most C students get low scores, and only a few get pretty good grades. The lowest score obtained by class C students was 19, while the highest score was 81. Students who scored 19 were one person, 25 were two people, 31 were one person, 37.5 were four people, 44 were five people, 50 were seven people, 56 were five people, 62.5 were three people, 75 were two people, and 81 were one person. The researcher then tries to find the data's mode, median, and mean. The result is that the way of the data above is 50, the median is 50, and the mean is 48.98 (rounded to 49). These results also show if class C gets less predictive. That is, this class is less able to understand and make descriptive text.

Based on the values obtained by class A, it is known that the lowest score obtained is 25, while the highest score is 94. Students who get a score of 25 are three people, 31 are one person, 44 are one person, 62.5 are one person, 69 are as many as two people, 75 are as many as four people, 81 are as many as eight people, 87.5 are as many as six people, and 94 are as many as one person. Hence, the total number of students is 271 are as many as eight people, 87.5 are as many as six people, and 94 are as many as one person, so the total number of students is 27. The researcher then tries to find the data's mode, median, and mean above. The result is that the method of the data above is 81, the median is 81, and the mean is 71.01 (rounded to 71). Based on this average value, class A gets a good predicate. These results also show that there is a difference in the average value between class C as the control class and class A as the experimental class. The average value of class C is 49, and class A is 71.

Based on the results of the analysis, the value of *Asymp. Sig. (2-tailed)* on the results of the post-test written descriptive text was 0.00. This value is smaller than the significance level of the Mann-Whitney test of 0.05. The

provisions of the Mann-Whitney test so that the hypothesis can be accepted are that the Asymp.Sig (2-tailed) value is less than 0.05. Because 0.05 is greater than 0.000, these results indicate that the hypothesis in this study is acceptable, namely that there is an effect of using the augmented reality feature in the Assemblr application on students' writing abilities. This can be seen from the average value of class A as the experimental class of 71, while class C as the control class gets a score of 49. It can also be seen that learning media, especially the augmented reality feature in the Assemblr application, has a major influence on the results obtained achieved by class A. The researcher assumes that conducive atmosphere factors and students who are enthusiastic about participating in learning activities are also factors why students in class A, an experimental class, get satisfactory results. The research in both classes was conducted in the morning during Indonesian language lessons, accompanied by the teacher. After carrying out the research, the researcher processed the data using the SPSS. Class A has a mode of 81, a median of 81, and a mean value of 71.01 (rounded to 71). Class C has a mode of 50, a median of 50, and a mean of 48.98 (rounded to 49). After determining the mode, median, and mean, the researcher conducted a data analysis prerequisite test and also tested the hypothesis.

The data analysis for this research involved prerequisite tests, namely the normality test and homogeneity test. The normality test was utilized to ascertain whether the data was distributed normally or not. The obtained significance value for class A as the experimental group was 0.000, while class C as the control group obtained a significance value of 0.496. For data to be considered normally distributed, the significance value must be greater than 0.05. This implies that data from class A was not normally distributed, while class C was normally distributed. On the other hand, the homogeneity test was conducted to determine whether the data set was homogeneous or not. The test resulted in a significance value of 0.81, which was greater than 0.05, indicating that the data in this study was homogeneous. After conducting both tests, the next step was to test the hypothesis to determine whether it was accepted or rejected. The study employed a non-parametric test, specifically the Mann-Whitney test, to analyze the data. The reason for using this test was that the requirements for using a parametric test were not met, namely that the data must be normally distributed and homogeneous. The research aimed to determine whether the use of augmented reality features in the Assemblr application had an impact on students' writing abilities.

After carrying out the Mann-Whitney test, it is known that the significance value obtained is 0.000. This result is smaller than the predetermined significance value of 0.05. Based on these results, it can be concluded that there is an effect of using the augmented reality feature in the Assemblr application on the writing abilities of students. It can be seen from the average value of class A, which is 71, while class C is 49. The researcher assumes that the results obtained by the experimental class are due to situations and conditions that do not make students bored, so as to make the learning atmosphere more exciting. Students looked very interested and enthusiastic when the researcher explained the material about descriptive text using the augmented reality feature. A different view is seen in class C, where students tend to be passive when teaching and learning activities take place. Monotonous learning activities without the use of instructional media make the learning atmosphere boring and result in a lack of understanding that students get from the presentation of material about descriptive text. This can also be seen from the results obtained by class C.

The interview process was carried out by asking a number of questions that had been prepared for a teacher in the Indonesian language subject, after completing the research in classes A and C. The first question the researcher asked was about the teaching techniques used to teach Indonesian. The teacher answered that while teaching Indonesian, the teaching technique most commonly used was the lecture technique and the occasional discussion technique. This indicates that teaching so far still uses teaching techniques that are commonly used, such as lectures and discussions. The researcher then proceeded to the second question, namely, what learning media had been used during teaching. She answered that the learning media commonly used when teaching came from print media and also video media. The third question that the researcher asked was whether, while carrying out the learning, the students took an active role or vice versa. The answer given is that students usually tend to be passive when receiving learning, although sometimes students become active during learning because it is interspersed or supplemented with quizzes and games.

The next question is whether she has ever heard of or used the augmented reality feature in learning Indonesian. She admitted that he had never used or even heard of the augmented reality feature, and she said this was the first time he had heard about this feature. The last question that the researcher asked was whether, according to her, there was a difference in the activity experienced by students when using the augmented reality feature or if there was no difference at all. She replied that he admitted that there were differences between learning activities that used and did not use augmented reality features. One of them is that students become more active in participating in learning activities when compared to not using the augmented reality feature. According to her, the reason why students become more active is because they are usually only able to imagine the object they want to describe. However, now, with the help of the augmented reality feature, students can see objects visualized with these features. The conclusion from the results of the interviews with researchers is that there are positive differences between students before and after using the augmented reality features in the Assemblr application. Students find it easier to write descriptive text because they can see the object they want to describe directly.

The researcher also agreed with what was conveyed by the teacher, that students became more active when using the augmented reality feature after seeing the comparison between classes A and C. Class VII C, as the control class, did not use the augmented reality feature, and the researcher only used the lecture method. The result is that learning activities in class become very monotonous, and students also seem not to fully understand the material about descriptive text. Meanwhile, class A, an experimental class that uses the augmented reality feature in the Assemblr application, looks more active in participating in learning activities. Look enthusiastic and can digest well the material about the descriptive text delivered with the help of learning media. Therefore, class A gets better results than class C. Class A gets an average score of 71, and class C gets an average score of 49.

The researcher conducted interviews with students in class A and randomly selected six students to be interviewed. The researchers interviewed these names with five questions related to teaching and learning activities using the augmented reality feature in the Assemblr application. The result is that all respondents, or the six students who were interviewed by the researchers, admitted that they had never studied using the augmented reality feature in the Assemblr application. Respondents also admitted that learning to use the media was more fun and enjoyable. This is because when learning to use the media, students find it easier to understand material about descriptive text, especially when describing objects, because they can see the object they want to describe. All students interviewed by researchers agreed that they preferred learning to use augmented reality features in the Assemblr application rather than learning without using learning media. Of course, this is understandable because learning without using learning media can make the teaching and learning atmosphere very boring for almost all students. Learning results for students can be enhanced by engaging teaching and learning activities. Class A's value as the experimental class clearly shows that it is superior to Class C's value as the control class.

The conclusion from the interviews that the researchers conducted with the six students was that they acknowledged that there was a positive influence when learning to use the augmented reality feature in the Assemblr application. One of them is that student learning activities become more fun and learning becomes easier (especially in descriptive text material). In addition, studying descriptive text using the augmented reality feature in the Assemblr application can actually increase students' learning interest. It is proven that the average writing value of class A (experimental) students who use the augmented reality feature in the Assemblr application is higher when compared to class C (control). Class A gets an average score of 71, while the average score of class C is 49. Based on the assessment instrument used, class A as the experimental group gets the predicate sufficient and class C as the control group gets the predicate less.

#### **4. Conclusion**

Augmented reality features are proven to have an influence on learning activities. Classes that use these features are safer and more fun than classes that do not use augmented reality features. This is also supported by the results of observations and interviews conducted with Indonesian teachers and students. The ability to write descriptive texts for students of class A as the experimental class was better than that of class C as the control class. This can be seen from the average value of class A of 71 and class C of 49. The reason for this is that class A, as the experimental class, uses the augmented reality feature in the Assembler application, while class C, as the control class, does not. Teachers, especially Indonesian teachers, can try to innovate by using learning media to support learning activities in class. Teachers can try similar applications as the researchers use or look for other applications that they feel are suitable to be applied to Indonesian material. In addition, teachers must try their best so that learning activities in the classroom are not boring. One way is to use learning media. Spend more time when you want to research using learning media, especially the augmented reality feature in the Assembler application. Because of the results obtained, less time is a factor in why the results between the experimental class and the control class are not so different.

#### **References**

- [1] Asdar. (2018). *Educational Research Methods: A Practice Approach*. Bogor: Azkiya Publishing.
- [2] Andry, J. F., Tannady, H., & Gunawan, F. E. (2020). Purchase order information system using feature driven development methodology. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(2), 1107-1112.
- [3] Andry, J. F., Tannady, H., & Nurprihatin, F. (2020, March). Eliciting requirements of order fulfilment in a company. In *IOP Conference Series: Materials Science and Engineering* (Vol. 771, No. 1, p. 012023). IOP Publishing.
- [4] Gunawan, F. E., Andry, J. F., Tannady, H., & Meylovsky, R. (2019). Designing enterprise architecture using togaf framework in meteorological, climatological, and geophysical agency. *Journal of Theoretical and Applied Information Technology*, 97(20), 2376-2385.
- [5] Hermawan, H. (2018). *Quantitative Methods for Tourism Sector Research*. Yogyakarta: Open Science Framework.
- [6] Tannady, H., Andry, J. F., Sudarsono, B. G., & Krishartanto, Y. (2020). Enterprise architecture using Zachman framework at paint manufacturing company. *Technol. Reports Kansai Univ*, 62(4), 1869-1883.
- [7] Sari, R. K., Sutiadiningsih, A., Zaini, H., Meisarah, F., & Hubur, A. A. (2020). Factors affecting cognitive intelligence theory. *Journal of Critical Reviews*, 7(17), 402-410.

- [8] Rachmad, Y. E., Mahendika, D., Lestari, N. C., Meisarah, F., & Rachman, R. S. (2023). The Relationship Between Teachers Perception and Belief on Readiness to Plan a Learning of Early Childhood Education Program Teachers. *Edumaspul: Jurnal Pendidikan*, 7(1), 154-157.
- [9] Suharman. (2018). Tests as a Measuring Tool for Academic Achievement. *Jurnal At-Ta'dib*, 10.
- [10] Tannady, H., Andry, J. F., Gunawan, F. E., & Mayselste, J. (2020). Enterprise architecture artifacts enablers for it strategy and business alignment in forwarding services. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(2), 1465-1472.