



Influence of augmented reality text learning media description of the learning independence of class students VII SMP in central Lampung

SM Wardatul Fauziah ^{1*}, Iing Sunarti ², Mulyanto Widodo ³, Ranni Rahmayanthi ⁴, Siti Samhati ⁵

¹⁻⁵ University of Lampung, Indonesia

* Corresponding Author: SM. Wardatul Fauziah

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Abstract

This research aims to develop Augmented Reality learning media descriptive text material for class VII SMP and testing the effect of using Augmented Reality learning media for descriptive text on the learning independence of class VII SMP students in Central Lampung. The method used to develop Augmented Reality learning media is method development of Borg and Gall. The population in this study were class VII students of SMP Negeri 3 Terbanggi Besar for the 2023/2024 academic year with a sample size of 75 students. This research uses four data collection techniques, namely interviews, observation, questionnaires and tests. The results of development research show two things. First, the Augmented Reality learning media developed with the Borg and Gall concept was declared feasible by material expert validators, learning media experts and practitioners with percentage scores of 83.33%, 85% and 78%. Second, based on the feasibility test of the developed Augmented Reality learning media, an average score of 90.8 was obtained which is included in the very feasible category; The effectiveness test using N-Gain obtained a value of 0.74 which is included in the high category. This means that Augmented Reality learning media is suitable for use in learning descriptive text material and has been proven to be effective in improving students' reading comprehension abilities of descriptive text.

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Keywords: Learning media, augmented reality, descriptive text, independence Study

Introduction

According to Ki Hadjar Dewantara, education is an effort to promote the growth of character (inner strength and character), mind and body of children. To achieve these educational goals, education must have a clear unified concept, namely *ing ngarsa sung tuladha*, *ing madya mangun karsa*, *tut wuri handayani*. *Ing ngarsa sung tuladha* means in the front giving an example which means teachers or educators must be able to be role models for all students. *Ing madya mangun karsa* means in the middle of building meaningful work educators are able to create ideas for students. *Tut wuri handayani* means behind giving encouragement. This means that educators must be able to provide motivation and direction for students. In line with Ki Hajar Dewantara's thoughts, Law Number 20 concerning the National Education System defines education as a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential. to have spiritual power religion, self-control, personality, intelligence, noble character, and skills needed by oneself, society, nation and state. In order for learning objectives to be achieved, there must be teaching and learning interactions between teachers and students in the learning process in the classroom. If teachers and students communicate actively and educatively in two directions, efficient and effective learning can be realized. Only with a good learning process can learning objectives be achieved so that students experience changes in behavior through learning activities.

In the 21st century, there has been a paradigm shift in the learning process, which was originally teacher- centered learning, now teacher-centered learning, has now become student-centered learning. This paradigm shift has had a significant impact on

learning methods, activities and outcomes. In the learning process there must be a balance between cognitive, affective and psychomotor aspects so as to encourage students to be able to prepare lifelong learning abilities, integrate basic knowledge, improve relationships between students and educators, and increase student motivation in terms of learning (Dolmans, Wolhagen, Van Der Vleuten, and Wijnen, 2001) ^[11].

A student-centered learning approach can be carried out with several strategies, such as (1) encouraging students to be active in gaining knowledge and skills, (2) interacting with fellow students and educators, (3) encouraging students to always be aware of the necessary needs and the reasons, then (4) determine and carry out the learning process to achieve the learning objectives. Some of these strategies can also be applied when studying independently (Fisher, King, and Tague, 2001) ^[18].

In the concept of student-centered learning, students have responsibility for building and developing their own knowledge. The basic principle that must be possessed is that students are more active and independent in the learning process. With this principle, students can determine what to study, determine how and why it must be studied, and determine the topics to be studied (Lee, Mann, and Frank, 2010). Independence in learning is one of the characteristics that plays a role in forming individuals who have the ability to learn throughout life (lifelong learning).

Learning independence is one of the factors that influences student learning outcomes. Students who have high learning independence will try to complete assignments given by the teacher, whereas students who have low learning independence will rely on other people to complete assignments (Fitriana in Fitriya et al., 2019) ^[19]. Learning independence can be interpreted as the state of an individual who is willing and able to learn on their own initiative, with or without the help of other parties in determining learning goals, learning methods, and evaluating learning outcomes (Tahar and Eceng, 2006) ^[57]. Students can learn and discuss with friends or other learning sources in solving the difficulties they face. However, teacher assistance in learning is also necessary to avoid misinterpretation of the content of the lesson material.

Apart from teacher assistance, students' learning independence can be built with the help of learning media which functions as an intermediary for conveying messages so that there is no failure to understand during the communication process. Bethany explained (in Mustaqim and Kurniawan, 2017) ^[46] that the learning process is the process of conveying messages/material from the message giver or teacher to the recipient of the message. In this case it is the students. The process of changing messages/material into communication symbols, both verbal and nonverbal, is called encoding, while the interpretation of communication symbols by students is called decoding. In the process of delivering the message/material, there are times when it is successful, but sometimes it is not.

This failure in the communication process is called noise/barrier. Therefore, interactive and fun learning media are needed to help teachers convey material in the learning process. With increasingly massive technological developments, learning media in the world of education is also developing. Learning media can be made more interesting and concise, without reducing the essence of the material. An example of contemporary learning media today

is Augmented Reality (Mustaqim and Kurniawan, 2017) ^[46]. Augmented Reality has become a new technology that can be used in the world of education (Akçayır and Akçayır, 2017). Recent research results state that Augmented Reality has achieved increased relevance and recognition in various fields, especially in the educational environment (Fan, Chai, Deng, and Dong, 2020) ^[14]. Therefore, this innovative technology will develop into an indispensable element in every domain of human activity (Faqih and Jaradat, 2021) ^[15]. During the independent learning process, students often feel confused, frustrated, and dissatisfied with their learning experience. However, by utilizing Augmented Reality this can be minimized so that students can develop their learning independence and ultimately their academic grades can increase (Luny-Child et al., 2001) ^[38].

Azuma (1997) defines Augmented Reality as a combination of real and virtual objects in a real environment, running interactively in real time, and there is integration between objects in three dimensions, namely virtual objects are integrated in the real world. Combining real and virtual objects is possible with appropriate display technology, interactivity is possible through certain input devices, and good integration requires effective tracking.

Augmented Reality technology consists of two aspects. First is real world objects and second is digital content. Combining the two in a way that creates an interactive environment is a challenge in itself, especially when applied in a learning context (Aitamurto, Boin, Chen, Cherif, and Shridhar, 2018) ^[4]. The implementation of Augmented Reality applications encounters many challenges, obstacles and difficulties because this technology provides solutions in unconventional ways and with a unique level of contextuality. Each domain, such as education, has contextual specificities that require different implementation strategies and styles (Akçayır and Akçayır, 2017). However, Augmented Reality applications provide opportunities for all stakeholders involved in educational services, namely schools, educators and students. These opportunities take the form of improving educational services, facilitating learning experiences, and supporting teaching/knowledge processes.

Augmented Reality technology can help students to engage in authentic exploration in the real world (Dede, 2009) ^[10]. By displaying virtual elements alongside real objects, Augmented Reality technology facilitates the observation of events that cannot be easily observed directly (Wu, Lee, Chang, and Liang, 2013) ^[61]. Thus, students' motivation can increase and help them acquire better investigative skills.

The use of technology is beneficial for students and educators. For students, learning activities become more valuable and useful, while for educators teaching activities become more effective (Olsen, Faucon, and Dillenbourg, 2020) ^[49]. Based on these reasons, universities and schools around the world are adopting and incorporating digital tools to enhance learning activities and tasks so that education becomes more interactive and fun, bringing abstract concepts to life in a more engaging environment, and increasing students to develop special skills.

Several previous research results have proven that the use of Augmented Reality applications can improve good attitudes towards technology and motivate students to learn (Barroso, 2018; Tekedere and Göke, 2016) ^[59]. These conditions support the creation of a constructivist learning context, which can promote an active learning environment and produce high student satisfaction.

Augmented Reality as a learning medium can be applied to all subjects at school, including Indonesian language subjects. In accordance with Minister of Education and Culture Decree Number 56/M/2022 concerning Guidelines for Implementing Curriculum in the Context of Learning Recovery, Indonesian is one of the main subjects that must be taught at the SMP/MTs level. Learning Indonesian language subjects is allocated 6 lesson hours per week with details of 5 lesson hours for intracurriculars and 1 lesson hour for the Project for Strengthening the Pancasila Student Profile Based on the Decree of the Head of the Standards, Curriculum, Educational Assessment Agency of the Ministry of Education, Culture, Research and Technology Number 033/H/KR/2022, it is stated that Indonesian language subjects form receptive language skills (listening, reading and watching) and productive language skills (speaking and presenting, and writing). This language competency is based on three things that are interconnected and support each other to develop students' competencies, namely language (developing linguistic competence), literature (the ability to understand, appreciate, respond to, analyze and create literary works); and thinking (critical, creative, and imaginative). It is hoped that the development of language, literature and thinking competencies can form students who have high literacy skills and have Pancasila character. In the Merdeka Curriculum, in the Indonesian language subject at class VII SMP/MTs level, there are seven types of text that students must master, one of which is descriptive text.

According to the Big Indonesian Dictionary, description is defined as a clear and detailed presentation or depiction using words. Descriptive text is text that describes or depicts something according to the actual situation so that the reader can see, hear, smell and feel what is described appropriately, with the author's image. The thing or object being described can be a natural condition in a certain place, a person's condition, or an animal's condition. It is important for students to study descriptive texts so that they can train their senses in describing objects in detail. that was observed.

To get maximum descriptive text learning outcomes, teachers need to utilize the media. Santoso states that the media are all forms of intermediaries that someone uses to spread information. idea/ideas so that the idea reaches the recipient. In the world of education, media is used in the teaching and learning process so that the messages transmitted in the form of material can be understood well by students. If in a situation the teacher cannot be present in class, learning media can replace the teacher's role in delivering lesson material.

Researchers have conducted preliminary research in the even semester of the 2022/2023 academic year at SMP Negeri 3 Terbanggi Besar, Central Lampung. The researchers chose this school as a place for preliminary research for two reasons: it is an A-accredited school and the community's favorite school as proven by the highest number of students in Terbanggi District. Besar, Central Lampung Regency. Interviews conducted by researchers students and teachers of Indonesian language subjects. Based on the results of interviews with students, it can be concluded that students' learning independence is quite diverse.

There are students whose learning independence is high, they have studied independently at home. However, there are also students whose learning independence is quite low because they don't want to study at home for reasons of being tired, lazy, sleepy, and wanting to spend time playing games.

During the learning process, this type of student tends to depend on friends, and never even takes part in the learning process seriously before being instructed by the teacher. This occurs due to internal factors, namely the lack of motivation to learn in students.

Both students whose learning independence is high and those who are still low, they all want teachers to display innovative learning media that is interactive, fun, explains the material in detail, is visualized in two or three dimensions, allows learning while playing because it is accompanied by games or games. Innovative learning media based on contemporary technology that can answer the needs of these students is Augmented Reality. However, based on the results of the researcher's interview with the Indonesian language subject teacher at the school, it turns out that the teacher has not used Augmented Reality as a learning medium.

Based on the problems that arise related to independent learning, it is suspected that the use of fun and useful Augmented Reality learning media can motivate students to learn independently at school and at home. Augmented Reality can be implemented into Indonesian language learning as descriptive text material which has been experienced by students too tedious. In fact, in concretizing descriptive text objects it is very possible for these objects to be translated into two-dimensional or three-dimensional displays.

Therefore, researchers feel it is important to examine Augmented Reality learning media in descriptive text material and its influence on the learning independence of class VII junior high school students. In this research, the descriptive text variable is focused on reading and viewing elements as students' receptive skills. Meanwhile, according to the results of pre-research interviews, the Augmented Reality learning media variable can be viewed from the aspect of usefulness and pleasure felt when using Augmented Reality so that it will have an impact on the decision to adopt Augmented Reality. It is thought to have an effect on students' learning independence.

Method

The type of method that researchers use in this research is a combination of research and development (R&D) methods with Quantitative methods are associative. Research and development methods are used to develop Augmented Reality learning media for descriptive text. Quantitative methods are used to research certain populations and samples where data collection uses research instruments and quantitative/statistical data analysis with the aim of testing predetermined hypotheses (Sugiyono, 2008: 14) ^[54]. Apart from that, the associative method with this form of causal relationship is used to look for causal relationships which are characterized by the existence of independent variables, namely variables that influence and dependent variables as variables that are influenced.

The population in this study were class VII students of SMP Negeri 3 Terbanggi Besar, Central Lampung Regency. The following is the population table in this study. Based on calculations using the Slovin formula with a margin of error of 10%, the total research sample was 75 students. This sample size meets the minimum sample in Structural Equation Modeling (SEM) research. The sampling technique in this research is probability sampling using disproportionate stratified random sampling. This means that sampling is based on uneven class locations.

In this research, there are four techniques used by researchers to collect data, namely interviews, observation, questionnaires and tests. This research uses Time-Horizon which is cross-sectional, meaning that research data is collected only once, perhaps over several days, weeks or months to answer the researcher's questions.

In this research, the Partial Least Square – Structural Equation Modeling (PLS-SEM) concept is used to answer the research objectives. In PLS-SEM analysis, it consists of two measurements, namely, outer model analysis and inner model analysis. Outer model analysis to evaluate the measurement model. In other words, the outer model is to assess whether the indicators being measured are able to measure their respective constructs. Meanwhile, the inner model is used to evaluate the structural model.

Results and Discussion

Augmented Reality Media Product Development Text Description

Based on researchers' interviews with class VII students at SMP Negeri 3 Terbanggi Besar, it can be seen that students' learning independence varies. There are students whose learning independence is high, they have studied independently at home. However, there are also students whose learning independence is quite low because they don't want to study at home for reasons of being tired, lazy, sleepy, and wanting to spend time playing games. During the learning process, this type of student tends to depend on friends, and never even takes part in the learning process seriously before being instructed by the teacher. This occurs due to internal factors, namely lack of motivation to learn in students. Whether students whose learning independence is high or who are still low, they all want teachers to display innovative learning media that is interactive, fun, explains the material in detail, is visualized in two or three dimensions, allows learning while playing because it is accompanied by games or games.

Innovative learning media based on contemporary technology that can answer students' needs is *Augmented Reality*. Based on the results of interviews with students and Indonesian language subject teachers, the learning media that has been displayed by the teacher is in the text material descriptions namely *YouTube* shows, slides, and image cards. In fact, *Augmented Reality* learning media can be applied by displaying two or three-dimensional objects accompanied by games such as *the Pokemon Go game*. However, the Indonesian language subject teacher at the school does not know and cannot produce *Augmented Reality media*. Thus, both teachers and students at the school need *Augmented Reality* learning media to support learning descriptive text material.

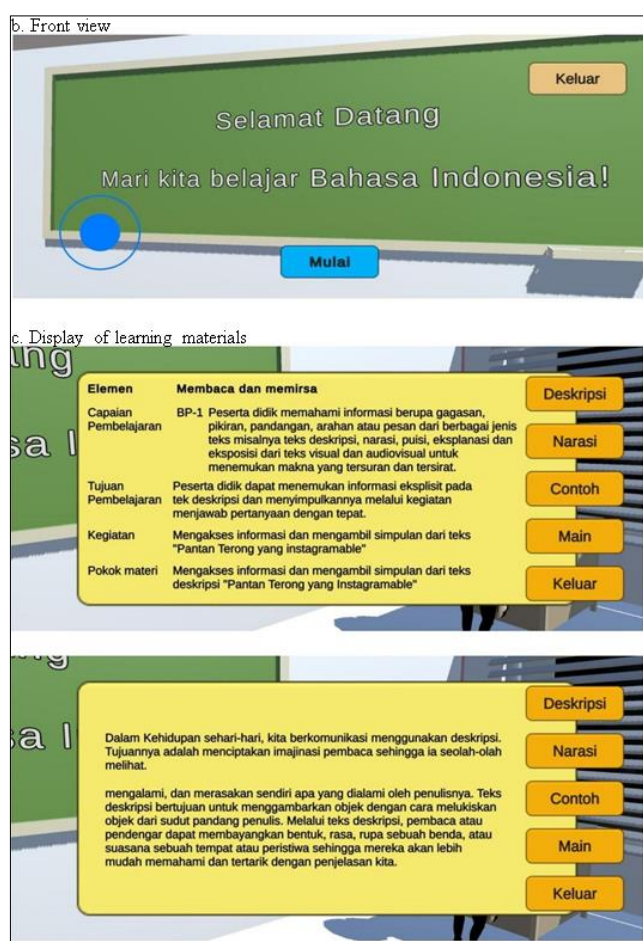
Product Design

The following is the *Augmented Reality* learning media design with descriptive text.

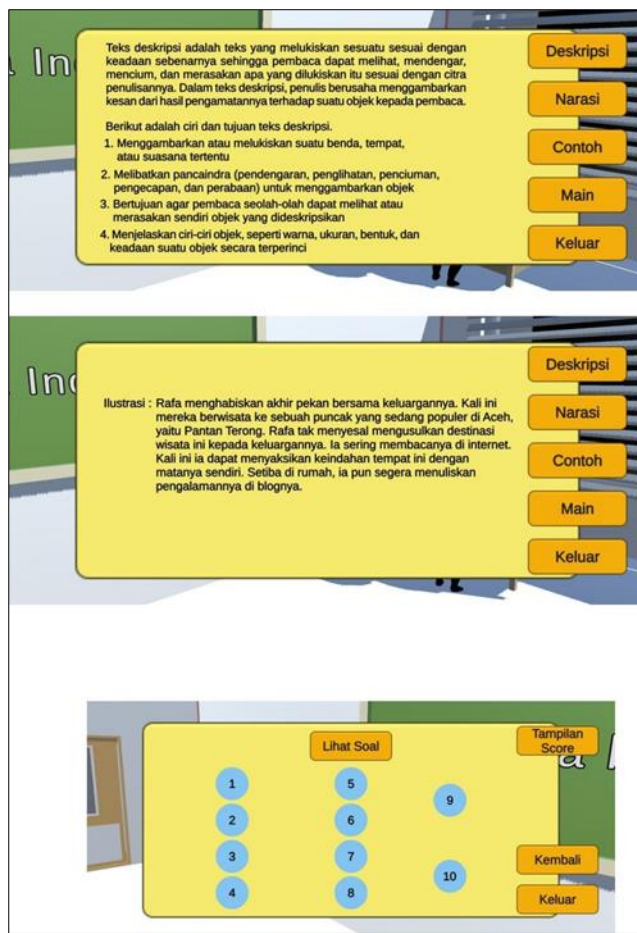
a. The initial application login screen



Fig 1



d. Game display



Expert Validation

Furthermore, the product is validated by material experts, media experts and practitioner experts. Based on validation data from material experts, design Augmented Reality learning media got an average score of 4.16 with an average score of 0.833 which was converted into a final score of 83.33% so it was included in the very worthy category. In the aspect of material feasibility, an average score of 4.25 was obtained with a score of 85 which was included in the very feasible category. In the aspect of material presentation, an average score of 4.25 was obtained with a score of 85 which is included in the very decent category. In the language aspect, an average score of 4.12 was obtained with a score of 82.5 which is included in the very decent category. In the graphic aspect, an average score of 4 was obtained with a value of 80 which is included in the very decent category. Based on data from validation results from media experts, the Augmented Reality learning media design received an average score of 4.25 with an average score of 0.85 which was converted into a final score of 85% so it was included in the very feasible category. In the aspect of media access, an average score of 4 was obtained with a final score of 100 which is included in the very appropriate category. In the linguistic aspect, an average score of 5 was obtained with a final score of 100 which is included in the very decent category. In the presentation aspect, an average score of 4.25 was obtained with a final score of 85 which is included in the very decent category. In the aspect of media effects on learning strategies, an average score of 3.8 was obtained with a final score of 76 which was included in the adequate

category. In terms of overall appearance, an average score of 4 was obtained with a final score of 80 which was included in the adequate category.

Based on validation data from practitioners, the Augmented Reality learning media design received an average score of 3.93 with an average score of 0.78 which was converted into a final score of 78% so it was included in the feasible category. In the aspect of media content, an average score of 4 was obtained with a final score of 80 which is included in the adequate category. In the language aspect, an average score of 3.75 was obtained with a final score of 75 which was included in the decent category. In the aspect of presentation attractiveness, an average score of 3.66 was obtained with a final score of 73.3 which was included in the decent category. In the graphic aspect, an average score of 4.25 was obtained with a final score of 85 which is included in the very decent category.

Design Revision

Augmented Reality learning media, descriptive text that researchers have developed, has been validated by material experts, media experts and practitioners. The results of the assessment of the Augmented Reality learning media product design, the descriptive text from material experts is very feasible, from media experts it is very feasible, and from practitioners it is feasible. The experts also provided input/suggestions on the design of Augmented Reality learning media product description text. Based on suggestions and input from experts, researchers improved the Augmented Reality learning media for descriptive text which is the product of this research.

Perceived Usefulness when Using Augmented Reality Learning Media (Variable X1)

Based on the questionnaire that the researcher distributed to respondents, data was obtained on the usefulness felt by students when using Augmented Reality learning media, data was obtained regarding the perceived usefulness that is felt when using Augmented Reality learning media with the highest average score of 5 or if converted in value form it is 100, the lowest average score is 3.5 if converted in value form is 70, and the average total score is 4.47 or if converted into grades it is 89.53. By using table 21 as an assessment benchmark, it can be concluded that the perception of the usefulness of Augmented Reality by class VII respondents at SMP Negeri 3 Terbanggi Besar TP 2023/2024 is classified as very good. The average score is in the range 4.21—5.00. Respondents whose perceived usefulness was classified as very good were 56 students and 19 other students were classified as good.

Enjoyment Experienced When Using Augmented Reality Learning Media (X2)

Based on the questionnaire that the researcher distributed to respondents, data was obtained on the enjoyment felt by students when using Augmented Reality learning media. Based on the data, data was obtained regarding the perception of pleasure felt when using Augmented Reality learning media with the highest average score of 5 or if converted into grades it was 100, the lowest average score was 3 if converted into grades it was 60, and The average total score is 4.26 or if converted into grades it is 85.33. By using table 21 as an assessment benchmark, it can be concluded that the learning independence of class VII respondents at SMP

Negeri 3 Terbanggi Besar TP 2023/2024 is classified as *very good*.

Augmented Reality Media Adoption (Z Variable)

Based on the questionnaire that the researcher distributed to respondents, data on the adoption of

Augmented Reality learning media. Based on the data, data is obtained regarding learning independence with the highest average score of 5 or if converted into grades is 100, the lowest average score is 2.5 or if converted into grades is 50, and the total average score is 4.3 or if converted into a score it is 86. Using table 21 as an assessment benchmark, it can be concluded that the learning independence of class VII respondents at SMP Negeri 3 Terbanggi Besar TP 2023/2024 is classified as very good. The average score is in the range 4.21—5.00. Respondents who achieved the very good learning independence category were 43 students, 32 students were classified as good, and 5 other students were classified as fair.

Learning Independence (Y Variable)

Based on the questionnaire that the researcher distributed to respondents, data was obtained on the learning independence of class VII students at SMP Negeri 3 Terbanggi Besar for the 2023/2024 academic year. Based on the data, data is obtained regarding learning independence with the highest average score of 5 or if converted into a value it is 100, the average score the lowest is 3.11 or if converted in value form is 64, and the average total score is 4.21 or if converted in value form is 84.66. By using table 21 as an assessment benchmark, it can be concluded that the learning independence of class VII respondents at SMP Negeri 3 Terbanggi Besar TP 2023/2024 is classified as very good. The average score is in the range 4.21—5.00. Respondents who achieved the very good learning independence category were 43 students and 32 other students were classified as good.

The Influence of Perceived Usefulness when Using Augmented Reality (X1) on Augmented Reality Adoption (Z)

The first hypothesis tested in this research is the influence of perceived usefulness when using Augmented Reality learning media on the decision to adopt Augmented Reality. Based on Table 39, the coefficient value obtained is positive (0.359) and the statistical t value is 3.920 with a p value of 0.000. Because the statistical t value (3.920) > 1.96 and p value (0.000) < 0.05, at an error rate of 5% (two tail) it is stated that H0 is rejected and H1 is accepted. These results show that perceived usefulness has a positive and significant influence on the adoption of Augmented Reality learning media in descriptive text. The path coefficient value of perceived usefulness towards adoption has a positive sign. This means that the higher the perceived usefulness when using Augmented Reality, the decision to adopt Augmented Reality will also increase.

The Effect of Enjoyment Perceived When Using Augmented Reality (X2) on Augmented Reality Adoption (Z)

The second hypothesis tested in this research is the influence of the pleasure felt when using Augmented Reality learning media on the decision to adopt Augmented Reality. Based on Table 39, the coefficient value obtained is positive (0.478)

and the statistical t value is 5.181 with a p value of 0.000. Because the statistical t value (5.181) > 1.96 and p value (0.000) < 0.05, at an error rate of 5% (two tail) it is stated that H0 is rejected and H1 is accepted. These results show that the perceived pleasure has a positive and significant effect on the adoption of Augmented Reality descriptive text. The value of the pleasure path coefficient on adoption has a positive sign. This means that the higher the pleasure felt when using Augmented Reality, the decision to adopt Augmented Reality will also increase.

The Effect of Adopting Augmented Reality Media (Z) on Learning Independence (X)

The third hypothesis tested in this research is the effect of Augmented Reality adoption on learning independence. Based on Table 39, the coefficient value is positive (0.754) and the statistical t value is 13.998 with a p value of 0.000. Because the statistical t value (13.998) > 1.96 and p value (0.000) < 0.05, at an error rate of 5% (two tail) it is stated that H0 is rejected and H1 is accepted. Obtaining these results shows that the adoption of Augmented Reality has a positive and significant influence on learning independence. The path coefficient value of Augmented Reality adoption on learning independence has a positive sign. This means that the higher the level of Augmented Reality adoption, the learning independence will also increase.

Closing

The results of the research show that the descriptive text Augmented Reality learning media was declared feasible by material expert validators, learning media experts, and practitioners with percentage values of 83.33%, 85%, and 78%. Based on the feasibility test, an average value of 90.8 was obtained which was included in the very feasible category and the results of the effectiveness test using N-Gain obtained a value of 0.74 which was included in the high category. This means that Augmented Reality learning media is suitable for use in learning descriptive text material and has been proven to be effective in improving students' reading comprehension abilities of descriptive text. The adoption of Augmented Reality learning media with descriptive text has an effect on students' learning independence. This can be seen at an error rate of 5%, the statistical t value obtained is 13.998 > 1.96 and the p value is 0.000 < 0.05. The coefficient value of Augmented Reality adoption path towards learning independence is positive (0.754). This means that the higher the level of Augmented Reality adoption, the more students' learning independence will increase.

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