EDUMASPUL
JURNAL PENDIDIKAN
Vol. 7 – No. 1, year (2023), page 1235-1250
| ISSN 2548-8201 (Print) | 2580-0469) (Online) |

The Influence of Virtual Reality Content in Social Studies Learning on Critical Thinking Skills and Learning Happiness at SMP N 3 Pagedongan Banjarnegara

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Receive: 10/01/2023	Accepted: 10/02/2023	Published: 01/03/2023

Abstrak

Inti dari pembelajaran IPS adalah untuk membantu siswa mengembangkan kemampuan untuk membuat keputusan, dalam masyarakat yang berbeda dan budaya masyarakat demokratis dunia yang saling bergantung. Dengan demikian, IPS mengikuti perspektif terpadu yang bertujuan untuk mengembangkan kemampuan untuk membuat keputusan, berdasarkan beragam kepentingan publik dalam kehidupan sosial. Pembelajaran IPS tidak hanya terbatas pada pencapaian derajat pengetahuan dan pemahaman, tetapi diharapkan mampu mencapai derajat yang lebih tinggi, yaitu meningkatkan profil berpikir kritis. Salah satu tantangan penting bagi guru IPS adalah bagaimana mengelola pembelajaran yang mampu membawa sukacita dalam belajar. Penelitian menggunakan metode eksperimen berupa true experimental design, dengan cluster random sampling. Pengumpulan data menggunakan teknik tes, angket dan observasi. Analisis data bersifat kuantitatif atau statistik, dengan tujuan menguji hipotesis yang ditetapkan. Hasil penelitian didasarkan pada hasil uji hipotesis angket, untuk mengukur kebahagiaan belajar yang dilakukan oleh peneliti dengan nilai probabilitas signifikan 2 thailood adalah 0,0000 kurang dari 0,05 maka H1 diterima. Terdapat pengaruh penerapan penggunaan media pembelajaran berbasis virtual reality terhadap kebahagiaan belajar siswa di SMP Negeri 3 Pagedonan. Melihat hasil pengujian hipotesis post-test, untuk mengukur kemampuan berpikir kritis yang dilakukan oleh peneliti dengan nilai probabilitas signifikan 2 thailood adalah 0,0000 kurang dari 0,05. Dapat disimpulkan bahwa H1 diterima, sehingga dapat disimpulkan bahwa ada pengaruh penerapan penggunaan media pembelajaran berbasis virtual reality terhadap kemampuan berpikir kritis siswa kelas 7 di SMP Negeri 3 Pagedongan.

***Kata kunci**: konten virtual, berfikir kritis, Ilmu Pengetahuan Sosial.*

Abstract

The essence of social studies learning is to help students to develop the ability to make decisions, in a different society and the culture of an interdependent world democratic society. Thus, IPS follows an integrated perspective aimed at developing the ability to make decisions, based on the diverse public interests in social life. Social studies learning is not only limited to achieving degrees of knowledge and understanding, but is expected to be able to achieve higher degrees, namely increasing the profile of critical thinking. One of the important challenges for Social Sciences teachers is how to manage learning that is able to bring joy to learning. The research used the experimental method in the form of a true experimental design, with cluster random sampling. Collecting data using test techniques, questionnaires and observation. Data analysis is quantitative or statistical in nature, with the aim of testing the established hypotheses. The results of the research are based on the results of the questionnaire hypothesis test, to measure the happiness of learning conducted by researchers with a significant probability value of 2 thailood is 0.0000 less than 0.05 then H1 is accepted. There is an influence of the application of the use of virtual reality-based learning media on the learning happiness of students at Pagedongan 3 Public Middle School. Looking at the results of the post-test hypothesis testing, to measure critical thinking skills performed by researchers with a significant probability value of 2 thailood is 0.0000 less than 0.05. It can be concluded that H1 is accepted, so it can be concluded that there is an effect of applying the use of virtual reality-based learning media to the critical thinking skills of students in grade 7 at SMP Negeri 3 Pagedongan.

***Keywords**: Virtual content, critical thinking, social sciences.*

Introduction

Education that can support and facilitate the development of critical reasoning skills is the social sciences, which concentrate on the Social Sciences. Critical thinking skills in social studies learning can be seen from the learning process carried out, starting from the initial learning activities to how students learn according to their profiles to achieve learning goals (Bean & Melzer, 2021; Sari et al., 2022). Critical thinking arises from skills that involve many examples, is a thinking process that aims to make rational and directed decisions in doing something (Uribe Enciso et al., 2017).

Teachers need to play a role in planning and implementing learning that encourages students to think critically, by providing various learning resources. Learning today measures learning outcomes more, students get high scores but do not gain meaningful understanding that connects material with factual problems (Nurmala, 2018). There needs to be a change in learning, one of which is by developing thinking and acting skills. Students are expected to develop in an accelerated and ever-changing world, one of which is by utilizing the right technology and media (Ihsan et al., 2021; Srivastava, 2012).

Teachers should strive to build student interest and build critical thinking skills in social studies learning. Learning happiness can be created through a learner-oriented learning process. Teachers as learning managers need to present a choice of learning resources according to the learning profile of students, as well as a pleasant learning atmosphere by utilizing technology. Virtual reality can be used as an alternative choice of learning resources. Virtual reality is a collaboration medium for devices and audio-visual media (Hayashi et al., 2022; Katona, 2021).

Students as individuals have their own roles, as humans are free and have diversity. The independent learning program aims to create a happy learning atmosphere, both for students, parents and educators. The principle of independent learning is to create a happy learning atmosphere without heavy burdens due to achievement demands (Kamal, 2020; Kuh et al., 2011). Learning that encourages learners to think critically and creates learning happiness is necessary to realize optimal education. The application of virtual reality in social studies learning in junior high schools is one of the right solutions. The application of virtual reality requires a problem-based activity through content differentiation, to produce product differentiation. The most likely problems are those related to environmental issues, including disasters. From the results of observations on learning activities, it shows that social studies learning is still not able to become a socialization media in increasing student awareness, against the threat of danger that can occur at any time. In addition to material orientation issues, most teachers have not packaged social studies learning that encourages critical thinking profiles and creates happy learning.

Digitally integrated disaster learning makes it very easy to improve disaster literacy. In addition, the integration of disaster education, educational media and teaching materials can be used as disaster mitigation education for the community. The object of social studies learning studies is related to the problem of physical conditions in Indonesia, including natural disasters. Through independent learning, social studies learning is expected to encourage students to understand the existence of themselves and family, in the midst of community life. Students can analyze the relationship between regional geological conditions and disaster potential, as well as literacy related to preparedness. Students can analyze disaster events and contribute positively to the surrounding environment.

Ideal and enjoyable learning is necessary to realize meaningful learning. The application of problem-based learning in social studies learning is one of the right solutions. To encourage critical thinking, students need problem-based activities

carried out by students using media that match their learning profile. The problem closest to students related to the implications of Indonesia's geological location is the problem of disaster. The process of finding solutions to these disaster problems can be used as provisions for students in their lives. The critical thinking process must also be trained through learning that favors students and brings happiness to learning (student wellbeing).

Based on observations of social studies planning and learning processes at SMPN 3 Pagedongan, it has not led to the development of students' critical thinking skills. Teachers need to present alternative choices of learning resources and learning media. Differentiation of processes, content and products as well as the application of problem-based learning models have not been carried out. Based on the results of reflection after the implementation of learning with students, learning needs to be strived to bring learning happiness so that learning is more meaningful.

Research Methods

The research method used is an experimental true form experimental design method, with samples taken randomly, so that researchers can control outside variables that affect the course of the experiment (Akbar et al., 2022; Nur et al., 2021).

Results and Discussion

This research used descriptive quantitative methods and was carried out by involving two research groups, namely the experimental group that received treatment in the form of the use of virtual reality-based learning media, which was located at SMP Negeri 3 Pagedongan class VII B. The control group who received learning treatment using learning videos, located at SMP Negeri 3 Pagedongan class VII A.

The research instrument consists of critical thinking performance assessment and learning happy questionnaire. The steps taken are to make a grid of research instruments, compile research instruments in the form of performance questions and questionnaires. Furthermore, it was tested on respondents who were trusted to provide an assessment on the research instrument, totaling 19 respondents from the previous research sample, which had been selected by random sampling techniques. The respondents, namely students of SMP Negeri 3 Pagedongan, then tested the validity and reliability of the instrument to find out whether the data obtained was valid or not.

Post-test was conducted at the end of the research activity, the data was processed with statistical calculations and processed SPSS version 26 data. Post-test data obtained from respondents is then tabulated into a table, which can describe all values and sums of respondent data. This data tabulation is made to facilitate the next statistical calculation, namely to find out trends. The results of the calculations that have been analyzed are outlined in the results of the research discussion.

1. Data Analysis Prerequisite Test

Testing of analysis prerequisites is carried out before performing data analysis. The prerequisites used in this study are normality and homogeneity tests. The results of the analysis prerequisite test are presented as follows:

Normality test

Normality tests on performance data and questionnaires in experimental and control groups were conducted to determine whether the sample came from a normally distributed population or not. The calculation of the normality test is carried out by the kolmogorov-smirnov method with the help of the SPSS 26 for windows program facility.

A population is said to be normally distributed if: a) the significance value is > 0.05, then Ho is accepted and H1 is rejected, so that the data is normally distributed, b) if the significance is < 0.05 then H0 is rejected and H1 is accepted, so the data are not normally distributed. The normality hypothesis in this study is as follows:

H0: data comes from a normally distributed population H1: data is not from a normally distributed population The results of the normality test of the student wellbeing questionnaire data and critical thinking skills are as follows:

a. Test data normality Posttest critical thinking skills

After receiving different treatment or treatment, then given tests for work to the experimental group and the control group. This is done to determine whether or not there is an influence of the application or use of virtual reality-based learning methods, on the critical thinking skills of students. The results of post-test data collection are contained in the description of research data from the experimental group and the control group. The calculation results using SPSS version 16 on the experimental group post-test data and the control group post-test, are as listed in table 1.

Based on the results of the performance data processing in table 4 on Kolmogorov Smirnov, with the significance value of the experimental class with the results of Sig value > 0.05, namely Sig = 0.073, then H0 is accepted so that H1 is rejected, then the data comes from a normally distributed population. As for the control class with a value < 0.05 ie Sig = 0.003, then H0 is accepted so that H1 is rejected, then the data comes from a normally distributed population. This is due to the limitations of data data spread more on the right side, because the average score of answers amounts to a mean of 0.7362, a median middle value of 0.667, a minimum value of -0.29 and a maximum value of 0.88.

b. Normality Test of student wellbeing learning happiness questionnaire data

The experimental group and the control group received different treatments, then given questionnaires to determine whether or not there was an influence in the application of virtual reality-based methods on learning happiness.

The description of the research data was obtained from the experimental group and the control group as listed in table 3 Data management using SPSS version 26. Based on the results of data processing in the questionnaire in table 1 using the Kolmogorov-smirnov test, with the significance value of the experimental class with the result of Sig value >0.05, namely Sig 0.200, then H0 is rejected so that H1 is accepted then the data is successful from abnormally distributed populations. The control class with a Sig value of > 0.05 i.e. Sig = 0.200, then H0 is rejected so that H1 is accepted, then the data comes from an abnormally distributed population. This is due to the limitation of data data spread more on the right side, because the average score of questionnaire answers amounts to a mean of 0.3998, a median middle value of 0.500, a minimum value of -0.50 and a maximum value of 0.87.

Homogenity Test

Researchers conduct homogeneity tests to find out whether the research subjects come from a homogeneous population or not. This test was carried out on the results of performance and the results of questionnaires on critical thinking skills and learning happiness. This is done as a prerequisite in the analysis, subsequently the subject of research will be said to be homogeneous. If the significance value > 0.05. This test is calculated with SPSS 26 for Windows software.

The homogeneity test in this study uses the levene test with the following criteria: a) If the significance value ≥ 0.05 then the data comes from a population that has a homogeneous variant, and if the significance value < 0.05 then the data comes from an inhomogeneous population. b) If the Fhit value >f table is not homogeneous. Test homogeneity using the help of the program SPSS 26 for Windows.

a. Test data homogeneity performance critical thinking skills

The results of the homogeneity test on performance are presented in table 5.

Table 1: Descriptive Question Processing Post-Test Critical Thinking Skills SPSS v 26

Descriptives

group			Statistic	Std. Error
Experimental class	Mean		,1795	,04129
	95% Confidence Interval for Mean	Lower Bound	,0931	
		Upper Bound	,2659	
	5% Trimmed Mean		,1779	
	Median		,1753	
	Variance		,034	
	Std. Deviation		,18464	
	Minimum		-,11	
	Maximum		,50	
	Range		,61	
	Interquartile Range		,32	
	Skewness		,338	,512
	Kurtosis		-,987	,992
Control Class	Mean		,6528	,03971
	95% Confidence Interval for Mean	Lower Bound	,5694	
		Upper Bound	,7362	
	5% Trimmed Mean		,6608	
	Median		,6667	
	Variance		,030	
	Std. Deviation		,17308	
	Minimum		,29	
	Maximum		,88	
	Range		,59	
	Interquartile Range		,22	
	Skewness		-,845	,524
	Kurtosis		,011	1,014

Table 2: Normality Test Analysis of Post-Test Critical Thinking Skills Questions

Tests of Normality

group	Statistic	df	Sig.	Statistic	df	Sig.
Experimental class	,185	20	,073	,929	20	,147
Control Class	,247	19	,003	,899	19	,046

**. This is a lower bound of the true significance.*
a. *Lilliefors Significance Correction*

Table 3: Descriptive processing of SPSS v.25 independence questionnaire

Descriptives

group			Statistic	Std. Error
Experimental class	Mean		,1805	,03478
	95% Confidence Interval for Mean	Lower Bound	,1077	
		Upper Bound	,2533	
	5% Trimmed Mean		,1713	
	Median		,1667	
	Variance		,024	
	Std. Deviation		,15555	
	Minimum		-,08	
	Maximum		,61	
	Range		,69	
	Interquartile Range		,18	
	Skewness		,847	,512
	Kurtosis		1,980	,992
Control Class	Mean		,3998	,08467
	95% Confidence Interval for Mean	Lower Bound	,2219	
		Upper Bound	,5776	
	5% Trimmed Mean		,4238	
	Median		,5000	
	Variance		,136	
	Std. Deviation		,36909	
	Minimum		-,50	
	Maximum		,87	
	Range		1,37	
	Interquartile Range		,44	
	Skewness		-,974	,524
	Kurtosis		,678	1,014

Table 4: Analysis of the normality test of the student wellbeing questionnaire

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
Group	Statistic	df	Sig.	Statistic	df	Sig.
Experimental class	,121	20	,200*	,944	20	,291
Control Class	,153	19	,200*	,916	19	,094

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5: Data Homogeneity Test Analysis of Critical Thinking Skills Performance

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Social Studies Learning Outcomes	Based on Mean	2,586	1	37	,116
	Based on Median	1,851	1	37	,182
	Based on Median and with adjusted df	1,851	1	29,357	,184
	Based on trimmed mean	2,466	1	37	,125

Table 6: Test of Homogeneity of Learning Happiness Questionnaire Data

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Test Results	Based on Mean	18,490	1	37	,000
	Based on Median	8,322	1	37	,006
	Based on Median and with adjusted df	8,322	1	22,232	,009
	Based on trimmed mean	15,992	1	37	,000

Table 7: Analysis T-test post test critical thinking skills

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	PRETES BK - POSTES BK	-20,947	16,969	3,893	-29,126	-12,769	-5,381	18	,000

Results in the form of images, or data made Based on table 5, a significance value was obtained at the post test value, which was 0.116. In accordance with predetermined decision-making criteria, showing 0.116 > 0.05, then H0 is accepted. It can be concluded that the performance data has the same variance and is homogeneous.

b. Test the homogeneity of learning happiness questionnaire.

The results of the homogeneity test of questionnaire data presented in table 6 obtained that the significance value on the post-test score is 0.000, in accordance with the predetermined decision-making criteria showing 0.000, < 0.05 then H0 is rejected. It can be concluded that the data has unequal or inhomogeneous variances.

Test the hypothesis

This study aims to determine the effect of the application of virtual reality-based learning models on critical thinking skills and learning happiness of students. In the experimental class, a t-test has been carried out using the help of SPSS for Windows version 26, it will be known with the following decision making criteria:

a. If significance value or probability value <α= 0,05 then H1 is accepted and H0 is rejected.
b. If significance value or probability value > α= 0,05 then H0 is rejected and H1 is accepted.

Experimental class and control class post test t-test

Independent Analysis of Test Samples of experimental and control class questionnaires, aims to determine whether there is a significant difference between the post-test results of the experimental class and the control class. The independent sample test is used to determine whether or not there is an average difference between the two sample groups associated with different treatments. A summary of the t-test results of the experimental class and the control class is shown in table 9.

Based on the questionnaire t-test table in table 6 above, it can be seen that the probability value (significance) of 2-tailed is 0.00 < 0.05, then H0 is rejected and H1 is accepted. It can be concluded that there is an influence of the application of virtual reality-based learning media, on the critical thinking

skills of grade VII students of SMP Negeri 3 Pagedongan.

T-test learning happiness experimental class and control class

Independent sample test analysis of the performance results of the experimental class and control class, aims to determine whether there is a significant difference in the performance results of the experimental class and the control class. Independent sample tests are used, to determine whether or not there is an average difference between the two sample groups and is associated with different treatments.

A summary of the t-test processing results of the experimental class and control class, as shown in table 8 as follows:

Table 8: Data on the Results of the Happy Learning Questionnaire

Eksperimen	Kontrol
42	46
38	43
41	42
41	48
41	42
37	44
39	45
40	46
43	46
37	41
40	48
35	38
40	44
37	43
35	36
39	37
40	46
43	46
34	35
36	

Based on the t-test table of the control group's post test results contained in table 8, it is known that the probability value of 2-tailed significance is 0.00 < 0.05. then H0 is rejected and H1 is accepted. It can be concluded that there is an influence of the application of virtual reality-based learning media on the happy learning of grade VII students of SMP Negeri 3 Pagedongan.

Discussion of research results

The discussion of the study aims to find out the picture and results obtained from this study.

a. Application of virtual reality-based learning media

The application of virtual reality-based learning media has been used in learning, as an applicative learning model. In this research in the experimental class, the learning can be easily understood by students. With a Problem Based Learning approach through problem-based learning. The curriculum approach is structured by exposing students to practical problems, by developing learning stimulus, one of which is the use of virtual reality-based learning media, to improve critical thinking skills and learning happiness.

Control in this study used learner-centered learning strategies or student-centered learning. Learner-centered learning by applying virtual reality-based media is used as comparison data so that it can see the difference between the experimental class and the control class.

Learning strategies that focus on students are classroom instruction and planning that is dominated by student activeness in learning. Teachers as facilitators, who facilitate and accompany students. Students can play an active role because teachers do not provide rigid rules, so they can develop and explore their abilities. The challenge for teachers is to understand concepts, mindsets, philosophies, commitment to learning methods and strategies.

A learner-centered learning approach will provide the widest possible opportunity for students to be directly involved in planning, implementing and assessing learning. Students are role holders in the

learning process, while education plays a facilitating role in carrying out learning activities.

Research conducted by Sasmita (2022) entitled Analysis of Social Studies Learning Comprehension Ability in Class IX Students of SMP N 1 Bakongan Timur South Aceh, states that interactions between students in learning run well. This is characterized by cooperation between teachers and students in lesson planning that can increase activeness and student-centeredness. The results stated that in general the analysis of students' knowledge was categorized as "good", where the results of the questionnaire obtained were 77.07% and the results of the midterm exam became 88.94%. It can be said that the knowledge of learners increases, and learning objectives are achieved (Junaidi & Julia Ivanna, 2022).

Research conducted by Fini entitled The Feasibility of Using Virtual Reality Media in Helping Students Identify Continuity and Change in History Learning, states that virtual reality-based learning media can help students in thinking historically, identifying continuity and change. This aspect involves the ability to recognize, analyze, and evaluate the dynamics of continuity of historical change. The main component as a learning medium is in virtual reality which contains historical relics that still exist in the surrounding environment (Mulyani & Ofianto, 2022).

Table 9: Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	PRETES - POSTES	-3,895	3,542	,813	-5,602	-2,188	-4,793	18	,000

In essence, learning activities are carried out by applying independent learning. Teachers and learners have the freedom to innovate, free to learn independently and creatively. Such learning will make students more motivated to understand the material and minimize boredom and laziness during learning. Students can develop their knowledge by expressing opinions without fear and pressure (Graciani Hidajat et al., 2020; Zulaihah & Harida, 2017).

The application of virtual reality-based learning media is carried out in an integrated manner into class VII social studies subjects using the Problem Based Learning model with the concept of independent learning in social studies subjects themed Indonesian geological conditions. This is based on Mulyani's opinion which suggests that virtual reality-based learning media helps students think critically through the stages of recognizing, analyzing and evaluating problems (Mulyani & Ofianto, 2022).

In this study, students were given the freedom to develop according to their profiles, using various media according to the profile and readiness to learn students. Learning is carried out with six meetings at school with the following details:

a. The first meeting, students were introduced to how to work together and learn to solve problems through games in the school yard. The goal of the game is to instill the character of cooperation and critical thinking, and to instill that learning can be done in a fun way. Researchers conduct initial diagnostic assessments to explore interests, readiness and learning profiles to make mutual learning agreements. Students are invited to go around observing the surrounding environment and

introducing various types of earth reliefs. Researchers asked various questions related to the geological location of Indonesia, to explore information and observe the initial ability to think critically. Furthermore, groups were formed based on interest and readiness to learn. Students are given the option to do information literacy about natural disasters that occur in Indonesia. Furthermore, students are motivated to be involved in efforts to reduce the risk of geological disasters by discussing in groups. In the final stage of learning, reflection is carried out.

b. The second meeting, learners are asked to define and organize the given group tasks. Students are given the flexibility to choose learning resources according to their interests. In the group, students were asked to explore information about the relief of the Indonesian earth. In addition, analyze opportunities and challenges and disasters that may occur in the surrounding environment. In the final stage of learning, reflection is carried out.

c. The third meeting, researchers guide learners to gather relevant information to solve problems. Researchers provide opportunities for students to find information about the types of geological disasters in Indonesia and the Banjarnegara region. In the final stage of learning, reflection is carried out.

d. The fourth meeting, students were given the opportunity to paste their work. Furthermore, visits between groups were carried out. In the group, a division of tasks is carried out, between those who become resource persons when there are other groups who visit and seek information from other groups. Furthermore, in the group students process the information obtained as additional group information. Researchers give groups the opportunity to present the results of the discussion. In the final stage of learning, reflection is carried out.

e. The fifth meeting, researchers helped students conduct analysis and evaluation of the potential or opportunities and challenges of geological conditions in Indonesia. With the guidance of the researcher, learners in the group conclude the results of the discussion. In the final stage of learning, reflection is carried out.

f. The sixth meeting, researchers help students process information in the form of works according to the results of the discussion. Students independently pour their work on disaster mitigation efforts and types of disaster mitigation according to their interests. Furthermore, researchers facilitate learners to draw conclusions. Learners are given the opportunity to ask opinions and questions. At the final stage, reflect and feedback and strengthen to develop student competencies.

Based on the explanation above, it can be concluded that using virtual reality-based learning media using a problem-based learning model with social studies learning, aims to realize learner-centered learning, in accordance with the characteristics of social studies learning.

b. The effect of using virtual reality-based learning media on students' critical thinking skills.

Critical thinking skills are defined as active, persistent, and careful consideration of a belief or form of knowledge received from the point of supporting and concluding reason. Critical thinking indicators include: analyzing arguments, focusing questions, answering questions about an explanation and challenging, defining terms, observing and considering observations and determining actions (Mulyadi et al., 2022; Setiana & Purwoko, 2021).

Critical thinking skills during the research process are observed using observation techniques, while for the measurement of final data using tests with indicators that include interpreting, analyzing, evaluating, and concluding skills. Critical thinking skills are observed through pre test and post test during the learning process.

Pretest and post test tests are used by researchers to get an idea of students' ability to think critically. Questions were given and filled in by class VII participants of SMPN 3 Pagedongan. The results of the pretest and posttest as instruments measure critical thinking skills in the experimental class, which are compiled as many as 10 questions with average answers on each indicator. With interpreting skills with an average score of 88.75, information analysis skills with an average score of 81.25, information evaluation skills with an average score of 86.25, and concluding skills with an average score of 82.5.

Looking at the hypothetical results of pretest and posttest questions to measure critical thinking skills carried out by researchers, with a probability value (significance) of 2-tailed is 0.000 < 0.05, then H1 is accepted. It can be concluded that there is an influence of the application of virtual reality-based learning media on the critical thinking skills of grade VII students of SMPN 3 Pagedongan.

The application of virtual reality-based learning media using the best learning problem learning model, proven to affect students' critical thinking skills, because it uses learning treatment by helping students practice solving problems. This is in accordance with the advice in the research of Nurjannah et al., (2022). entitled Application of the Problem Based Learning Model to Improve Integrated Social Studies Learning Outcomes in Knowing ASEAN Countries in Class VIII C Students of UPTD SMPN 2 Fifty Pesisir North Sumatra Coal District. In this research there was an increase in learning outcomes because the learning process was more innovative, using the Problem Based Learning model. Students learn to solve problems and are motivated to think critically, as well as provide experience to argue and cultivate self-confidence.

According to Wira, there are several factors that affect students' critical thinking skills, namely providing simple explanations (elementary clarification), building basic skills (basic support), making conclusions (inferring), containing further explanations (advanced clarification) and managing strategies and tactics (strategies and tactics).

The instruments used in this study use indicators that are in accordance with the research objectives (Supriyanto et al., 2019). To improve students' critical thinking skills, the indicators in this study were taken from several sources (Hestiningsih & Sugiharsono, 2015).

Here are the critical thinking indicators used in this study:

- Interpreting
- Analyze
- Evaluate
- conclude

Critical thinking skills are not just the responsibility of one subject in school, but are the main demand of the curriculum. Not only necessary for intellectual development, but providing meaning in natural and social life. Students need to have critical thinking skills from an early age, from childhood to higher education later.

At the activity evaluation stage, it was found that there were changes in the positive behavior of students in the implementation of independent tasks, such as: willing to seek information from the media provided, asking and answering questions, being more active in groups, and daring to express opinions.

The formation of students' critical thinking skills is because it is influenced by several factors that affect a person's critical thinking skills. The factors that influence a person's critical thinking differ from one person to another. These factors indicate a person's ability to communicate, think and solve problems. The critical thinking ability of students is also influenced by factors in the use of learning media. Learning media is one

of the factors that can increase student understanding. With learning media, it is hoped that the learning atmosphere will be more conducive and encourage learning success.

Developing learning activities and learner-centered learning will strengthen the learning process of meaningful learning. With the existence of learning media can reduce boredom. The skills acquired by learners are not limited to collecting facts and abstract knowledge only, but are exposed to thinking and acting activities. Thus it will improve cognitive development and critical thinking skills.

In conclusion, critical thinking skills are a classification of higher other thinking skills (HOTS) not just memorizing facts or concepts, but rather emphasizing how students do things. Learners must be accustomed to understanding, scrutinizing, classifying, manipulating, creating more creative innovations. Furthermore, students implement to find the best solutions to a number of new problems. Furthermore, in the end students can make decisions using logical and scientific reasons.

Learning activities using virtual reality-based learning media, designed to improve students' critical thinking skills. Learning by providing stimulus through learning media according to the learning profile of students. Researchers motivate students to explore ideas related to natural disasters as solutions to problems that occur in the surrounding environment. The problem used as a stimulus related to Indonesia's geological location material is the implications of Indonesia's geological location on natural disasters and mitigation efforts. Students are given worksheets, as a source of information and guidance on carrying out activities, applying critical thinking and finally being able to solve disaster-related problems.

Indicators in critical thinking skills are as follows: 1) report observations, 2) formulate questions, 3) generalize data, tables, graphs, 4) answer "why" questions and 5) draw conclusions. Through these indicators, critical thinking skills can be developed during learning. Thus, it can prepare students to be better prepared in solving problems in the future (Anggraeni et al., 2022).

Based on the explanation above, according to experts and the results of previous research and research findings, it can be concluded that the application of virtual reality-based learning media has a positive effect on the critical thinking skills of students at SMPN 3 Pagedongan Banjarnegara.

Pretest and post-test performance questions are given to the control class and experimental class, after the treatment is completed. The value of the performance results is then analyzed to prove the research hypothesis. The results of the performance as an experiment measure students' critical thinking skills.

Looking at the results of the pretest hypothesis test, to measure the critical thinking skills performed by researchers, with a significant probability value of 2 tailed is 0.0000 smaller 0.05. Thus, Hi is accepted, it can be concluded that there is an influence on the application of the use of virtual reality-based learning media on the learning happiness of grade 7 students at SMP Negeri 3 Pagedongan.

Based on the explanation above, according to experts and the results of previous research and research findings, it can be concluded that the use of virtual reality-based learning media has a positive effect on the learning happiness of students at SMP Negeri 3 Pagedongan.

Performance questions are given to the control class and experimental class, after the treatment is complete. The value of the performance results is then analyzed to prove the research hypothesis. The results of the performance as an experiment measure the critical thinking skills of students. In the experimental class, with critical thinking indicators to measure critical thinking on performance tests.

Looking at the results of the pretest hypothesis test, to measure critical thinking skills carried out by researchers with a significant probability value of 2 tailed is 0.0000 smaller 0.05. Thus, H1 is accepted, it can be concluded that there is an influence on the application of the use of virtual reality-based learning media on the critical thinking skills of grade 7 students at SMP Negeri 3 Pagedongan.

c. The effect of the application of virtual reality-based learning media on student wellbeing of students.

According to Hamsinah, the feelings experienced by learners, including pleasure or liking, are happy and have a tendency to do activities with no one asking or telling them. Learning strategies are needed that can help learners to achieve learning objectives. Learning is carried out with methods that refer to the needs of students, so as to encourage interest and enthusiasm in learning (Tahir & Jaksim, 2022).

Differentiated learning becomes an alternative to realize happy learning. By paying attention to learning readiness, learning interests, and individual student profiles, teachers will have considerations about content, learning processes and products that are in accordance with learning potential and needs. Through differentiated learning, students will learn in a more independent atmosphere. Freedom of learning is defined as the process of achieving safety and happiness for students (student wellbeing) (Subhan, n.d.).

In conclusion, learning happiness is part of influence differentiation, namely how students' emotions and feelings affect and play a role in following the learning process. By applying the concept of differentiation students can learn with the same material, even though there is differentiated material content and assessment. The understanding of students increases with cooperation in learning the same thing. All levels of understanding students can learn from each other together and participate actively. Thus it will motivate students to work together, participate, help and appreciate each other. Application of Differentiated Social Studies Learning in the Merdeka Belajar Curriculum, which concluded that a pleasant learning atmosphere can be created through differentiated learning. Students can freely express their potential according to their interests. Differentiated learning can be used as a breakthrough to create independence in learning according to the learning profile of students.

Learning activities in the application of virtual reality-based learning media to increase learning happiness by applying an independent learning approach. Researchers motivate students to explore ideas related to Indonesia's geological location in accordance with the learning profile. Efforts made to create happy learning are by reflecting on past learning, conducting initial diagnostic assessments related to learning readiness, interests, learning profiles, initial knowledge. The assessment data can then be used to design lesson plans.

Uum in his research entitled Creative Social Studies Learning to Shape Resilient Characters Creative Social Student Learning to Built Strong Characters suggests that learning happiness is created by busying students with something very useful and innovative. Thus will emerge creativity, ideas, creations or technology that help carry out their activities. Learning should increase the active role of learners. It takes collaboration between teachers and students in implementing the concept of liberating learning. The happiness of learning must be felt first by the teacher in carrying out learning with students. Teachers must think freely, to be able to innovate, be creative in designing learning by involving students. . In the end, what is designed can be implemented so as to create the desired happiness of learning. Students and teachers

alike feel happy in carrying out learning (Murfiah et al., 2022).

Yuliana in her research entitled Innovation of Learning Methods with Banana Frond Puppets to Increase Happiness in Children with Intellectual Disabilities, stated that indicators of happy learning include: feeling joyful, self-acceptance in the social environment and educational methods / skills. The amount of contribution of an indicator illustrates the degree of importance of the indicator to a person's happiness index (Nafsiah et al., 2020).

Reza in his research entitled The Effectiveness and Role of Teachers in the Free Learning Curriculum, that teachers should be active, enthusiastic, creative, innovative and skilled in order to become facilitators of driving change in schools. Not only mastering and teaching effectively, but creating a good environment and building the effectiveness and role of teachers, building closeness with students, utilizing technology, correcting mistakes and learning deficiencies (Arviansyah & Shagena, 2022).

Learning happiness or student wellbeing is a continuous psychological effect of learning characterized by a positive mood and satisfaction with school actions that have been taken. Here are the indicators:

a. Learning activities with games make students challenged to find new things.
b. Learning activities make students become enthusiastic in learning.
c. Learning activities make students free to move.
d. Learning activities make the relationship between students and teachers more intimate.
e. The learning presented by the teacher makes students understand the learning material.
f. Teacher learning makes students happy and comfortable
g. The learning presented by the teacher is in accordance with the learning needs of students.
h. Students yearn for the next learning atmosphere.
i. Learning activities make students free to express themselves.
j. Learning activities make students more disciplined in managing learning time at school and at home.

Indicators of psychological well-being are associated with a sense of pleasure, support, a feeling of satisfaction and optimal functioning of thinking. Psychological wellbeing is not only free from mental problems, but the ability to accept oneself, find meaning and purpose in life and develop oneself independently and build relationships with others (Ryff, 1995; Ryff & Singer, 1996).

The questionnaire test was used by researchers to get an idea of the happiness of learning. Questionnaires were given and filled out by 20 students in class VII A and 19 in class VII B. The results of using questionnaires as an instrument to measure the learning happiness of learners. In the experimental class, there were 10 questions with average answers on each indicator. Indicators are challenged to find new things with an average score of 4 with answers always, enthusiasm in learning an average score of 4 with answers always, feeling free to move with a score of 4 with answers always, making the relationship between students and teachers more intimate with a score of 4 with answers always, better understand learning with a score of 4 with answers always, more happy and comfortable in learning with a score of 4 with answers always, learning is presented according to the learning needs of students with a score of 4 with answers always, miss the next learning atmosphere with a score of 4 with answers always, learning makes students free to express with a score of 4 with

answers always, Learning activities make students happy in learning to use games with a score of 4 with answers always.

Based on the explanation above, it can be concluded that the use of virtual reality-based learning media is effective in increasing student wellbeing of students at SMP Negeri 3 Pagedongan. The use of virtual reality-based learning media proved to have an effect on Seeing the results of the questionnaire hypothesis test, to measure learning happiness conducted by researchers with a significant probability value of 2 tailed is 0.0000 smaller 0.05 then H1 is accepted. It can be concluded that there is an influence of the application of the use of virtual reality-based learning media on the learning happiness of students at SMP Negeri 3 Pagedongan. The great happiness of students, because they use learning treatment by combining the concept of independent learning.

Conclusion

Based on the implementation and discussion of the research results, the following conclusions were obtained:

a. There is a significant relationship between the application of virtual reality-based learning media in social studies learning with the improvement of students' critical thinking skills.
b. There is a significant relationship between the application of virtual reality-based learning media in social studies subjects with an increase in learning happiness. In accordance with the hypothesis: 1) the application of virtual reality-based learning media has a positive effect on improving students' critical thinking skills, 2) The application of virtual reality-based learning media has a positive effect on realizing student learning happiness.

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