

THE EFFECTIVENESS OF ANIMAKER-BASED BLENDED LEARNING ON STUDENTS' CRITICAL THINKING ABILITY CLASS XI IPA SMA NEGERI 2 SUNGAI PENUH

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Abstract

In 2018 Indonesia was ranked 71st in PISA with low category critical thinking abilities. Here teachers are required to choose appropriate strategies and use current technology that students like, so that learning becomes interactive, active and students can think critically. This study aims to determine the critical thinking skills of students who apply animaker-based blended learning in learning Biology class XI IPA at SMA Negeri 2 Sungai Penuh. This research uses the type of Quasi Experimental research. With the Design Group Pretest-Posttest Design. The population in this study were all Class VIII students, a total of 210 people. The sample was chosen by the subject teacher with certain considerations, namely class IPA 1, which consists of 35 people. The instrument used in this study is in the form of a test. Data on test results were analyzed using the T test. From the results of the study it was found that the use of animaker-based blended learning had a significant effect on improving students' critical thinking skills compared to previous learning. Thus, animaker-based blended learning can be used to improve students' critical thinking skills.

Keywords: Blended Learning, Animaker, critical thinking skills

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Introduction

Education is one of the efforts to create quality Human Resources (HR), therefore HR will determine the progress of a nation. (Nurlaila, 2018; Mangelep, 2017) stated that in the world of teacher education is the key in developing human resources, therefore teachers must be at the forefront who have creativity and innovation in learning, especially choosing models, media or strategies that are in accordance with the times. So as to be able to lead students to face the challenges of industry 4.0 or known as 21st century skills. In 21st century skills students are required to have critical thinking skills, master digital literacy (Purnama et al., 2021), information, media, and understanding and mastery of information and communication technology (Frydenberg & Andone, 2011).

Based on the results of field observations, it showed that there were several students in class XI IPA at SMA

Negeri 2 Sungai Penuh. It is difficult to reason with the thought process, it is difficult for students to think about high-level questions. Not only that, the difficulties experienced by students in learning biology were also due to the lack of activeness of the students. So far, biology learning has taken place more using the lecture method than using technology in learning so that learning is teacher-centered, and there is a lack of student involvement during the learning process. As a result, passive students and students do not dare to express the difficulties experienced during learning. The difficulties experienced by students,

Learning that still uses the lecture method and minimal use of media and learning resources results in monotonous learning (Mangelep, 2018; Azizan, F. Z, 2010), because the teacher's ability to design learning models and media in accordance with the demands of the times is one of the

keys to success in the learning process (Domu & Mangelep, 2020). This means that teachers must use technology that students like, so that learning becomes interactive, active and students can think critically.

In 2018, Indonesia was ranked 71st in PISA with scientific ability with a score of 396 points, this score is still relatively low (Tohir, 2019). This is in line with research (Susilawati et al., 2020) which states that 15% of the students at SMA 1 Woha have high critical thinking skills. This means that less than half of the number of students with high critical abilities. Therefore, to develop students' critical thinking skills, it is necessary to use technology in learning. According to (Erdem and Kibar, 2014) Technology has a vital role to play in building skills in the industrial revolution 4.0 era so that students' skills in using technology are very important. One that teachers can use is to use Animaker media in learning.

Media Animaker is an animation video creation application which can be used to create innovative videos that can create movement effects with the addition of sound so that the material becomes more attractive for use in presentations (Firdaus et al., 2021; Munawar et al., 2020). To maximize the teacher's use of animaker, an appropriate strategy is needed and does not make students bored, so the blended learning model is suitable for use because it is technology-based. Animaker media can improve student learning outcomes (Fajrianti Rahma & Meilana Septi F, 2022).

Whittaker stated that blended learning is a learning model that combines face-to-face learning and online learning (distance) combined with learning activities (Sharma, 2010; Istiningsih & Hasbullah, 2015). The blended learning learning model is also significantly able to improve students' ability to think critically. In this study the researchers used a blended learning model with independent asynchronous, virtual synchronous, and collaborative asynchronous.

According to (Chaeruman & Maudiarti, 2018) the blended learning

model has four study rooms, but in this study researchers used three rooms. In making Animaker media the researcher makes animated media with moving pictures and sound effects and also includes questions so that students' critical thinking skills here are trained in a guided and repetitive manner. This Animaker media can also be used many times in learning, because the videos that are made can be saved and shared to social media accounts such as YouTube, Facebook, Instagram and others.

Based on the description of the background above, it is deemed necessary to conduct research on "Effectiveness of Animaker-Based Blended Learning on Critical Thinking Ability of Class XI IPA Students at SMA Negeri 2 Sungai Penuh".

Research methods

This research is a quantitative research approach with the type of Quasi Experimental research. The research design used was the One Group Pretest-Posttest Design. The population in this study were all students of Class XI IPA totaling 210 students. The sample was chosen by the subject teacher with certain considerations, namely class XI IPA1, which consisted of 35 people. The independent variable in this study is the blended learning model using Animaker media while students' critical thinking skills are the dependent variable.

Furthermore, to see the Effectiveness of Animaker-Based Blended Learning Learning on Critical Thinking Ability of Class XI IPA Students at SMA Negeri 2 Sungai Penuh, (1) Normality Test is carried out. In this study the normality test used was the Kolmogorov Smirnov test. The Kolmogorov Smirnov normality test was carried out using IBM SPSS 21. (2) The homogeneity test, which is a statistical test of the variance of the data in one or more samples, is the same. Homogeneity testing uses the Levene test with SPSS software. In the Levene test the data is said to be normal if the Levene statistical significance level is > 0.05 , whereas if the Levene statistical significance level is < 0.05 the data is in the category of abnormal data variations. (3) Then the paired t test uses the pre-test and

post-test values of the subjects to analyze the impact of learning the Animaker-based blended learning model. H_0 is rejected if the significance level (2 tailed) < 0.05 .

Calculations with the SPSS 21 program that are seen are the value of p (probability) indicated by the sig value. = (2-tailed). Decision making from hypothesis testing, namely if the sig. > 0.05 , then H_0 is accepted and H_1 is rejected, otherwise if the sig. < 0.05 .

Hypothesis Formulation:

$H_0: \mu_2 \leq \mu_1$: There is no Effectiveness of Animaker-Based Blended Learning on Critical Thinking Ability of Class XI Students of SMA Negeri 2 Sungai Penuh.

$H_1: \mu_2 > \mu_1$: There is an Effectiveness of Animaker-Based Blended Learning on the Critical Thinking Ability of Class XI Students of SMA Negeri 2 Sungai Penuh.

Results and Discussion

The learning process is carried out every Thursday to adjust to the Biology subject schedule for class XI IPA1 and the night before the learning process is carried out as an independent asynchronous application. The first research was carried out on August 3, 2022. In the evening by sending pre-test questions and learning material to be discussed the next day. The learning process continues the next day by applying all the blended learning steps using the animaker. The second research was carried out on August 10, 2022 by sending material and case studies to be discussed the next day. Lessons then continued the next day. The third research was carried out on August 24, 2022 by sending material and case studies to be discussed the next day. Lessons then continued the next day. On August 25, 2022, because this was the last meeting, post-test questions and questionnaires were distributed to students to work on.



Image 1. Example of Animation using Media Animaker Application

Learning is carried out using a three-room blended learning model, namely independent asynchronous, virtual synchronous, and collaborative asynchronous. In independent asynchronous learning the teacher informs about the learning process that will be carried out the next day so that students are better prepared to start learning. Furthermore, the teacher provides material for students to study first so that during virtual face-to-face learning students already have a little understanding of the material to be discussed and can be active in the learning process. The teacher instructs students to form groups with the aim of discussing case studies that have been uploaded by the teacher on Google Classroom, this trains students' discussion skills.

In virtual synchronous learning carried out using the Google Meet application. The learning process was carried out at 07.00 with an estimated delay of 15 minutes and finished at 08.30. In synchronous learning there is an introduction, core activities, and closing.

The preliminary stage was opened with the teacher interrupting to pray and continuing to check attendance. The teacher then gives motivation to students to keep the spirit. At this stage the teacher shows the learning objectives and reviews the learning material carried out in the previous meeting.

At the core activity stage, there are two phases, namely information acquisition and knowledge synthesis. In the information acquisition phase before the teacher explains the material at that day's meeting, the teacher first asks questions about the material that has been studied in independent asynchronous learning to practice aspects of giving simple explanations (Leicester & Taylor, 2010). In this phase the teacher interrupts to explain what has been understood regarding the case studies that have been uploaded by the teacher, this also trains students' abilities in the aspect of making further explanations. Furthermore, in the phase of synthesizing knowledge, the teacher equates understanding of material concepts and makes conclusions about the material being studied together.

In the closing stage, the teacher asks if there are any questions about the material being studied and provides information about case studies that students must collect at the independent asynchronous learning stage. After all the learning has been carried out and students do not ask questions, the learning will be closed with prayer.

In independent asynchronous learning after synchronous learning is implemented. Students discuss virtually to analyze case studies. This can train critical thinking skills in aspects of making further explanations. At

this stage the teacher acts as a facilitator if anyone is asked about the clarity of the task. Learning ends when students have uploaded case study answers to Google Classroom.

The effectiveness of critical thinking skills using the Animaker-based blended learning model is measured by the results of the pre-test and post-test which are in sync with the indicators of critical thinking ability. There are two types of questions in the critical thinking ability test, namely multiple choice with. The questions created can be used to measure critical thinking skills by including HOT (High Order Thinking) abilities. This is in accordance with the opinion of Kartimi and Liliyasi that training students' critical thinking can be done by providing practice questions that contain aspects of critical thinking (Mukti & Istiyono, 2018).

Before being tested, the questions were first reviewed by expert lecturers and tested for feasibility. In the results of the validity of the multiplechoice items, there are five questions that are invalid, but this is not a problem because these questions have pairs of valid questions, so there are still other questions that represent indicators. The reliability test of the questions shows the value $r_{11} = 0.8$ means that the research instrument has high reliability. The different power test and difficulty index show that all questions in the category are well received.

The increase in critical thinking skills is measured by conducting a pre-test as a benchmark for students' initial abilities. After the pre-test, students were given lessons for 3 meetings and then given a post-test. The results obtained indicate the level of development of students' critical thinking skills.

Based on the tests conducted, the pre-test score was shown with the highest score being 70 and the lowest score being 40. The class average score was 56.14, while the Post-test score was shown with the highest score being 90 and the lowest score being

65. The Post class average score tests 81.82. This data shows an increase in students' critical thinking skills after using the Animaker media-based Blended learning model.

According to Muhli in his book, if at least 75% of students score above the KKM, it can be said that the learning is complete (Khotimah et al., 2018). Analysis of the effectiveness of critical thinking before the learning model was carried out and after being given an Animaker media-based blended learning model using a paired t test. However, it is necessary to carry out normality and homogeneity tests beforehand.

The distribution of samples or subjects is classified as normal or not analyzed by the normality test. Subjects are declared abnormal if the significance value or probability value is < 0.05 and if > 0.05 , the distribution of research subjects is normal. In the normality test the significance level of the Kolmogorov Smirnov normality test on the pre-test was $0.859 > 0.05$ so that the distribution of the study subjects was normal.

On the results of the Levene statistical homogeneity test it is known that the significance value is $0.240 > 0.05$ so that the variation in the data is in the normal category or the significance of the two data being compared is homogeneous. Furthermore, the paired t test uses the pre-test and post-test values of the subjects to analyze the impact of learning the Animaker-based blended learning model. Ho is rejected if the significance level (2 tailed) < 0.05 .

Table 1. Paired Sample Correlation

Paired Samples correlations			
Pair		N	Correlation Sig.
1	Pre Test & Post Test	35	.579 .004

(Source: Research Results Processed Data)

In the table it can be seen that the correlation value of the pre-test and post-test is 0.579 which shows that there is a strong relationship between the learning outcomes of the pre-test and post-test.

Table 2. Paired t test results

Paired Samples Test							t	Df	Sig. (2-tailed)
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
Pair					Lower	Upper			
1	Pre Test - Post Test	-20,272	7,034	0,300	-3,26	20,272	-12,376	35	.001

Source: Research Results Processed Data

The significance value in the table above is $0.01 < 0.05$ which means (2 tailed) < 0.05 so that Ho is rejected and H1 is accepted. It can be concluded that the Animaker-based blended learning model is effective for improving students' critical thinking skills. So that it can be analyzed that the increase occurred after the

application of the Animaker-based blended learning model which encouraged students' critical thinking skills to increase. This is in accordance with the opinion (Utomo Supri W, Liana Wihartanti V, 2019; Bath & Bourke, 2010; Pulungan, H., & Hasanah, H. 2022). States that the blended learning model can increase students' critical thinking skills.

The use of the Blended Learning learning model by utilizing technology can improve students' critical thinking skills (Wahyunita Ika & Subroto Waspododo T, 2021; Graham, CR, Woodfield, W., & Harrison, J. B, 2013). Technological innovations that use blended learning learning models change learning quickly and easily (Anthony, B., Kamaludin, A., Romli, A., Raffei, AFM, Phon, DNA, Abdullah, A., & Ming, G. L, 2020). Technology that can be utilized is the use of *mediaanimaker*. Animaker media can improve student learning outcomes (Fajrianti, R., & Meilana, S. F, 2022).

Conclusion

Based on the tests conducted, the pre-test score was shown with the highest score being 70 and the lowest score being 40. The class average score was 56.14, while the Post-test score was shown with the highest score being 90 and the lowest score being 65. The Post class average score tests 81.82. This data shows an increase in students' critical thinking skills after using the Animaker media-based Blended learning model. Whereas in the hypothesis test using the paired t test obtained a significance value of $0.01 < 0.05$ which means (2 tailed) < 0.05 so that H_0 is rejected and H_1 is accepted, therefore the Animaker-based blended learning model is effective for increasing students' critical thinking skills.

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