



The Effectiveness of Using E-Book to Improve Student's Critical Thinking Skill

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Abstract

This study aims to determine the effectiveness of using e-book media to improve students' critical thinking skills. This research was conducted in class X IPS at SMA Negeri 2 Pare. The population is class X IPS students at SMA Negeri 2 Pare. The sample was selected based on the existing class in the population, obtained 30 students of class X IPS 2 as the experimental class and class X IPS 3 as the control class. Data score results to determine the increase in critical thinking skills obtained by using the pre-test and post-test scores of students. The analysis phase uses the t-test, namely the paired sample T-test and the Independent sample T-test. The results showed that e-books were effectively used in the learning process to improve students' critical thinking skills. The average value of the experimental class students before using the e-book was 56.5 while after carrying out learning using the e-book media the student's score changed and increased to 86.23.

Keywords: *E-book; Critical Thinking Skills; Economics Subject*

Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students can actively develop their potential to have competencies that are indispensable in today's 21st century. Four 21st century learning competencies which are commonly abbreviated as 4Cs include critical thinking, collaboration, communication and creativity. One of the abilities that must be possessed by students from an early age is the ability to think critically or critically thinking skills. Critical thinking ability is a person's thinking process that is directed and clear, which consists of the ability to analyze, synthesize, evaluate and draw conclusions on an event logically (Johnson, 2014). Critical thinking is very necessary in the daily life of every individual. This critical thinking ability includes the knowledge to make a series of interrelated critical questions as well as the ability and willingness to ask and answer these questions at the right time (Brownie & Keeley, 2015). In line with this income, according to Qing et al (2010) critical thinking is a process of thinking. This thinking process makes individuals have the initiative to think and evaluate the knowledge that has been learned and be able to conclude the right decisions. It can be concluded that this critical thinking ability needs to be trained to every individual, especially school students from an early age, because with this critical thinking ability students will understand what and why they study.

Based on the results of the preliminary study, data were obtained that there were four social studies classes at SMA Negeri 2 Pare. Among the four classes, there is one class, namely X IPS 2 with a

lower mid-semester assessment value (PTS) for economics, namely the average value of 56.50 while the school's Minimum Learning Completeness (KBM) score is 80. Based on the results of interviews with teachers economics at SMA Negeri 2 Pare, low student learning outcomes are caused by a lack of understanding of the material by students. So far, the learning process still tends to be passive, students just sit and listen to the teacher's explanation. In addition, the learning media used are still very minimal, namely using printed books. Students are less able to understand the material from the textbooks they use because they tend to be too much written and monotonous. Unattractive printed books, filled with text, monotonous colors and minimal supporting pictures and videos make it difficult for students to understand the material and often feel bored and sleepy during the learning process. So that researchers are interested in choosing class X IPS 2 as a test class with 30 students who have heterogeneous abilities.

Based on these problems, it is necessary to have an innovative and interesting learning media as an alternative learning media that is fun for students. Not only interesting, the learning media that will be used will be better if they are able to show examples that are closely related to the daily lives of students, in order to be able to train students' critical thinking skills. The development of the learning media can be done by including the important points of the material and packaged with examples of daily activities, supporting pictures and interesting learning videos so that it is hoped that it will make students more active and enthusiastic during the learning process. Using videos and pictures in learning media will make learning more effective, both for mass, individual, and group learning (Tegeh, Simamora, & Dwipayana, 2019). One of the learning media that can collaborate text, images, sound and learning videos into one is an e-book.

Digital books or e-books are learning media used to convey learning messages or information in digital form consisting of text, images or both, and learning videos and music can be added, which can be operated using electronic devices such as smartphones and laptops. According to Dwyer in Sudirman (1996), videos can attract 94% of information and messages through the ears and eyes and make people able to remember 50% of what they hear and see from a show. E-books were chosen because they have many benefits, according to Suyanto and Jihad (2013: 16-17) the benefits of e-books include: (1) easy to carry and open at any time; (2) can be stored anywhere such as on smartphones, flash drives, hard drives, and PCs; (3) not easily weathered because it can last all the time; (4) easy and cheap; (5) supports reforestation because it does not use paper so as to reduce tree felling. Based on this, it can be concluded that this e-book can be used as an alternative learning media for students because the e-book display is able to package various features in one learning media and is easy to access by students.

In addition to using innovative and interesting learning media, learning for students will be better if it is carried out by involving the daily experiences of students so that the learning process will be more meaningful (Setyowati & Mawardhi, 2018). The approach that can be used is a contextual approach. Contextual approach is a learning concept that can help teachers and students to connect the material being studied with real conditions in everyday life. This contextual learning approach can make students able to connect their knowledge with the application of daily life activities (Purwanto & Rizki, 2015). For example, in an economics subject on demand and supply, with a contextual approach students will be able to observe what factors cause demand and supply when they are shopping in the market. In addition, the contextual approach will train students to build their knowledge so that they can broaden their thinking and gain experience from the knowledge that students have learned. So that learning will be more easily understood by students and not easily forgotten by students.

Previous research by Rahmawati & Lukman (2018) showed the results that the development of e-books equipped with illustrations, interesting color variations and e-quizzes received a good response by students so that they were able to increase students' reading interest. Other studies that have been carried out by Rahmawati & Susanti (2019) and Artika (2020) have also shown good results, namely that using e-books are feasible to be used in the learning process. Various additional features besides the subject

matter are one of the factors that make the e-book get a good response and show an increase in student learning outcomes. One of the e-book developments by Mujtahidatul (2019) which is used for accounting subjects with displays of various features such as material descriptions adapted to examples of daily activities, pop-up images and interesting learning videos for students and can be accessed using a laptop or computer. smartphones have a positive impact on improving student learning outcomes. Research by Zakiyatus (2020) the use of e-books for physics subjects also has a good impact on improving students' creative thinking skills. The e-book has an attractive appearance equipped with various supporting features such as illustrations and learning videos. Based on the previous research, it can be concluded that the use of e-books in learning is very effective and has a positive impact on students.

In this study, the researcher chose the economics subject matter for class X KD 3.4 and 4.4 regarding demand, supply, and market balance because the material has many theories and calculations. If this material is only delivered using power points or ordinary printed books, it will make students easily bored and the material cannot be conveyed properly so that it can affect the acquisition of student learning outcomes (Aryanto, Kantun, and Sukidin, 2018). Based on the background exposure, the researcher aims to describe the feasibility and effectiveness of e-book learning media on economic subjects to train students' critical thinking skills.

Research Method

This study uses a quasi-experimental research method with a none equivalent control group design. This research was conducted in class X IPS at SMA Negeri 2 Pare. The population is all students of class X IPS at SMA Negeri 2 Pare. The sample was selected based on the existing class in the population, obtained 30 students of class X IPS 2 as the experimental class and class X IPS 3 as the control class. The result score data to determine the improvement of students' critical thinking skills was obtained by using the students' pre-test and post-test scores. The analysis stages in this study were (1) normality test analysis using Kolmogorov-Smirnov and data homogeneity test was carried out using Lavene statistical test using SPSS 25. Furthermore, the average similarity test of the initial critical thinking ability was carried out using the Independent Sample T-test; (2) analysis of the data after the treatment was carried out, the hypothesis was tested using a t-test, namely Paired Sample T-test and Independent Sample T-test. The hypothesis in this study is the effectiveness of using e-books to improve critical thinking skills of class X Social Studies students at SMA Negeri 2 Pare.

Results and Discussion

Results

1. Prerequisite Test

The results of the analysis prerequisite test are used to determine whether the data analysis to test the hypothesis with the t-test was previously carried out with a prerequisite analysis test between learning that applies learning using e-books for economic subjects and learning that does not use e-books.

The normality test is used to determine whether the data to be analyzed is in the form of a normal distribution or not. The data criteria are normally distributed if the significance value is > 0.05 . The following are the results of the normality test in the experimental class and control class.

Table 1. Normality Test Results of Students' Critical Thinking in Experiment Class and Control Class

Class	Result	Conclusion	Description
Experiment	0,200	Sig. $> 0,05$	Normal
Control	0,060	Sig. $> 0,05$	Normal

Source: Data processed by researchers

Based on the table of normality test results above, it can be seen that the significance value of each variable > 0.05 is $0.200 > 0.05$ for the experimental class and $0.060 > 0.05$ for the control class, so it can be concluded that the sample data from each class is distributed normal.

Homogeneity test is used to determine whether the sample from the population is homogeneous or not. The test criteria are H_0 is accepted and H_1 is rejected if the probability value or significance value is less than 0.05 (sig. < 0.05) and vice versa H_0 is rejected and H_1 is accepted if the probability value or significance value is greater than 0.05 (sig. > 0.05). The following are the results of the homogeneity test in the experimental class and control class.

Table 2. Results of Student Critical Thinking Homogeneity Test in Experiment Class and Control Class

Lavene Statistic	Result	Conclusion	Description
2,906	0,092	Sig. $> 0,05$	Normal

Source: Data processed by researchers

Based on the table above, it can be seen that the significance value of the Lavene test is 0.092. This value is greater than 0.05, so it can be concluded that the critical thinking scores of the experimental class and control class students have a homogeneous variance.

2. Effectiveness Test

Furthermore, the effectiveness test will be carried out using the t test. The t-test aims to test the effectiveness of using e-book media to improve students' critical thinking skills in economics subjects. The results of the effectiveness test as well as hypothesis testing in this study using the Paired sample T-test and Independent Sample T-test.

Paired sample T-test was used to measure differences in conditions after treatment in the experimental class. The criteria used in making the hypothesis is the level of $= 0.05$. H_0 is rejected if the probability significance (sig) $< (0.05)$ and if the probability significance (sig) $> (0.05)$ then H_0 is accepted. The following are the results of the paired sample T-test:

Table 3. Results of Paired Sample T-test

Class	Mean		Sig.
	Pre Test	Post Test	
Experimen	56.5	86,23	0,000
Control	54	78,2	0,000

Source: Data processed by researchers

The table above shows the average results of students' critical thinking skills in the experimental class before being given learning using e-books is 56.5 while after receiving learning using e-books students' critical thinking skills increase to 86.23. The significance results show the results of $0.000 < 0.05$ so H_0 is rejected, meaning that there is a relationship between students' critical thinking skills before and after using e-books.

Independent sample T-test was used to test the significance of the average difference between unrelated samples, namely the experimental class and the control class. The criteria used in making the hypothesis is the level of $= 0.05$. H_0 is rejected if the probability significance (sig.) $< (0.050)$ and if the probability significance (sig) $> (0.050)$ then H_0 is accepted. The following are the results of the Independent sample T-test:

Table 4. Test Results of Independent Sample T-test

Class	Sig.
Experimen	0,000
Control	

Source: Data processed by researchers

Based on the results of the Independent sample T-test test for the experimental class and the control class, it is known that the significance value (Sig) of the t-test is 0.000, the significance value is less than 0.05. These results indicate that H0 is rejected and H1 is accepted, which means there is a significant difference between the values. the average critical thinking ability of students in the experimental class and control class. The data shows that the improvement in critical thinking skills of the experimental class students is better than the control class.

Discussion

The use of e-books is effective in improving students' critical thinking skills in economics subjects with KD 3.4 and 4.4 materials on demand, supply, and market balance in class X Social Studies at SMA Negeri 2 Pare. This can be seen from the score of students' critical thinking skills in the experimental class of 56.5 and after using e-book media in the learning process the score of students' critical thinking skills changed and increased to 86.23. This change and increase in grades is quite significant because the average student score has been able to achieve the school's Minimum Learning Completeness (KBM) score of 80. In this study, the increase in student scores was 29.73%. Based on the statistical calculation of the t-test results, the significance value (Sig.) is $0.000 > 0.050$, so H0 is rejected and H1 is accepted. So it can be concluded that there is a significant difference in the average results of students' critical thinking skills in the experimental class and control class after testing with e-book media.

Conclusions and Recommendations

In general, the quality using economic e-books with Html5 format assisted by Flip PDF Corporate Edition software to improve students' critical thinking skills is categorized as very effective for use in learning. It can be concluded that the use of this economic e-book product is suitable for use in the learning process. This economic e-book as a whole can improve students' critical thinking skills. This can be seen from the results of the post-test average value of the experimental class students which shows changes and increases in values above the KBM value. In contrast to the average value of the control class which also increased, but overall the average score was still below the KBM value.

It is hoped that further research will be able to using e-books with a better appearance. In this study the subjects only focused on economics at the high school level with the aim of improving students' critical thinking skills, it is hoped that in further research the development of e-books can be used for other subjects and can be used to improve students' abilities in more complex aspects.

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