

The Effectiveness of Using Crosswords to Improve Critical Thinking Skills in Economics Learning in Class XI Students at SMAN 5 Pekanbaru

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Abstract

This study aims to determine the effectiveness of using crossword media to improve students' critical thinking skills and to find out the improvement before and after using crossword media. This type of research is experimental research using the One Group Pretest-Posttest research design. In this study, the population was students in class XI IPS 2 at SMAN 5 Pekanbaru for the 2022/2023 school year with a total of 184 students, and the samples were students in class XI IPS 2 at SMAN 5 Pekanbaru for the 2022/2023 academic year with a total of 37 students. Research data collection was carried out by distributing test questions in the form of pretest and posttest with a total of 12 multiple choice questions each. Thus it can be concluded that the use of crossword media is quite effective in learning and there is an increase in the average of students before and after using crossword media.

Keywords: Critical Thinking Ability, Media Crosswords



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INTRODUCTION

Along with the times, the world of education is also growing rapidly. According to Shintya, et al (2022) Education is a basic milestone for humans to gain knowledge. Education plays an important role for humans in honing their potential through aspects of intellectual intelligence, emotional intelligence, morals, behavior and self-confidence from the elementary level to the tertiary level. Shoimin, Aris (2014) said that the purpose of education is to build quality human resources. To achieve quality human resources, it is necessary to improve the quality of education. Quality education is an effort to face the era of Education 5.0, and it is hoped that education will be able to keep up with the times. One effort that can be done is to improve the quality of education that focuses on developing students' critical thinking skills.

The ability to think critically is an important part of all aspects of one's life. Critical thinking is used in various situations and opportunities in an effort to solve life's problems. Therefore it is also important for someone to learn about how to think critically, because one cannot think critically without going through a learning process. One of the most influential supports in the world of education is the teaching staff. According to Hadriana et al (2020) The function of the teacher in learning activities is as a facilitator, motivator, and manager of the teaching and learning process. Educators are expected to be able to become the initial driving force for educational progress both through teaching in the classroom and outside the classroom. To be precise, economic learning is dynamic and close to the daily lives of students. In the sense that economic learning can change according to the times. Therefore, in carrying out Teaching and Learning Activities (KBM), educators need learning media to support the teaching and learning process so that the goal of improving students' critical thinking skills is achieved. According to Rambe, et al (2021) The ability to think critically is one of the higher

order thinking skills. The use of media should be a part that must receive the attention of the teacher/facilitator in every learning activity (Zelfiani, et al 2016). Therefore the teacher/facilitator needs to learn how to determine learning media in order to achieve effective learning objectives in the teaching and learning process which can improve students' critical thinking skills. According to Ramadhona, et al (2019) media are all objects or components that can be used to channel messages from senders to recipients so that they can stimulate students' thoughts, feelings, concerns and interests in the learning process.

According to Permatasari, et al (2022) Efforts that can be made to maximize critical thinking skills by utilizing technology by using quiz games, for carrying out student assessments are accustomed to giving more questions at a cognitive level. In today's all-digital era, teachers are required to be able to provide directions to students to be more active in learning and direct students to be able to use technology (Marensi, et al 2023). One of the interesting learning media is quizzes or games in the form of crossword puzzles (crossword puzzles). According to Silberman (2016) states that crossword puzzles are active learning that can invite children's interest and participation. Crossword puzzles are an approach that is packaged in the form of a game so that it can stimulate students' thinking power in the learning process (Ade, et al 2021).

The results of previous research conducted by Aisyah, et al (2019) concluded that students' critical thinking skills can be improved through the TGT (Team Games Tournament) learning model with crossword games in science learning. Crossword puzzles can be used as an evaluation at the end of learning of material that has been presented previously to help students recall the material that has been presented by educators or used as games so students don't feel bored and are more enthusiastic. In line with the results of an interview with an economics teacher at SMAN 5 Pekanbaru, some information was obtained regarding the process of learning economics at SMAN 5 Pekanbaru. Whereas the process of Teaching and Learning Activities (KBM) at SMAN 5 Pekanbaru already uses learning media in the form of power points, as well as objects that can be used in the learning process in accordance with the material being taught. However, there are still some students who experience difficulties in solving a problem or answering questions given by educators. This proves that students' critical thinking skills are not maximized. Therefore, the need for crossword media to help improve students' thinking skills in class XI IPS at SMAN 5 Pekanbaru. Based on the problems that have been described, the researcher is interested in conducting research with the title "The Effectiveness of Using Media Crosswords to Improve Thinking Ability in Economics Learning in Class XI Students at SMAN 5 Pekanbaru".

RESEARCH METHODS

This type of research is experimental. Methods of data collection in the form of observation, interviews, and tests of critical thinking skills. The sampling technique used purposive sampling, namely from class XI IPS 2 SMAN 5 Pekanbaru, totaling 37 people. The sampling technique is a way of taking samples or samples for research (Syahza, A. 2021). This research was conducted in September until completion. The analysis used in this study is the N-Gain score test, descriptive statistical analysis, and paired sample test.

RESEARCH RESULTS AND DISCUSSION

Research result

The Effectiveness of Using Media Crosswords in Improving Students' Critical Thinking Ability

To find out the effectiveness of using crossword media in improving students' critical thinking skills, a gain score test was carried out. Testing the N-Gain score aims to understand

the effectiveness of using methods or treatments in research activities. The N-Gain score test is carried out by calculating the difference between the pretest and posttest values. The data below is the result of the N-Gain pretest and posttest using SPSS for windows ver 25 as follows:

Table 1. N-Gain Test Results

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_score	32	0.17	1	0.5758	0.24079
Ngain_score	32	16.65	100	57.584	24.07853
Valid N (listwise)	32				

Source: SPSS processed data

A treatment is said to be effective if the mean of the N-Gain percent reaches > 76 , is categorized as quite effective if it reaches $56 - 75$, is categorized as less effective if it reaches $40 - 55$, and if the mean < 40 then it is not effective. Based on Table 1, the mean is 57.5840 , it can be concluded that the use of crosswords as media to improve critical thinking skills in economics learning in class XI IPS students at SMAN 5 Pekanbaru is quite effective.

Level of Critical Thinking Ability Before and After Using Crosswords

Descriptive statistical analysis aims to provide a description (description) of the researcher's data to make it easier for the reader to understand it. The data below are the results of the pretest and posttest, as follows:

Table 2. Pretest and Posttest Values

No	Class	N	Nilai			Average
			Ideal Score	Minimum Score	Maximum Score	
1	Pre test	32	100	49,98	100	65,8
2	Post test		100	58,31	100	83,8

Based on Table 2, it can be seen that the highest pretest score is 100 as well as the highest posttest score. While the lowest pretest score was 49.98 and the lowest posttest score was 58.31. This causes a difference in the average pretest and posttest. The results of the average pretest and posttest data obtained can be seen in the following bar chart:

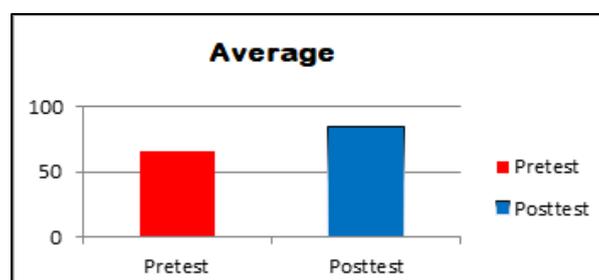


Figure 1. Bar chart of average pretest and posttest scores

Based on the results of the bar chart in Figure 1, it can be seen that the average pretest score is 65.8 and the posttest average score is 83.8. This shows an increase in students' critical thinking skills due to the use of learning media in the form of crossword puzzles in learning. The pretest and posttest questions were given to students during the learning process. The questions are in the form of multiple choice consisting of 10 pretest questions and 10 posttest questions which are made based on indicators of critical thinking skills. The following is a table of the percentage of completeness of critical thinking skills.

Table 3. Percentage Results of Students' Critical Thinking Ability

Indicator	Percentage of Students' Critical Thinking Ability (%)	
	Pretest	Posttest
Gives a Simple Explanation	67	93
Building Basic Skills	57	78
Making Conclusions	65	78
Further Explanation	72,6	78
Create Strategy and Tactics	62	85

Before testing whether there is an increase before and after the use of crossword media in economics learning in class XI IPS 2 SMAN 5 Pekanbaru, the research data needs to be tested for analysis requirements. Analysis requirements test which includes the normality test using the Shapiro-Wilk technique. The following are the results of the data normality test obtained from the SPSS output.

Table 4. Pretest and Posttest Normality Test Results with Shapiro-Wilk

Score	Significant	Information
Pre test	0,062 > 0,05	Data is normally distributed
Post test	0,051 > 0,05	Data is normally distributed

Based on Table 4, the initial pretest data significance value was 0.062 and the posttest final data significance value was 0.051 > 0.05. Based on the test criteria, if the significance value is $> \alpha = 0.05$, the data is normally distributed. Therefore it can be seen that the initial data in the form of pretest and the final data in the form of posttest can be normally distributed. Once it is known that the data can be normally distributed, then a hypothesis test can be carried out using the Paired Sample Test to see differences in students' critical thinking abilities before and after the application of crossword puzzle media in learning. The results of hypothesis testing using the Paired Sample Test can be seen in the following table:

Table 5. Paired Sample Test Results

Score	Mean	t _{count}	t _{table}	Sig
Pre test	-5.77795	-16.112620	2.04	.000
Post test				

Based on the results of the Paired Sample Test above, it can be seen that the Sig. of 0.000 < 0.05. Based on these results, it can be concluded that there is a significant difference or improvement between students' critical thinking skills before using crossword media and students' critical thinking abilities after using crossword media in learning with a difference in the average value of 5.77795 .

Discussion

The Effectiveness of Using Media Crosswords on Students' Critical Thinking Ability

Normalized Gain or N-Gain Score aims to determine the effectiveness of using a particular method or treatment (Naufal, et al 2022). To determine the level of effectiveness of using crossword media in improving students' critical thinking skills, a Ngain score test is needed. Through the N-Gain test, the results show that the use of crossword puzzles is quite effective in increasing students' critical thinking skills with a mean value of 57,584. This is in line with research conducted by Syifa and Supriatna (2022) which shows that crossword puzzle learning media has an effect on students' critical thinking skills.

This experiment was conducted on students to find out whether the use of crossword puzzle media was effective in increasing the critical thinking skills of students of class XI IPS 2 SMAN 5 Pekanbaru. Based on the data obtained by the researcher through a critical thinking

ability test through two stages, namely pretest and posttest. Thus it shows that the use of crossword media in improving the critical thinking skills of students in class XI IPS 2 at SMAN 5 Pekanbaru is included in the quite effective category. The use of crossword media to improve students' critical thinking skills needs to be improved, teachers who use crossword media must be more optimal and creative so that students' critical thinking skills are further increased. Because with the use of crossword puzzle media in learning, it is easier for students to understand the material because the material can be detailed. Crosswords are also a game in the form of questions by filling in empty boxes that attract students' attention to solving problems and completing these crosswords both individually and in groups. In addition, students must also pay attention to the teacher when learning activities are going well. If there is no reciprocity from students or responses from students then improvement will not occur, because to get the desired results there must be reciprocity from both the teacher and the students themselves.

Improving Students' Critical Thinking Ability Before and After Using Crossword Media

Before treatment was carried out in both classes, the class was given a pre-test first to measure students' abilities and was given a post-test after being given treatment (Zamiati, et al. 2023). Based on the results of the research that has been done, it is known that there is an increase before and after the use of crossword media in improving students' critical thinking skills. This can be seen through data analysis of the results of the initial test (pretest) and the posttest (posttest), each of which consists of 12 questions in the form of multiple choices. The pretest and posttest questions about taxation in Indonesia are made according to indicators of critical thinking, namely giving simple explanations, building basic skills, making conclusions, further explaining, and setting strategies or tactics. The application of crossword puzzle media (TTS) can reduce the boredom experienced by students when the learning process takes place (Hidayat et al. 2020).

Based on the bar chart in Figure 1, it shows that there is an increase in the critical thinking skills of the participants after using the crossword puzzle in economics learning. This is in line with the results of research by Wulan et al (2019) which stated that crossword media is an educational game to trigger students' critical thinking skills. According to Safitri, et al (2023) Educators can benefit from using the EclipseCrossword application crossword puzzle as a learning medium in the classroom to foster critical thinking and inventive problem solving. Crossword puzzles using EclipseCrossword software present a different concept than usual learning and are able to have a positive influence on students so that they can increase interest in learning and make it easier for students to understand the material presented by the teacher. The use of crossword puzzles via a link from the Eclipse Crossword software provides an opportunity for students to answer by filling in the empty boxes with letters which are a series of answers to existing questions. Students can also find out the score of the crossword answers if they have answered all the questions. This crossword puzzle can be done individually or in groups.

Based on the results of processed data, the percentage of students' critical thinking skills through pretest and posttest in class XI IPS 2 SMAN 5 Pekanbaru, which can be seen in Table 3, the percentage value of students' critical thinking skills (%), on the indicator provides a simple explanation indicating that the pretest value of students 67% and students' posttest scores of 93%. This value is of course included in the classification of the percentage of high critical thinking skills and there is an increase between the pretest and posttest scores on the indicator providing a simple explanation. The percentage of this indicator is high because the indicators provide simple explanations, which are questions with the easiest weight so that students can easily understand and work on the questions clearly and precisely.

The indicator for building basic skills shows a percentage value for the pretest of 57% and a posttest score of 78% which is included in the classification of the percentage of high critical thinking skills which of course there is an increase between the percentage scores of the pretest and posttest. The indicators for making conclusions also experienced an increase in percentage with a pretest value of 65% and a posttest of 78% with a high classification level. In the further explanation indicator shows the pretest percentage value of 72.6% and the posttest score with a value of 78% including the classification level of high critical thinking skills. And for the indicators of making strategies and tactics, the pretest score is 62% and the posttest is 85% which is included in the classification of the percentage of high critical thinking skills, of course there is an increase between the percentage of pretest and posttest scores.

According to Purnama, et al (2023) Education is an attempt to improve one's thinking pattern. After looking at the results of the percentage of critical thinking skills through the pretest and posttest, it can be seen that there is an increase in students' critical thinking skills after using the crossword puzzle media which is significant in the high classification. This is indicated by the increased ability of students to understand and work on test questions clearly and precisely. Test questions based on indicators of critical thinking ability, namely providing simple explanations, building disar skills, making conclusions, further explanations, and setting strategies or tactics have been proven to be able to improve students' critical thinking skills.

CONCLUSION

The use of crossword media is quite effective in learning and there is an increase in the average of students before and after using crossword media.

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