

The Effectiveness of Using Comic Media-Based Economics Teaching Materials on Learning Achievement of High School Students in Economic Materials

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Abstract: This research is motivated by the condition of economics learning focused on delivering material only. The teaching materials used so far are still monotonous textbooks. The pictures in the textbook have not attracted students' interest in reading. Based on the interviews, economics is a difficult subject and requires a contextual understanding of the concept. The purpose of this study was to find out how effective the use of comic-based economics teaching materials was in improving student learning outcomes before and after using these teaching materials. This study uses quantitative research methods with experimental methods, which focuses research on the level of improvement of student learning achievement. The use of economics teaching materials based on comic media was applied to 35 students in class X IPS 2 at SMAN Integrated Model Bojonegoro and class X IPS 1 at SMAN 1 Balen totaling 32 students. The type of data in this study is quantitative data in the form of test results and documentation. The test consists of pretest and posttest. The data analysis technique uses an analysis of the level of student learning completeness, and an analysis of the effectiveness of teaching materials based on comic media. The use of Economics Teaching Materials is very effective in improving learning outcomes. This is evidenced by an increase in scores from pretest to posttest. The results of the *t* test show that there are differences in the mean pretest and posttest results. Thus it is proven that the use of comic-based economics teaching materials is effective in improving student learning outcomes.

Keywords: Teaching materials, media comics, students' achievement

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I. Introduction

Economic learning as contained in the syllabus model for economics subjects based on Permendikbud No. 37 of 2018 states that the object of study includes the aggregate economy both micro and macro, including basic economic concepts, economic actors and the circular flow of economic activity, the formation of market balance and market structure, financial service institutions, banks, money markets and markets capital, the concept of business entities, cooperatives, management, economic growth and economic development, employment, national income, APBN/APBD, inflation, international trade, international economic cooperation, and accounting. Economics is not a new subject taught at the high school level, but economics subjects have been taught at the SMP/MTs level.

According to interviews, economics is a subject with material that is difficult. Because economic material is constantly evolving and contextual. Economic material characteristics necessitate a thorough understanding of the concept. In this case, the teacher must be able to guide and guide students through the concept.

Students have only used handbooks as teaching materials so far, despite the fact that they have been combined with learning methods. Students are often reluctant to read because they believe the reading in textbooks is tedious and the pictures are uninteresting. As a result, learning outcomes suffered. As evidenced by the list of teacher values, many of them have not achieved learning mastery (KKM). The saturation factor of the teaching materials used is one of the reasons for the lack of interest in economics teaching materials.

Learning can be said to be successful if the learning is able to help students achieve the desired competencies. Smith and Ragan (2005) put forward several indicators that can be used to determine the success of the learning process, namely effective, efficient, and interesting.

Teachers must be competent in order to provide effective, efficient, and engaging learning. The skills that the teacher must have are skills in carrying out learning. The skills of carrying out learning, according to Rusman (2018), refer to the teacher's professional duties in creating a system, carrying out learning activities, and closing learning. Opening learning, managing learning, and closing learning are the three main activities in carrying out learning.

According to (Rusman, 2018), teachers must be able to use material and various media and methods, sources, and various supporting factors when managing learning activities. The teacher must have certain skills, including knowledge and abilities, in order to implement this learning. These abilities include explaining, motivating, and using materials, strategies, methods, media, learning resources, and all other factors that contribute to the ability to complete learning.

Students will be more interested in learning if the process is enjoyable. Creating learning using various learning media as a means of conveying learning material is one way to make learning fun. There are numerous educational facilities and materials available to help students achieve their learning objectives. As a result, teachers can use existing media or create creative and innovative learning media to support classroom learning. Learning media can essentially be used in the learning process at all levels of education. Learning media can be audio, visual, audio visual, multimedia, and other formats. Comic books are one of the many existing media that teachers can use in the learning process.

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In Indonesia, comics have been widely used for learning purposes in the classroom, including as student worksheets, visual learning media, handouts, and others. From there it can be seen that comics are in great demand among students to motivate students to be interested in reading because they are accompanied by pictures that support student knowledge. In the fact, students with pictures and a straightforward way of speaking find comics to be a very effective learning medium (Listiyani, 2012). Another study conducted by Widhiyastuti found that comics can motivate students to learn more effectively because they are an educational learning medium. Furthermore, Puspananda stated in his research that learning with comic media can be a fun and effective medium that can be used in any subject. According to Danaswari's research, the learning outcomes of students who used comic media teaching materials in learning improved, as evidenced by posttest results. Research conducted by Eko Prasetyo Utomo in 2018 showed that the results of the due diligence from the expert team as a whole stated that comic-based worksheets were included in the very suitable category for use in learning

Furthermore, it has been demonstrated that comic-based IPS worksheets can effectively increase students' economic literacy. In their study published in 2021, Aan Putra and Ines Feltia Milenia discovered that using comic books to learn mathematics can improve students' problem-solving abilities. Mawan Akhir Riwanto and Mey Prihandani Wulandari conducted additional research in 2018 demonstrating that the use of digital comics created with cartoon story maker software can increase the effectiveness of learning on the theme material while saving energy. Takari Chandra Pratama (2015) found that using comic books as science teaching materials can improve the learning achievement of fourth grade elementary school students, as evidenced by an increase in average scores and the majority of them meeting the completeness criteria

From the research data above all lead to the conclusion that comics can be used as a learning medium in English, Accounting, Middle School Economics, and Management subjects that can increase interest. However, the use of comic media in economics lessons in high school currently does not exist/ not much/ is still very limited. So that the use of comic-based teaching materials in economics learning is urgently needed in an effort to increase the effectiveness of economics learning in high school. In addition, comic media can also increase understanding in the learning process in class.

II. Materials and Methods

This study combines quantitative and experimental research methods. The experimental method, according to Sugiyono (2013), can be interpreted as a research method used to investigate the effect of treatment on others under controlled conditions. This research focuses on the level of improvement in student learning outcomes. Economic teaching materials based on comic media were used with 35 students in class X IPS 2 at SMAN Integrated Model Bojonegoro and 32 students in class X IPS 1 at SMAN 1 Balen.

This study collects quantitative data in the form of test results and documentation. The examination consists of a pretest and a posttest. The pretest is used to assess students' abilities prior to using comic-based teaching materials in class, and the posttest is used to assess students' abilities after using comic-based teaching materials in class. This study's data collection method is a test. The pretest and posttest were used to collect data in this study. The tests from the pretest are used again in the posttest.

Test instrument validation includes the level of item validity, instrument reliability, difficulty level, discriminatory power. The level of item validity is calculated using the product moment correlation formula

$$r_{xy} = \frac{n \sum xy - (\sum x) (\sum y)}{\sqrt{\{n \sum x^2 - (\sum x)^2\} \{n \sum y^2 - (\sum y)^2\}}}$$

According to Arikunto (2010) possible interpretations of the data are in the following intervals: 0.8 – 1.0 = very high, 0.6 – 0.8 = high, 0.4 – 0.6 = sufficient, 0.2 – 0.4 = low, 0.0 – 0.2 = very low. Based on the results of the analysis of the 40 test items on the student Economics learning outcomes test, it was concluded that the number of invalid item items was 6, namely item numbers 6, 27, 30, 31, 33, 37. Valid item items were item numbers 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 32, 34, 35, 36, 38, 39, 40.

Furthermore, the calculation of the reliability of the instrument is performed. According to Arikunto

$$r_{11} = \frac{2xr_{xy}}{(1 + r_{xy})}$$

(2010:93) the reliability of instrument testing is: Based on the results of the analysis of the test item test instrument for students' Economics learning outcomes, it was found that = 0.765 is greater than = 0.349 so that the test instrument was decided to be reliable with the criteria of high test instrument reliability.

$$P = \frac{B}{JS}$$

Arikunto's difficulty level (2010) can be formulated as follows: Based on the results of the analysis of the level of difficulty of the test item instrument, the student economics learning achievement test obtained a decision that the item item that is classified as easy is item number 22. The item item that is classified as medium is number 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 28, 29, 35, 36, 38, 39. Items belonging to difficult, namely the numbers 32, 34, 40.

According to Arikunto (2010) differential power can be determined by the formula:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

. Based on the results of the analysis of discriminatory power on the instrument test questions on student economics learning outcomes, it was concluded that those belonging to the discriminating power which were classified as sufficient were item numbers 1, 2, 11, 22, 38. The discriminating power which was classified as good was item number 3, 4, 5, 7, 8, 9, 12, 13, 14, 15, 16, 18, 19, 20, 21, 23, 24, 25, 26, 28, 29, 32, 34, 35, 36, 39, 40. And the discriminating power which is classified as very good is item number 10, 17.

Data analysis techniques include analyzing the effectiveness of comic-based teaching materials. The last stage in this research is to analyze the effectiveness of comic-based economics teaching materials. Descriptive statistical

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}}$$

analysis is to use the t test as follows:

(Sugiyono, 2019)

III. Results

Based on the results of the value analysis with instruments, namely the pretest and posttest which were carried out at the two schools, the scores for each school were obtained. The learning outcomes of class X IPS 2 SMAN Integrated Model Bojonegoro on the cognitive test showed that the pretest average was 48.25 and the posttest score was 80.23. There was an increase in value of 31.98. Meanwhile, the formative test showed that the pretest average was 46.94 and the posttest score was 80.34. There was an increase in value of 33.40. The learning outcomes of class X IPS 1 SMAN 1 Balen show that the pretest average was 42.53 and the posttest score was 80.11. There was an increase in value of 37.58.

IV. Discussion

The pre-test and post-test were carried out to determine the level of mastery of the material mastered by students after using economics teaching materials using comic illustrations as media. The pre-test and post-test scores were taken from the cognitive test scores and the formative test scores.

The following are the pretest and posttest scores at the Bojonegoro Integrated Model High School. Pre test and post test to determine the level of mastery of the material mastered by students after using teaching materials using comic illustration media. Comparison of the average pre-test and post-test values can be seen in the following figure:

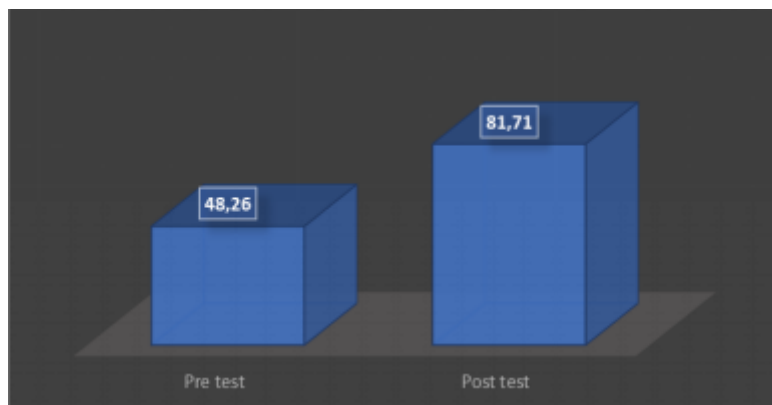


Figure 1. Results of Cognitive Test Pre Test and Post Test Values at Bojonegoro Integrated Model Senior High School

Based on the figure above, during the pre test the average value achieved by students was 48.26 while during the post test the average value achieved by students was 81.71, up 33.45 points. In addition to cognitive tests, psychomotor tests were also carried out. Psychomotor tests relate to the assessment of students' skills. The average score for the psychomotor test was 81.90.

In addition to cognitive tests, formative tests were also carried out to determine the overall level of mastery of the material after using teaching materials using comic illustration media. Comparison of the average pre-test and post-test values can be seen in the following figure:

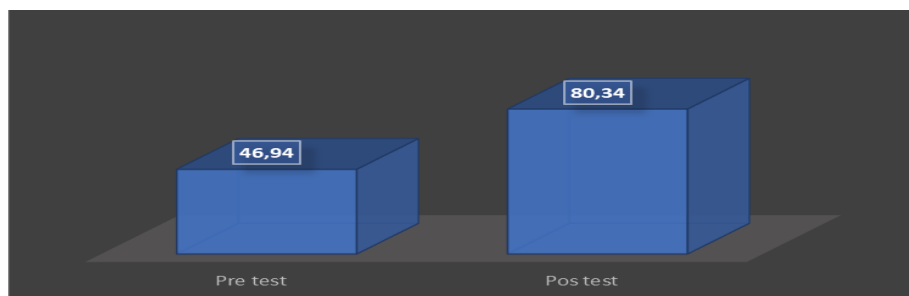


Figure r 2. Results of Formative Pre-Test and Post-Test Tests at Bojonegoro Integrated Model Senior High School

Based on the figure above, during the pre-test the average score achieved by students was 46.94 while during the post-test the average value achieved by students was 80.34, up 33.40 points. The following are the pretest and posttest scores at SMAN 1 Balen. Comparison of the average pre-test and post-test values can be seen in the following figure

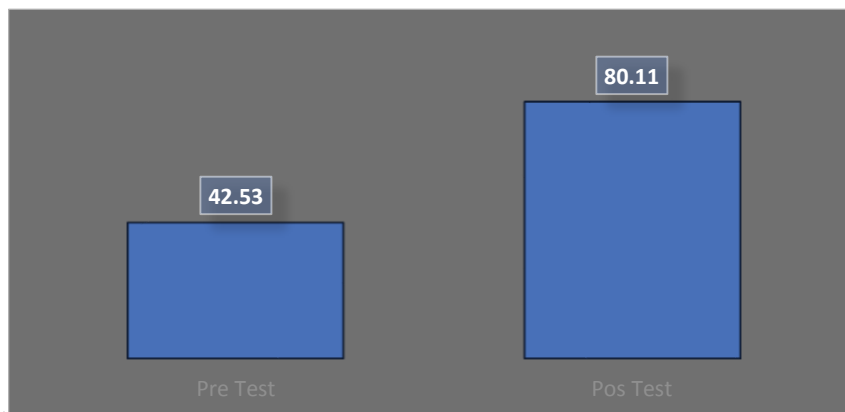


Figure 3. Results of Pre Test and Post Test Cognitive Test Values at SMAN 1 Balen

Based on the picture above, during the pre test the average value achieved by students was 42.53 while during the post test the average value achieved by students was 80.11, up 37.58 points. After comparing the pretest and posttest values, then an analysis of the effectiveness of comic-based economics teaching materials was carried out.

The effectiveness of this final product was also carried out using a t-test to compare the difference between the pretest and posttest scores. The difference in this score is called the gain score (N-Gain), used to see whether there is a significant difference in the learning outcomes obtained by students before and after using economics teaching materials using comic illustration media in learning.

For example, μ_1 is the average student learning outcomes before using economics teaching materials using comic illustration media and μ_2 is the average student learning outcomes after using teaching materials using comic illustration media. An overview of the trial results is as follows:

1. $H_0 : \mu_1 \geq \mu_2$ (economics teaching materials using comic illustration media cannot increase the effectiveness of student learning)
 $H_1 : \mu_1 < \mu_2$ (teaching materials using comic illustration media can increase the effectiveness of student learning)
2. $\alpha = 0,05$
3. Test result t:

Table 1. Paired Samples Test of Bojonegoro Integrated Model High School

		Paired Samples Test							
		Paired Differences			95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	PRETEST - POSTTEST	-33.45714	11.61222	1.96282	-37.44608	-29.46821	-17.045	34	.000

b. SMAN 1 Balen

Table 2. Paired Sample Test of SMAN 1 Balen

		Paired Samples Test							
		Paired Differences			95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	PRETEST - POSTTEST	-37.62500	15.76388	2.78669	-43.30849	-31.94151	-13.502	31	.000

4. Test decision: H_0 is rejected, because $t \text{ count} < 0,05$ yaitu $0,000 < 0,05$
5. Conclusion: There is a significant difference between the pretest and posttest, this shows that there is a significant effect on the significant difference in treatment between the pretest and posttest. So, the use of economics teaching materials based on comic media is effective in improving student learning outcomes..

From the analysis above, it is stated that the use of economics teaching materials using comic illustration media is very effective in improving student learning outcomes in class X mastery of economics material. This is evidenced by the increase in the average score of learning outcomes from the pre-test to the post-test.

According to Danaswari (2013) in his research entitled the development of teaching materials in the form of comic media to improve the learning outcomes of class X SMAN 9 Cirebon on the subject of ecosystems, he said that the learning outcomes of students using comic media could increase as seen from significant differences in test results. Student response to comic media was very good. Utomo (2018) also stated that overall comic media is very suitable for use in the learning process in improving student learning outcomes. Meanwhile, according to Ntobuo (2018) explains that comic media is very suitable for use in the learning process.

The results of the t-test on the pre-test and post-test values at the Bojonegoro Integrated Model Senior High School and Balen 1 Public High School show that the calculated t value is less than 0.05. This shows that there is a significant difference between the learning outcomes obtained by students before and after using economics teaching materials using this comic illustration media.

Based on observations and studies during the process of preparing teaching materials using comic illustration media, the developer found several things, including:

- a. Teaching materials are equipped with colorful pictures to make it more interesting
- b. Teaching materials are equipped with figures who communicate so that they are more communicative
- c. Teaching materials are equipped with characters who communicate so that they are more communicative. Teaching materials contain comic elements including panels, moats, characters, backgrounds, word balloons,

and words, each of which has its own function and can certainly support students' understanding of the material

- d. Teaching materials are easy for students to understand because the storyline is contextual and simple.
- e. This teaching material supports students to learn independently.
- f. The comic book that has been made has never existed so that students will be interested in learning it.
- g. Teaching materials in the form of visuals will be easier for students to understand because students will tend to remember the events that are visualized. Teaching materials using comic illustration as a form of visual media.

The advantages of this comic media-based teaching material include: a) until now there has been no economic teaching material using comic illustration media for economics learning for high school students, so this teaching material can be used as a reference for accompanying textbooks; b) teaching materials using comic illustration media are supplemented with colorful images to make it more attractive; c) one of the characteristics of comics is images that communicate so that this teaching material is more communicative so that it is easy for students to understand; d) another characteristic of the comic is that it has a storyline and this teaching material has a storyline that is contextual in nature so that students understand the material in real terms; e) in this teaching material the background is taken contextually and according to the material so that it can make it easier for students to understand the material because it is equipped with visualization, f) this teaching material is supplemented with summaries, independent assignments, practice questions and discussion, self-assessment on each learning activities, and evaluation is accompanied by discussion so that students can learn independently

In addition to its benefits, this teaching material has several drawbacks, including: a) creating teaching materials using comic illustration media requires a significant amount of time, effort, and money; b) characteristic analysis is required in the selection of comic illustration media as teaching material, namely the ability of students, which includes different backgrounds and student learning styles, because it may not always be able to fulfill the wishes of students. therefore it is necessary to utilize different strategies that need to get more in-depth attention carefully; d) for wider utilization it is necessary to pay attention to the analysis of learning needs towards the position of the material as a whole; e) this teaching material is only designed for SMA Economics material.

V. Conclusion

The use of economics teaching materials is very effective in improving student learning outcomes in mastering economics material for class X odd semester. This is evidenced in the increase from pretest to posttest scores. There was an increase in the average score of learning outcomes from the pre-test to the post-test of Bojonegoro Integrated Model Senior High School students for the cognitive test which increased by 33.45 points and for the formative test which increased by 33.40 points. Meanwhile, the students of SMAN 1 Balen for cognitive tests rose 37.58 points. Test the effectiveness of teaching materials using comic illustration media using the t test. The results of the t test show that in the field trials at the Bojonegoro Integrated Model High School there is a mean difference in the post test results (81.71) > pre test (48.26) with a significance level of 0.000 <0.05. Meanwhile, in the field trial at SMAN 1 Balen, there was a difference in mean post test results (80.11) > pre test (42.53) with a significance level of 0.000 <0.05. Thus it is proven that economics teaching materials using comic illustration media can effectively improve student learning outcomes.

Economics teaching materials based on comic media on economics subjects have been declared effective, so they can be used in the Bojongoro Integrated Model High School and Balen 1 SMAN in particular, as well as in various SMA/MA equivalent schools as an alternative media in the learning process. This teaching material can be applied to class XI and class XII SMA. In addition to economics subjects, teaching materials using comic illustration media can be used in other subjects such as English, Biology, Indonesian, History, Javanese, etc.

Comic media was used as teaching materials



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