EFFECTIVENESS OF APPLICATION OF ECONOMICS FLIPBOOK E-MODULE LEARNING MEDIA WITH PROBLEM BASED LEARNING (PBL) LEARNING MODEL IN IMPROVING LEARNING OUTCOMES OF CLASS X STUDENTS OF SMAN 3 MOJOKERTO CITY

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ABSTRACT

Based on initial observations, researchers found that the majority of students had difficulty learning Economics material because there was a lot of material to study, so they became passive in participating in learning activities. Many of them are less interested and are busy with other activities such as playing on their cellphones, feeling sleepy, or chatting alone with friends. This has an impact on student learning outcomes. To overcome this problem and create technology-based 21st century learning and increase students' understanding in aspects of knowledge, research was conducted with the aim of testing the effectiveness of implementing the economic flipbook e-module learning media using the PBL learning model in improving the learning outcomes of class X students at SMAN 3 Mojokerto City. The sample for this research consisted of students in classes X4 & X5, totaling 36 students. The research method used is a descriptive quantitative approach with experimental research using the One Group Pretest-Posttest Design model. This research model consists of two groups, namely the experimental group and the control group. Students from both groups were given pretest and post-test questions. The results of the N-Gain score test show that the average score of the control group did not show a significant increase and was less effective in improving student learning outcomes. The average N-Gain Score value in the control group was 0.41 or an N-Gain Score (%) of 41.09%, so it was categorized as moderate and interpreted as less effective. Meanwhile, the experimental group showed different results. Their N-Gain Score value is 0.85 or N-Gain Core (%) of 85.42%, so the use of economic flipbook e-modules with the Problem Based Learning (PBL) learning model is categorized as high and interpreted as effective.

INTRODUCTION

Education is a human need that must be fulfilled, because without education humans cannot develop properly. Education aims to make the nation's life more intelligent. In obtaining educational knowledge and understanding, children can learn from their family or surrounding environment. The important role of education in improving human resources is to be able to compete on the international stage. Education in the 21st century is an era of globalization that prioritizes advances in science and technology to facilitate activities in the world of education (Rahayu et al., 2021) .

Currently, education does not only focus on knowledge, but also prioritizes aspects of attitudes and skills so that students can have good practical abilities and ethics. Education must be related to the problems around students so that they understand concepts more easily and can face real world situations well. By dealing directly with real situations, students will be ready to face them because they are equipped with the right knowledge, skills and attitudes to overcome these various problems. In the modern era, especially in the 21st century, educators are faced with demands to develop increasingly advanced science and technology. Therefore, it is important to integrate interactive learning media in school subjects. In times of development and the increasing need for cellphones as an important tool to support learning, teachers are expected to be able to invite students to be actively involved in the learning process using their cellphones as a learning tool.

As part of self-development in facing learning in the 21st century era and the industrial revolution 4.0, teachers are required to be more creative and innovative in creating learning tools in digital form. Teaching materials that are electronic and support open learning can be used by students and teachers because they can be easily shared via social media. This is in accordance with the needs for 21st century learning skills which require the ability to adapt to modern technology (Yulaika et al., 2020) .

Books are a very important element in the learning process. Currently, students use BSE (Electronic School Books) or better known as e-books in learning activities. BSE has obtained copyright from the Ministry of Education & Culture, covering textbooks for basic to advanced levels in digital and printed form. BSE has several advantages, such as being easily accessible via the official website of the Department of Education & Culture, its content is in accordance with the curriculum, and it has passed assessment tests from the National Education Standards Agency (BSNP). However, even though BSE has these advantages, there are several weaknesses in its application as an e-book. BSE in e-book form is still similar to printed books in general, so it does not provide interactive simulations such as combining images, audio, video or learning animations to increase the fun and attractiveness of learning. (Hayati et al., 2015) .

Apart from using interesting learning media, it is also important to choose the right learning method to improve student learning outcomes. By choosing an appropriate learning model, students will remain interested and enthusiastic in the learning process in class. It is important for learning objectives to be clearly defined so that they can be achieved well during the learning process. The importance of choosing a learning model that contains the latest and relevant material is highly emphasized at this time, because this will encourage students to think actively and carry out analysis of case studies that are relevant to the learning material. One learning model that is very effective in helping students carry out this analysis is Problem Based Learning (PBL). According to Istiastutik in (Buyung & Alexon, 2022) the Problem Based Learning (PBL) learning model has been proven to be more effective because students are more active in understanding the material and collaborating with others in carrying out investigations and inquiries into real problems in the environment around them. This makes the learning process more meaningful for students. The aim of this PBL learning model is to encourage students to be able to solve problems, increase student participation in expressing opinions, develop the ability to work together in groups, develop critical thinking skills through the analysis process, and increase their self-confidence.

Therefore, in an effort to overcome or complement the shortcomings of BSE, the emergence of flipbook E-modules using the problem based learning (PBL) learning model is a form of teacher self-development in facing learning in the 21st century. Teachers who have creativity and innovation can arrange electronic teaching materials in digital form, so that they can be accessed by all students either at home as a learning tool or at school, with the aim of supporting the movement to use digital (paperless) teaching materials. This flipbook e-module is very interactive and able to adapt to students' learning styles in the classroom, because it provides a link feature to access videos, articles, photos and others. In addition, the content can be adapted to the needs of students in the class, thereby providing flexibility in learning.

Based on the results of initial observations carried out in classes X-4 and As a result, students tend to be passive in participating in learning activities. Many of them are less interested in learning and more interested in playing with cellphones, some feel sleepy, or are busy talking to their friends by themselves. The impact of this situation can be seen in student learning outcomes. Therefore, in an effort to realize technology-based 21st century learning and increase students' understanding to support knowledge aspects, classroom action research was conducted to test the effectiveness of using the Economics flipbook e-module learning media by applying the Problem Based Learning (PBL) learning model. in order to improve the learning outcomes of class X students at SMAN 3 Mojokerto City.

RESEARCH METHODS

Types of research

This research is Classroom Action Research (PTK) with a descriptive quantitative approach. This research uses experimental research with One Group Pretest-Posttest Design. This research model involves two experimental groups, namely the experimental group and the control group. Research subjects were students who were given an initial test (pretest) to measure their initial abilities, then given a final test (post test) to see the impact of the treatment given.

In the experimental group, students were given treatment using flipbook e-module teaching materials, while in the control group, students did not receive treatment and learning was carried out using expository learning strategies. After that, the two groups were compared to see differences in learning outcomes. (Vianis et al., 2022)

Research Flow

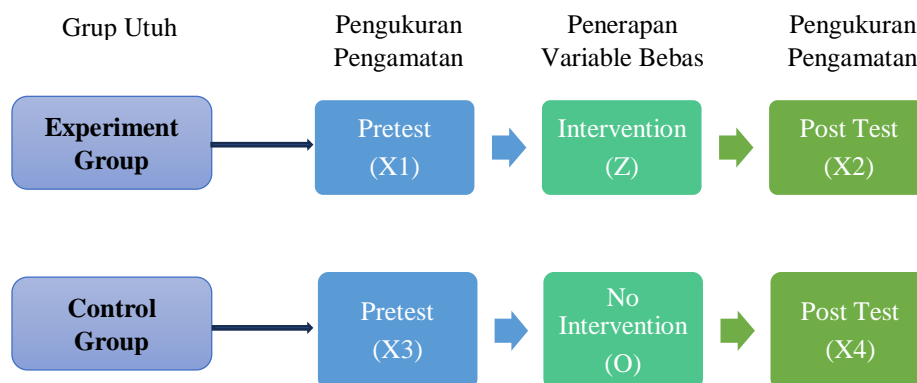

Figure 1 One Group Pretest-Posttest Design.

1)   **Experimental Group:**
- Pretest (X1): Assessment of the pretest scores of students in the experimental group before receiving treatment in the form of using economic flipbook e-module teaching materials with the PBL learning model.
- Post Test (X2): Assessment of the posttest scores of students in the experimental group after receiving treatment in the form of using economic flipbook e-module teaching materials with the PBL learning model.
- Intervention (Z): The process of providing treatment using economic flipbook e-module teaching materials and the PBL learning model.

2)   **Control Group:**
- Pretest (X3): Assessment of the pretest scores of students in the control group before receiving learning with an expository approach.
- Post Test (X4): Assessment of the posttest scores of students in the control group after receiving learning with an expository approach.

- No Intervention (O): The control group did not receive special treatment and learning was carried out using an expository approach.

Population and Sample

1.Population

Population is the entire research object which includes various entities such as humans, animals, objects, plants, test scores, symptoms, or events that have certain characteristics which are the source of data in a study (Purwanza et al., 2022) . The population in this study was class X students at SMAN 3 Mojokerto City. The majority of data collected and processed in this research is quantitative data.

2.Sample

The sample in this study is part of the population members selected using sampling techniques (Purwanza et al., 2022) . In this research, the sample was determined using *probability sampling* with a *simple random sampling technique.* According to Sugiyono in (Novianti et al., 2020) In this research, a simple random sampling technique was used, which means that sample members were taken at random without paying attention to the strata in the population. The research subjects were students from classes X-4 and X-5 at SMAN 3 Mojokerto City, who were used as samples. Class selection is based on the homogeneity of students, where their characteristics are almost the same, making it easier to carry out research. Class X-4 was used as the experimental group, while class X-5 was used as the control group, with each class having 36 students. In the experimental class, intervention or treatment was given in the form of implementing an economics flipbook e-module, while in the control class, learning was carried out expository.

Time and Place of Research

This research was carried out in classes X-4 & X-5 at SMAN 3 Mojokerto City during the even semester, namely from May to June 2023.

No	Description of activities	Month							
		May				June			
		1	2	3	4	1	2	3	4
	Initial Observations		▓						
	Preparation of Teaching Modules			▓					
	Implementation Ex. Control				▓				
	Implementation Ex. Experiment					▓			
	Preparation of research results reports						▓	▓	▓

Table 1. Research Activity Schedule

Data Collection Instrument

1)   *Pretest* and *Posttest* Objective Tests

This research uses tests as a tool to collect quantitative data, namely the value of students' learning outcomes before and after being given action. The pretest and posttest were applied to both groups, both the experimental group and the control group. The data collection instrument used was multiple choice questions, with 5 questions for the pretest and 10 questions for the posttest, which were used by students to show their learning results. The success indicator for this test is determined if the average test score of students reaches at least 80.0 or above the Minimum Completeness Criteria (KKM) limit, namely ≥ 70.0, and as many as 90% of students succeed in achieving this target (Jaya, 2019) . To assess the effectiveness of the economic flipbook e-

module by applying the Problem Based Learning (PBL) model to student learning outcomes, an analysis technique in the form of the N-gain test was used. The N-gain test is used to measure the level of difference in student learning outcomes before and after receiving treatment (Vianis et al., 2022) .

2)   Observation Guide Sheet

This observation sheet is used to collect data on students' learning activities in classroom action research activities.

RESULTS AND DISCUSSION
Results
1.   Effectiveness of the Economic Flipbook E-Module

This Classroom Action Research (PTK) uses descriptive quantitative methods with experimental research type and the One Group Pretest-Posttest Design model. In this research, two group experiments were used, namely the experimental group and the control group. The sample for this research consisted of students from classes X-4 and X-5 at SMAN 3 Mojokerto City, with each group having 36 students. The aim of this research is to observe the learning activities of students before and after being given treatment using flipbooks by applying the Problem Based Learning (PBL) learning model.

The learning instruments and tools prepared by researchers include Teaching Modules, Flipbook E-Modules with Problem Based Learning Models, as well as pretest and posttest questions. Apart from that, observation sheets are also prepared to collect data about students' learning activities during the learning process. Data about students' learning activities was obtained using observation sheets. Meanwhile, data about student learning outcomes was obtained through two tests, namely pretest and posttest, in the form of multiple choice questions. This test is carried out before and after the learning activities are carried out. In this study, the experimental group used flipbooks as teaching materials, while the control group did not use flipbooks.

The results of this activity will produce scores for the experimental group and control group, which will then be described in the table as follows: (next, the table will be filled in according to the research results)

No	Experimental Group Pretest Scores	Experimental Group Post Test Scores	No	Control Group Pretest Score	Control Group Post Test Values
1.	60	100	1.	40	60
2.	80	80	2.	60	70
3.	60	80	3.	60	80
4.	60	100	4.	40	60
5.	40	100	5.	60	80
6.	60	100	6.	60	70
7.	40	80	7.	20	50
8.	80	100	8.	40	80
9.	60	100	9.	60	70
10.	80	100	10.	60	70
11.	80	100	11.	40	80
12.	60	100	12.	60	70
13.	40	60	13.	20	50
14.	60	100	14.	40	80
15.	40	100	15.	20	60
16.	60	100	16.	60	70
17.	20	80	17.	20	50
18.	80	100	18.	40	60
19.	40	60	19.	20	80
20.	60	100	20.	60	70

21.	60	100	21.	40	70
22.	80	100	22.	60	80
23.	60	90	23.	40	70
24.	40	90	24.	60	80
25.	40	90	25.	40	50
26.	80	90	26.	20	60
27.	60	100	27.	60	80
28.	40	100	28.	20	50
29.	80	90	29.	20	70
30.	60	100	30.	60	70
31.	60	90	31.	40	80
32.	60	100	32.	60	70
33.	80	100	33.	80	90
34.	80	100	34.	60	70
35.	40	100	35.	40	60
36.	60	100	36.	60	70
Average	59.44	93.89	Average	45.56	68.89

Table 2. Pre Test and Post Test Scores

Source: Data processed by researchers (2023)

Based on the table above, it can be seen that there are significant differences between the experimental group and the control group. The control group, which used an expository strategy, had an average pretest score of 45.56 and an average posttest score of 68.89. However, the control group's posttest score was still below the Minimum Completeness Criteria (KKM), namely ≥ 70.0. The change from pretest to posttest in the control group was only 23.33. Meanwhile, in the experimental group, the results improved with an average pretest score of 59.44 and an average posttest score of 93.89. Even though the pretest score in the experimental group was still below the KKM, after being given intervention or treatment using a flipbook, the average posttest result increased by 34.45 compared to the control group.

2. N-Gain Test

Based on the pretest and posttest scores, to determine the effectiveness of the economic flipbook e-module with the Problem Based Learning (PBL) learning model, calculations were carried out using the N-Gain test as follows:

N-Gain Score Formula:

$$N - Gain = \frac{S_{posttest} - S_{pretest}}{S_{ideal(\max)} - S_{pretest}}$$

Information :

S pretest: Pre-test score

S posttest: Post-test value

S ideal (max): The ideal score is the maximum (highest) value that can be obtained.

Meanwhile, to find out the N-Gain Score (%) (Percentage) as follows:

$$N - Gain(\%) = N - Gain \times 100$$

Based on this formula, data from the N-Gain Test calculation results can be obtained in the following table:

NO	N-GAIN SCORE EXPERIMENTAL GROUP	N-GAIN SCORE (%) EXPERIMENTAL GROUP	NO	N-GAIN SCORE CONTROL GROUP	N-GAIN SCORE (%) CONTROL GROUP
1.	1	100	1.	0.333333333	33.33
2.	0	0	2.	0.25	25.00
3.	0.5	50	3.	0.5	50.00

4.	1	100	4.	0.333333333	33.33
5.	1	100	5.	0.5	50.00
6.	1	100	6.	0.25	25.00
7.	0.666666667	66.66666667	7.	0.375	37.50
8.	1	100	8.	0.666666667	66.67
9.	1	100	9.	0.25	25.00
10.	1	100	10.	0.25	25.00
11.	1	100	11.	0.666666667	66.67
12.	1	100	12.	0.25	25.00
13.	0.333333333	33.33333333	13.	0.375	37.50
14.	1	100	14.	0.666666667	66.67
15.	1	100	15.	0.5	50.00
16.	1	100	16.	0.25	25.00
17.	0.75	75	17.	0.375	37.50
18.	1	100	18.	0.333333333	33.33
19.	0.333333333	33.33333333	19.	0.75	75.00
20.	1	100	20.	0.25	25.00
21.	1	100	21.	0.5	50.00
22.	1	100	22.	0.5	50.00
23.	0.75	75	23.	0.5	50.00
24.	0.833333333	83.33333333	24.	0.5	50.00
25.	0.833333333	83.33333333	25.	0.166666667	16.67
26.	0.5	50	26.	0.5	50.00
27.	1	100	27.	0.5	50.00
28.	1	100	28.	0.375	37.50
29.	0.5	50	29.	0.625	62.50
30.	1	100	30.	0.25	25.00
31.	0.75	75	31.	0.666666667	66.67
32.	1	100	32.	0.25	25.00
33.	1	100	33.	0.5	50.00
34.	1	100	34.	0.25	25.00
35.	1	100	35.	0.333333333	33.33
36.	1	100	36.	0.25	25.00
AVERAGE	0.85	85.42	Average	0.41	41.09

Table 3 N-Gain Score & N-Gain Score (%)
Source: Data processed by researchers (2023)

Based on the table above, the results of the N-gain Score calculation can be classified as follows:
Table 4 Distribution of N-Gain Score

N-GAIN VALUE	CATEGORY
G>0.7	Tall
0.3 ≥G ≥0.7	Currently
G<0.3	Low

Meanwhile, the N-Gain Score (%) Interpretation categories are as follows:
Table 5 Category Interpretation of N-Gain Score (%)

PERCENTAGE (%)	INTERPRETATION
>76	Effective
56-75	Effective enough

40-55	Less effective
<40	Ineffective

Source: Hake in Setiawan & Aden (2020)

Based on the results of the N-Gain score test, it can be observed that the average score of the experimental group is 0.85 or N-Gain Core (%) 85.42%. This shows that the use of economic flipbook e-modules with the Problem Based Learning (PBL) learning model is categorized as high and is considered effective in improving student learning outcomes. Based on the results of calculations in this research, it can be concluded that the use of economic flipbook e-module learning media with the Problem Based Learning (PBL) learning model is more effective than learning without the use of media (expository). With this flipbook e-module, students can understand the concept of the material better. The advantage of this flipbook e-module is that the material prepared by the teacher comes from various literature, not just one book. In addition, students can access learning anytime and anywhere, thus providing flexibility in learning. The flipbook e-module also allows teachers to create content according to the learning objectives they want to achieve. There are various features in the flipbook e-module such as visual, audio and audiovisual, making it easier for students to improve their cognitive understanding and learning outcomes.

CLOSING

The use of electronic teaching materials based on economic flipbook e-modules with the Problem Based Learning (PBL) learning model has proven effective in improving the learning outcomes of class X students at SMAN 3 Mojokerto City. The pretest and posttest results showed a significant improvement in the experimental group after being given treatment in the form of an economics flipbook e-module. The N-Gain test results show that the use of the economic flipbook e-module with the PBL learning model is categorized as effective with an average N-Gain Core (%) of 85.42%. On the other hand, in the control group, the results did not show a significant improvement and were less effective in improving student learning outcomes. The average N-Gain Score value in the control group was 41.09%, which is included in the medium category and is considered less effective.

The use of flipbooks provides flexibility for students because they can access learning anytime and anywhere. The flipbook e-module also allows teachers to organize content according to the learning objectives they want to achieve. Various features in the flipbook e-module, such as visual, audio and audiovisual, help students improve their cognitive understanding and learning outcomes. Apart from that, this flipbook e-module is compiled from various relevant literature sources, and the use of the Problem Based Learning (PBL) learning model gives students access to various videos and articles that help them in analyzing material concepts, especially in economics subjects. .

Suggestion

Based on the conclusions above, the researcher provides several suggestions as follows:

1) As an educator, it is important to choose media, learning models, and learning approaches that suit students' learning needs. In this way, students will more easily accept and understand the material being taught;
2) Students need to be more active in learning, both individually and in groups, by taking advantage of technological developments. This can increase student involvement in the learning process;
3) It is hoped that other researchers can utilize existing technology in the learning process, especially flipbook e-modules with the Problem Based Learning (PBL) learning model, to present different material. Thus, technology can be an effective means of improving student learning outcomes in various fields of study.

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