

The Effectiveness Of Using Pbl-Based Cost Accounting Students' Textbook On The Cognitive Achievements Of Student Learning

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Abstract.

Learning is an activity that is inseparable from human life. By learning, humans are able to develop the potential that they were born with so that they will be able to adapt to meet their needs. By learning, it is hoped that there will be changes in behavior in accordance with the expected goals. However, sometimes the expected changes in behavior do not occur and are not even in accordance with the expected goals, so learning difficulties are born. To help solve the problem of learning difficulties, among others, is to apply learning models that invite students to participate actively and are used to find out how to increase students' learning motivation in mastering certain competencies and the existence of teaching materials in the form of PBL-based textbooks. Along with the development of teaching materials in the form of PBL-based Cost accounting textbooks compiled in previous studies, it is necessary to test their effectiveness together with PBL learning models so that they can be a solution in overcoming lack of motivation and learning difficulties. This study resulted in a comparison of the PBL learning model using teaching materials in the form of a PBL-based Cost Accounting textbook with PBL using a reference book. The effectiveness of using PBL-based cost accounting textbooks needs to be tested to find out whether there is an improvement in the quality of learning. The sample in this study is Accounting Education students' batch 2021. Comparison of the learning model with the use of PBL-based cost accounting textbooks is expected to be able to display the quality of interesting learning activities to observe. As for testing the comparison of this learning model using a True Experiment research design using an independent t test. Evaluation of learning media is an evaluation that has a special emphasis on user-oriented from the PBL-based Cost Accounting textbook. The results showed that there was a convincing difference in learning outcomes before and after using the PBL-based Cost accounting textbook.

Keywords: Textbooks, Students, PBL, Cost Accounting and effectiveness.

I. INTRODUCTION

Improving the quality of human resources in the world of education apart from improving the curriculum is through education development. According to Law No. 20 of 2003 article 15, it is explained that education is an effort to prepare students to have competence in certain fields. Formal education that provides skills that students can choose from, one of which is the Accounting expertise program. This study is a follow-up study from previous research which produced a Cost Accounting Student Textbook. To determine the effectiveness of the resulting product in the form of a PBL-based Cost Accounting Student Textbook, it is necessary to conduct a True Experimental study as a follow-up. So, there is continuity between past research and current research. The urgency in this study is that the factors that can affect the level of accounting understanding are accounting learning outcomes. Learning outcomes are abilities possessed by students after receiving their learning experiences (Sudama, 2012:22). The results of learning basic accounting become students' initial capital to improve their accounting understanding. The position of the PBL-based Cost Accounting Textbook is as a supporting factor for the level of understanding of cost accounting.

For this reason, it is very important for this research to be carried out, considering the role of textbooks as learning resources in increasing students' understanding which will have a domino effect on learning outcomes. The accounting expertise program is one of the most in-demand skill programs. To create competent graduates, it is necessary to improve the quality of learning, one of which is by using appropriate learning models in accounting subjects to increase student activity and thinking skills in learning. The previous research was compiling a PBL-based Cost Accounting Student Textbook. One alternative learning model that can develop students' thinking skills in solving problems is Problem Based Learning. Problem Based Learning (PBL) is an innovation in the learning process because students' thinking skills are optimized through a systematic group or team work process, so that students can empower, hone, test, and develop

thinking skills on an ongoing basis. In addition to using the Problem based learning model in developing students' thinking skills, in addition to the PBL-based Cost Accounting textbooks produced in previous studies, it is also expected to increase student participation in learning activities and can improve the ability to solve problems by thinking and working on their own initiative.

II. METHODS

This research is a quantitative research using an experimental approach with a type of pure experimental design (True Experimental Design). The purpose of the true experiment according to Suryabrata (2011) is to investigate the possibility of a causal relationship by applying the treatment and comparing the results with the untreated control group. The experimental model used in this study is the Pretest-Posttest Control Group Design. The steps of this research are to determine the research population. All students were given pretest questions to calculate homogeneity and normality. From the results of the pretest, the sample classes in the study will be obtained, namely the control class and the experimental class. After being given a different treatment, then a valid test is carried out as a final test (posttest). The results of the posttest were compared to determine the difference between the control class and the experimental class. The value data will be analyzed by statistical tests with the aim of knowing the differences in learning outcomes using the Problem Based Learning model with Discovery Learning. Broadly speaking, the experimental design is described as follows:

Table 1. Experimental Design

Class	Pretest	Treatment	Posttest
Experiment	T ₁	X	T ₂
Control	T ₃	-	T ₄

Annotation:

T₁ dan T₃ : *pretest*

T₂ dan T₄ : *posttest*

X : The treatment given to the class
Experiment

- : The treatment given to the class
control.

According to Sugiyono (2011) population is a generalization area consisting of objects or subjects that have certain qualities and characteristics set by researchers to be studied and then conclusions are drawn. The target population is students of the class of 2021. The sample is part of the population to be studied. According to Sugiyono (2011) the sample is part of the number and characteristics possessed by the population. In this study, researchers used a saturated sampling technique, namely the entire population was taken as the research sample. Before selecting the sample, a pretest was first conducted to test the homogeneity and normality of the study population. After the homogeneity and normality tests have been carried out, the research sample can be selected using a simple random sampling technique. In sampling, students get material based on the same class. The sample in this study consisted of 2 classes, namely the control class using the Problem Based Learning model using reference books and the experimental class using the Problem Based Learning model using the PBL-based cost accounting textbook.

Data collection

The method of data collection in this study is the test method. According to Arikunto (2012), the test is a tool or procedure used to find out or measure something in an atmosphere, in a way and with predetermined rules. The types of tests used in this study were pre-test and post-test in the form of multiple choice. By knowing the results of the pretest and posttest, students can determine the effectiveness of student teaching materials that have been compiled in previous research.

Research Instruments

The instrument used in the study was a test. In this study, the tests used were in the form of pretest and posttest. Pretest is used to measure learning outcomes before being given treatment using Problem Based Learning model. While the posttest is used to measure learning outcomes after being given treatment using a

Problem Based Learning model using student teaching materials in the form of PBL-based cost accounting textbooks. The type of test used in this study is a test with an objective form. Before the test is carried out in the learning process, the test questions must first be analyzed.

Data analysis technique

The data in this research is quantitative data in the form of the results of the pretest and posttest scores. The data were analyzed to test the hypothesis. The hypothesis in this study was tested by t-test (t-test). Before conducting the t test, normality and homogeneity tests will be carried out first as a prerequisite for using the t test. The following are the steps to analyze the research data: Normality test is a test conducted with the aim of assessing the distribution of data in a group of data or variables, to determine whether the distribution of the data is normally distributed or not, what is tested is the results of the pretest and posttest scores from the control class. and experimental class. Data is said to be normally distributed if the probability or $p > \text{significant level } (\alpha)$, where the value of is 0.05. Homogeneity test is a statistical test that aims to show that two or more groups of sample data come from populations that have the same variance.

To test the homogeneity of the research data, the SPSS program with Levene's statistical test was used, which tested the results of the pretest and posttest scores from the control class and the experimental class. The data is said to be homogeneous if the significance or $\text{sig} > \text{significant level } (\alpha)$, where the value of is 0.05. Hypotheses can be interpreted as conjectures about something or can be said as temporary conjectures. Hypothesis testing is a procedure used to test the validity of the statistical hypothesis of a population by using data from the population sample. Hypothesis testing in this study used the t-test to determine whether or not there were differences in learning outcomes between the control class and the experimental class. To perform a t-test on the research data, an independent sample test was used statistical test, which tested the results of the pretest and posttest scores from the control class and the experimental class. With a significant level of 0.05 (50%), the comparison criteria are H_0 if $t \text{ count} > t \text{ table with df } (n_1+n_2-2)$.

III. RESULTS AND DISCUSSION

Textbooks are a way of organizing subject matter that pays attention to the function of education. The strategy for organizing learning materials contains sequencing which refers to making the order of presentation of the subject matter, and synthesizing which refers to efforts to show students the interrelationships between facts, concepts, procedures and principles contained in the learning materials. To design learning materials, there are five categories of capabilities that can be learned by students, namely verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. The strategy for organizing learning materials consists of three stages of the thinking process, namely concept formation, concept interpretation, and application of principles. These strategies play a very important role in designing learning. Its usefulness can make students more interested in learning, students automatically learn from prerequisites, and can improve learning outcomes. The use of textbooks is often associated with self-instruction activities. Because of its functions as mentioned above, other consequences that must be fulfilled by this textbook are the completeness of contents; This means that the content or presentation material of a textbook must be fully discussed through presentations so that the readers feel that they understand enough of a particular field of study from the results of learning through this textbook. Unless the reader wants to develop insight into the field, it is even recommended to explore it further through the bibliography which is often also attached at the end of each textbook. The contents of a textbook should be complete, both in terms of the pattern of presentation, let alone its content.

Textbooks have many meanings regarding independent learning activities. Learning with textbooks is an independent learning approach that focuses on mastering the competencies of the study material that students learn at a certain time according to their potential and conditions. The independent learning system is a way of learning that focuses more on the role of the autonomous learning of students. Independent learning is a process in which individuals take the initiative with or without the help of others to diagnose their own learning needs; formulate/determine their own learning goals; identify learning resources; select and implement learning strategies; and evaluate their own learning outcomes. Independent learning is a way

of learning that gives students a greater degree of freedom, responsibility and authority. Students get guidance from teachers/tutors or other people, but that doesn't mean they have to depend on them. Independent learning can be viewed as a process or a product. As a process, independent learning has meaning as a way to achieve educational goals where students are given relatively greater independence in learning activities. Independent learning as a product implies that after participating in certain learning students become independent learners. The main implication of independent learning activities is the need to optimize learning resources while still providing opportunities for greater autonomy to students in controlling their learning activities.

The role of the teacher/tutor shifts from providing information to becoming a learning facilitator by providing various learning resources needed, stimulating the spirit of learning, providing opportunities to test/practice learning outcomes, providing feedback on learning progress, and helping that what has been learned will be useful in life. Textbooks are learning tools or facilities that contain materials, methods, limitations, and ways of evaluating which are designed systematically and attractively to achieve the expected competencies according to the level of complexity. Where the teacher does not directly give lessons or teach something to his students face to face, but enough with these textbooks. The language, patterns, and other features of the completeness contained in this textbook are arranged so that it looks as if they are the "teaching language" or the language of the teacher who is teaching his students. Therefore, this media is often called independent instructional materials. The use of textbooks is based on the fact that if students are given adequate time and learning conditions, they will master a competency completely. If students do not get enough time and adequate conditions, then the completeness of the lesson will be influenced by the degree of learning. The success of learning to use textbooks depends on student criteria supported by tutorial learning. These criteria include persistence, time to study, level of learning, quality of learning activities, and the ability to understand instructions in textbooks. To find out whether there is a difference in learning outcomes before and after using the Cost accounting textbook, an independent t-test is used, where the pre-test and post-test scores are tested. The results of the calculation of hypothesis testing with independent t-test are as follows:

Table 1. Independent samples test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Nilai	Equal variances assumed	2,450	,123	4,172	56	,000	4,50120	1,07880	2,34011	6,66230
	Equal variances not assumed			4,259	55,990	,000	4,50120	1,05682	2,38414	6,61827

Based on the results of the independent t test in table 1, the calculated value generated at the 95% confidence level is smaller than $\alpha = 5\%$. Thus, it can be stated that H_0 is rejected and H_a is accepted. So, it can be stated that there is a convincing difference in learning outcomes before and after using the PBL-based Cost accounting textbook.

Table 2. The results of the mean value of the different test

Group Statistics					
	Class	N	Mean	Std. Deviation	Std. Error Mean
Value	1,00	32	77,5781	4,42156	,78163
	2,00	26	73,0769	3,62682	,71128

Source: SPSS output results

Based on table 2, the mean value for the pre-posttest for the experimental group is 77.6 (code 1) while the mean value for the pre-posttest for the control group is 73 (code 2). So that the average pre-posttest value of the experimental group is higher than the pre-posttest value of the control group. The pre-test was given to the respondents before they were given learning about preparing financial reports for costs using the

PBL-based Cost accounting textbook in the first half of the semester. Furthermore, treatment is carried out, treatment is carried out by giving PBL-based cost accounting textbooks to respondents. In this treatment, respondents use cost accounting learning textbooks. With the PBL pattern compiled in the Cost accounting textbook which is used as a treatment, respondents can better understand the financial statement cycle in Cost accounting. The use of ICT in the form of computers (laptops) in accounting learning attracted the attention of respondents. At the end of the lesson, a post-test was conducted on the respondents to determine their learning outcomes. After the post-test was held on the respondents, different test results were obtained. The final results can be seen from the analysis of the pre-test and post-test as shown in Tables 1 and 2. Table 1 shows that after receiving treatment with the Cost Accounting Learning Textbook, the average value of the pre-posttest for the control group was 73 and the experimental group after receiving treatment obtained an average value of 77.6. The learning outcomes of respondents have increased after using the PBL-based cost accounting learning textbook.

Learning with the help of Cost accounting textbooks provides respondents with a more active opportunity to build an understanding of the material being studied. In the learning process with the aid of this textbook, it is designed in such a way as to provide various kinds of material content that aims to build/construct respondents' knowledge about the material being studied. Textbooks have been designed to be used by respondents to study independently in class or at home so that they do not depend on the teacher. Textbooks are basically self-instruction. Therefore, learning through textbooks emphasizes the active role of respondents in learning themselves. However, learning with textbooks does not mean liberating the role of the teacher in classroom learning. Cost accounting subjects are one of the subjects that have a procedural nature. In addition, accounting has a high level of complexity in teaching materials. The application of textbooks has a positive influence on learning, textbooks media can increase the percentage of student learning completeness and activeness during the learning process. The implementation of textbooks through this experiment with the cost accounting cycle material can reduce misconceptions, increase interest, activity, learning outcomes, compute literacy, and student responses. Cost accounting textbooks based on PBL are a set of teaching materials in the form of books that are presented systematically with the aim that students can learn independently without or with teacher guidance. In the textbook there is a description of the material about the cost accounting cycle starting from journalizing activities to making financial reports. The existence of instructions for using the textbook will help teachers and students in using the textbook.

In addition to formative tests, the cost accounting cycle practicum activities carried out by students can also be used to measure students' level of mastery of the trading company accounting cycle material. Students are required to be able to solve case study problems of a cost accounting cycle during a certain period in practical activities. The existence of an answer sheet provided in solving the practical questions will make it easier for students to complete practical activities. With this learning will be more effective so that the results of learning accounting in the cost accounting cycle material achieved from learning activities can be optimal. The purpose of preparing this textbook media is to help students more easily understand the accounting cycle of a company, especially in the cost accounting cycle through the material presented in the textbook. Students can also learn the accounting cycle starting from journaling activities to making complete financial reports with this textbook through practical activities with answer sheet facilities. In addition, this textbook can also be used as an additional learning resource because in this textbook there is also material for the accounting cycle of trading companies. Teachers can also use it as a bridge in delivering subject matter to make it easier. Communication between students and teachers can be better. Thus, there are many advantages that will be obtained by both teachers and students when using this media as a study buddy.

The role of the teacher in learning through textbooks is as follows: the teacher reviews in advance the objectives and learning strategies of trading company accounting, media and evaluation tools, in order to prepare a learning environment that is relevant to the trading company accounting cycle; the next step explains the learning process that respondents must follow before submitting the cost accounting learning textbook. Including conveying the integration process; the next step is to provide guidance to respondents in their learning, as well as being able to detect and find errors in the learning process made by respondents, so that they can immediately straighten them out, provide information as needed; the next process is to provide

an assessment of the respondent's work on his duties with the respondent himself; The next step is to prepare the respondent's needs to continue the next textbook. In addition, respondents are required to be more critical in finding a solution to the various questions presented. Learning with this textbook is able to make its use to be active in learning. The results of this research are in line with the results of research by Norlidah (2012) which shows that learning using textbooks is effective for visual, active and reflective learning styles. In addition, learning using textbooks makes students more independent, this is in line with research by Khalid et al (2012) which states that there is a difference between constructivist learning with textbook-assisted and not using textbooks.

The use of textbooks in constructivist learning is more feasible in realizing innovation and creativity in students this is because it focuses on the individual abilities of students, because in essence they have the ability to work alone and are more responsible for their actions. Learning by using textbooks makes students able to measure their own abilities and can improve their own abilities without having to feel pressured. Textbooks are very helpful in the effectiveness of the learning process and conveying messages, as well as the content of learning materials. Development of system learning models. Textbooks in mathematics have been proven to increase students' learning competence and motivate students to learn independently. According to User (2006) Learning is the process of changing behavior in individuals due to the interaction between individuals and individuals with their environment. While the notion of learning according to Slameto (2009) Learning is a business process carried out by a person to obtain a new behavior change as a whole, as a result of his own experience in interaction with the environment. From the above understanding it can be concluded that the notion of learning is a process of behavior change in the individual which appears in changes in attitudes, understanding, skills and individual knowledge in the teaching and learning process. According to Hamalik (2006) teaching is conveying knowledge, passing on culture and providing learning guidance to students so that they can help students in dealing with everyday people's lives.

Teaching materials have a very important role in learning activities. According to the Ministry of National Education (2008) teaching materials are materials or learning materials that are systematically arranged that are used by educators and students in teaching and learning activities. Through teaching materials, educators will be easier to teach and students will be more assisted in learning. Teaching materials are materials or subject matter systematically arranged that are used by educators and students in the learning process. Muhaimin in the Teaching Materials Development Insights textbook revealed that teaching materials are all forms of materials used to assist educators/instructors in carrying out learning activities. Teaching materials have a strategic function for the teaching and learning process. It can help educators and students in learning activities, so that educators do not present too much material. In addition, teaching materials can partially replace the role of educators and support individual learning. This will have a positive impact on educators, because some of their time can be devoted to guiding student learning. The positive impact for students, can reduce dependence on educators and get used to independent learning. It also supports the principle of lifelong education. The material in question can be in the form of written or unwritten material. Teaching materials or curriculum materials (curriculum material) are curriculum content or content that must be understood by students in an effort to achieve curriculum goals. Teaching materials or learning materials (instructional materials) broadly consist of knowledge, skills, and attitudes that students must learn in order to achieve predetermined competency standards.

Teaching materials are usually equipped with a variety of illustrations. Illustrations play an important role in teaching materials, because they can clarify concepts, messages, ideas, or ideas conveyed in teaching materials. In addition, attractive illustrations plus the right layout can make teaching materials interesting to learn. In detail, the types of learning materials consist of knowledge (facts, concepts, principles, procedures), skills, and attitudes or values that students must learn in order to achieve predetermined competency standards. Curriculum materials or materials can be sourced from various disciplines, both social sciences and natural sciences. Furthermore, what needs to be considered is how the scope and breadth and depth of the material or content in each field of study are. Teaching materials are different from textbooks. Good teaching materials are designed according to instructional principles. Educators can write their own teaching materials that they want to use in teaching and learning activities.

However, educators can also take advantage of textbooks or other materials and information that are already on the market to be repackaged or arranged in such a way that they can be used as teaching materials. Teaching materials are usually equipped with guidelines for students and educators. Guidelines are useful to make it easier for students and educators to use teaching materials.

The main components of teaching materials are: a) material review, b) introduction to each chapter, c) closing of each chapter, d) bibliography, and e) list. Each component has sub-components that integrate with each other. The composition of the components and sub-components of teaching materials is the same as the learning strategies commonly used by educators in teaching and learning activities. In addition, besides the components of teaching materials and illustrations, good and interesting teaching materials require writing that uses effective written expressions. Good written expression will be able to communicate messages, ideas, ideas, or concepts conveyed in teaching materials to readers/users properly and correctly. Written expressions can also avoid misinterpretation or understanding. According to the Ministry of National Education teaching material development guide (2008), it is stated that teaching materials function as: a guide for educators who will direct all their activities in the learning process, as well as a substance of competence that should be taught to students; Guidelines for students who will direct all their activities in the learning process, as well as a substance of competence that should be studied/mastered; Evaluation tool for achievement/mastery of learning outcomes. Thus, the function of teaching materials will be closely related to the ability of educators to make decisions related to planning (planning), learning activities and implementation (implementing), and assessment (assessing).

Teaching materials are arranged with the aim of: 1) Helping students in learning something. 2) Provide various types of choice of teaching materials. 3) Facilitate educators in carrying out learning. 4) To make learning activities interesting. Thus, the role of teaching materials includes: 1. Reflecting a sharp and innovative point of view on teaching and demonstrating its application in the teaching materials presented. 2. Presenting a source of subject matter that is rich, easy to read and varied, according to the interests and needs of the students. Provide a resource that is neatly arranged and gradual. 4. Presenting teaching methods and tools to motivate students. 5. Be a support for practical exercises and assignments. 6. Presenting appropriate and effective evaluation and remedial materials/means. Teaching materials, if grouped according to type, there are 4 types, namely printed materials such as handouts, textbooks, books, student worksheets, brochures, photos/pictures and models. Hearing teaching materials such as cassettes, radios, LPs and audio compact discs. Viewing teaching materials such as video compact disks and films. Interactive teaching materials such as interactive compact disks.

IV. CONCLUSION

Textbooks are considered one of the effective and efficient teaching materials. Based on the results of the different independent T test, the results showed that there were convincing differences in learning outcomes before and after using the PBL-based cost accounting textbook. Textbook-assisted learning is an effort to organize individual learning that allows students to master one unit of lesson material. To improve the quality of textbooks, it is necessary to develop an electronic textbook. Development of ICT-based textbooks can use the Adobe Flash CS5 program. Through the Adobe Flash CS 5 program, it has the advantage of being easy to control access to learning pages, besides that electronic textbooks can display animation, text, images and videos that cannot be done through paper-based textbooks.

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