

# Effect of Project-Based Learning Model on Student's Performance at Accounting Information System Course

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## ABSTRACT

Project-based learning (PjBL) is a learning model that uses projects as a learning process to achieve attitude, knowledge, and skill competencies. The study aims to obtain information about how students can improve their learning outcomes in the Accounting Information System course by using the Project-Based Learning Model. The object of the study was the 5th-semester students of the Universitas Andalas, Accounting Study Program that took the Accounting Information Systems Course. This type of research is classroom action research (Classroom Action Research), with the research subject being the 5th-semester students, totaling 36 people. The research data were collected using observations, field notes, learning outcomes test sheets, and cycles I and II documentation. The data obtained were analyzed using percentage analysis. The research results related to learning outcomes indicate that the Project-Based Learning Model can improve student performance. In addition, according to the students, Project-based learning can increase their attitude and characters and their knowledge better than traditional teaching and learning methods. The study results can design a course model in other courses where students are encouraged to find a real-life problem and ask them to solve the problem. Learning by doing can boost their motivation to learn more and more. The findings can enrich theory related to teaching and learning methods and assessment.

**Keywords:** *Learning Methods and Assessment, Attitude and Characters, Accounting Information Systems, Project-Based Learning, Student's Performance.*

## 1. INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, the nation's community, and the state (UU Law No. number 20 of 2003 article 1). Education is an effort to guide children from birth to physical and spiritual maturity in the interaction of nature and their environment [1]. Education is defined as guidance carried out by adults to children to provide teaching, moral improvement, and academic training [2]. This is in line with the aim of education to develop the potential of students to become human beings who have faith and fear God Almighty.

The Economics Study Program seeks to improve and develop themselves as prospective accountants to always follow the development of science and technology. This is reinforced by preparing competent student resources in their field. One of the courses that accounting students must complete is Accounting Information System (AIS).

An Accounting Information System (AIS) is designed to collect and display accounting information so that accountants and company executives can make informed decisions. The purpose of the SIA course is to provide students with an understanding of the various cycles that exist in the company,

The problems students often face when learning accounting information systems are lack of understanding of learning materials, lack of focus in learning, and lack of motivation to learn. In addition, educators also rarely use activities to find and prove their concepts in education and have not varied learning models according to the material being taught. So that these problems cause low learning outcomes obtained by students, this can be proven by student learning outcomes. Five students get a D value, and nine people get an E score from the results obtained.

Researchers have made several attempts to overcome these problems, including by conducting learning using a discussion model that actively involves students in providing responses and daring to express their ideas. However, in reality, not all

students are active. The efforts that have been made have not achieved satisfactory results. Student learning outcomes in participating in the learning process are still low, and most students still have D grades. Researchers suspect that one of the causes of the common learning outcomes of SIA students is that the learning model applied so far has not been so varied and does not follow the characteristics of students in Accounting Information Systems class.

If this is not resolved, it can lower student learning outcomes. For this reason, researchers apply a learning model that can lead students to find their learning concepts, namely the Project Based Learning (PjBL) learning model. Project-based learning (Project-based learning) is a learning model that uses projects as a learning process to achieve attitude, knowledge, and skill competencies. The emphasis on this learning lies in activities to produce products. In project-based learning, students are expected to produce [3].

The project-Based Learning learning model is a learning model that provides opportunities for educators to manage to learn in the classroom by involving project work [4]. Project work is a form of work that contains complex tasks based on very challenging questions and problems. It guides students to design, solve problems, make decisions, carry out investigative activities, and provide opportunities for students to work independently. The advantages of the learning model *Project Based Learning* can be increasing motivation, increasing problem-solving skills, increasing collaboration, improving resource management skills, and Increasing resource– management skills [4].

Based on the problems that have been described, researchers want to improve learning by conducting Classroom Action Research (CAR). It is hoped that the application of the Project-Based Learning model can improve student learning outcomes in the Management Information System course. Hence, the title for this research is "Improving Learning Outcomes Students with the Project-Based Learning (Pjbl) Model in the Accounting Information System Course.

## 2. THEORETICAL REVIEW

Learning is a relatively permanent behavior resulting from experience or purposeful or planned learning. A person's experience is obtained through interaction with the environment, both planned and unplanned, to produce relatively permanent changes [5]. Learning can be defined as an effort process that individuals consciously carry out to obtain specific behavioral changes, both observed directly and which cannot be observed directly as an experience (exercise) in their interaction with the environment [6]. In addition, the learning objectives are several learning outcomes that show that students have carried out learning actions which generally include knowledge, skills [7].

Learning outcomes are the perfection of the results achieved from an activity/deed or effort that can provide emotional satisfaction and be measured with certain tools or tests. Gunawan also states that learning outcomes are abilities possessed by students after students receive their learning experiences [8]. Learning outcomes have an essential role in the learning process in schools. The learning model is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve learning objectives [5]. According to Arends [9], the learning model is a plan or a pattern that is used as a guide in planning learning in class or learning in tutorials.

Project-based learning is giving assignments to all students to be done individually. Students are required to observe, read, and research; then, they are asked to make reports of the assignments in papers [10]. This method aims to form an analysis of each student. Meanwhile, Johnson states that the PjLB learning steps are as follows [11]. First, arrange, which includes; determining learning objectives, deciding on the project to be worked on, and managing the project implementation time as well as possible. Second, begin is to start working on the project. Third, change, namely making the necessary changes to improve the project being worked on. Fourth, a demonstration shows what has been achieved through a presentation.

## 3. RESEARCH METHODOLOGY

The type of research conducted is classroom action research (*classroom action research*), namely reflective research by the behavior of actions taken by educators themselves to improve the learning process for which they are responsible. Colleagues who assisted this research called observers of back-to-back activities during the teaching and learning process. Classroom action research consists of four series of activities carried out in a repeating cycle as formulated by Kemis and Tanggart [12], namely, planning, implementation, action, and observation.

This research was conducted in Andalas University Accounting Study Program in Limau Manis, Pauh District, Padang City, West Sumatra. The subjects of this study were 36 students of the Accounting Information Systems class. This research was conducted in semester 5 of the 2020/2021 academic year. This study consisted of two cycles, with each cycle consisting of 2 meetings. Each cycle consists of four stages of research, namely planning, implementing actions, observing, and reflecting. To obtain research data using four instruments: observation, filling out questionnaires or tests, interviews, and documentation. The data were analyzed using the percentage and reduction formulas.

**4. RESEARCH RESULTS AND DISCUSSION**

**4.1 Pre-cycle Description (Before Classroom Action Research)**

Before applying the model *Project Based Learning* in Accounting Information Systems, usually, educators and students use the discussion model with the hope that students tend to be more active than educators. However, this way of teaching makes students feel bored quickly; as a result, in the class, many students are sleepy, playing on cellphones, telling stories with friends, and so on. As a result, student learning outcomes are not satisfactory. This is evidenced by the results of the pretest study carried out. Five students get a D value, and nine people get an E score from the results obtained. Therefore, the researcher tries to conduct classroom action research to improve the quality of lectures by carrying out courses on Accounting Information Systems learning planning through Project-Based Learning.

**4.2 Action Implementation Cycle I**

Executing actions on the cycle, I applied four research procedures: planning, implementation, observation, and reflection.

1. Action Planning. In this action plan, the researcher prepares a research schedule, makes Semester Lecture Plans (RPS), Lecture Program Units (SAP), lecture contracts, prepares materials to be carried out during the research to find out the essential competencies that will be conveyed to students in learning, prepares the format learning observations, and crafting questions as tests that will be given at the end of the cycle.
2. Implementation of Actions I. The performance of the action was carried out in 2 meetings (2 x 150 minutes) using the Project-Based Learning model. Activities at the 1st meeting are learning contracts and learning materials. While the 2nd meeting was still discussing theoretical material about learning Accounting Information Systems, at the end of the lesson, a posttest was given to determine the extent of the ability to understand the material.
3. Observation. At this stage, the results of the first cycle of learning that have been implemented are seen. The PjBL model implemented has not been effective, so some students are still not active in the learning process. This situation can be proven from the following data.

**Table 1  
Cycle I . Learning Outcomes Data**

Number	Score	Result Value Learning Cycle I	Percentage
1	A	2	5,56%
2	A-	4	11,11%

3	B+	11	30,56%
4	B	5	13,89%
5	B-	12	33,33%
6	C+	1	2,78%
7	C	1	2,78%
8	C-	2	5,56%
9	D	-	-
10	E	-	-
<b>Amount</b>		36	100%

Based on table 1 on individual student learning outcomes in the first cycle, out of 36 students only 8 (5,56%) people got an A-, 2 (11,11%) got a B+, 11 (30,56), got a B, 5 (13,58%) got a B-, 12 (33,33%), people got a C+, 1 (2,78%), got C, 1 (2,78%), and got a C-, 2 (5,56%). The results show that learning outcomes in the first cycle have increased from the previous pretest score. But not yet significant.

4. Reflection. From the observer's observations in the first cycle in the teaching and learning process, the following can be seen. First, learning cannot begin if students are not ready to learn. This is due to obstacles, namely, at the first meeting, the researcher has not been able to adapt and has not maximally mastered the atmosphere in the classroom. At the second meeting, the teacher-researchers could adjust, but still not optimally. Second, students are not too active in the learning process, causing passive learning. Third, students still do not understand the material being taught.

Based on the observations made by the observer, the researchers made several improvements, namely: maximize to master in class, give rewards to students who actively ask questions, and give consecutive questions to students so that they better understand the material that has been explained. Thus, researchers need to continue research in cycle II.

**4.3 Action Implementation Cycle II**

Execution of actions on Cycle II also carried out four research procedures, namely planning, implementation, observation, and reflection.

1. Action Planning. Initial preparations carried out in the second cycle are: making the Lecture Program Unit (SAP); preparing the required teaching materials using the Project-Based Learning model; preparing the learning observation format; making questions as tests that will be given at the end of the second cycle of learning; making learning evaluations, and preparing rewards for students who are active in learning.
2. Action Implementation. The action in cycle II was carried out for two weeks (2 x 150 minutes) using the Project-Based Learning model. Activities at the 1st meeting, namely providing learning materials. While the 2nd meeting was still discussing theoretical material about

learning Accounting Information Systems, a test was given to determine the extent of the ability to understand the material at the end of the lesson.

3. Observation. At this stage, the results of the second cycle of learning that have been carried out are seen. The PjBL model that has been implemented was adequate so that students already understand the material that has been explained, as seen in Table 2.

**Table 2**  
**Cycle II Learning Outcomes Data**

Number	Score	Result Value Learning Cycle II	Percentage
1	A	7	19%
2	A-	2	6%
3	B+	15	42%
4	B	12	33%
5	B-	-	-
6	C+	-	-
7	C	-	-
8	C-	-	-
9	D	-	-
10	E	-	-
<b>Amount</b>		36	100%

Based on table 2 regarding individual student learning outcomes in the second cycle, of 36 students, 7 (19%) people have obtained an A, 2 (6%) have received an A-, 15 (42%) have received a B+, 12 (33%) people get a B grade. From the results obtained, learning outcomes in cycle II have increased significantly compared to the value of learning outcomes in cycle I.

4. Reflection. The following are the observations from the observer on the learning process using the Project-Based Learning model in Cycle II. First, students are active and enthusiastic in the learning process. Second, the researcher motivates students to be more involved in asking questions, answering questions, expressing opinions and expressing ideas, and responding to their friends' opinions. It has been proven by the learning outcomes in cycle II, which have increased significantly. All students are declared to have completed the Accounting Information System course. Therefore, it is sufficient for the research to be carried out until the second cycle.

**4.4 Students' Opinion on Their Attitude and Character**

At the end of the semester, students were asked about their opinion related to the effect of the Project-Based Learning Model on their attitude and character. They were given questions and asked to rate their answer using a five Likert scale. Table 3 shows students explanation about their experience in class toward the model.

**Table 3**  
**Students' opinion on their Attitude and Character**

No.	ATTITUDE AND CHARACTER INDICATORS	Average results
1	Curiosity increase	4,42
2	Learn Confidence	4,35
3	Learning Responsibility	4,49
4	Learn Discipline	4,47
5	Increase Accuracy	4,45
6	Increase Sense of Cooperation	4,45
7	Learn to Listen to Explanations	4,33
8	Increased Asking Initiative	4,15
9	Answering Questions Clearly	4,27
10	Responding to Problems	4,29
Average Score		4,367

As seen in Table 3, on average, 4.367 out of 5. Students show their enthusiasm in learning Accounting Information Systems by using the Problem-based Learnings Model. Students feel that using the Project-based learning method increases their attitude, especially in learning how to be a responsible person.

They also feel better in discipline, increase their accuracy and sense of corporation, raise curiosity, increase their confidentiality, learn to listen to others, respond to problems, and answer questions. In general, we can see that students feel happy if they can solve problems during study.

**4.5 Students' Opinion on Knowledge Increased.**

Based on the questionnaire students gave, they were asked about knowledge increased after studying Accounting Information Systems using project-based learning. Table 4 shows the results.

**Table 4**  
**Students' Opinion on Knowledge Increased**

No.	Questions	Average results
1	Increased ability to understand the given task	4,45
2	Understand the importance of argument in completing assignments	4,44
3	Learning to compose a complete report	4,47
4	Learning to write essays according to standards	4,45
5	Learning to make reports that are easy to understand	4,44
6	Learning the importance of the need for accurate data	4,53
7	Learning about the importance of adequate data	4,47
8	Learning about the importance of proper data	4,33
9	Can improve the ability to solve problems	4,42
10	Can increase collaboration among students	4,45
11	Can improve student skills to manage learning resources obtained	4,40
12	Can provide an experience for students to organize a project.	4,38
13	Able to encourage students to improve or develop and practice communication skills	4,40
14	Able to make students more active and successful in solving complex problems	4,35
15	Able to encourage students' ability to carry out an activity or work that is important and very valuable	4,31
16	Can encourage students to think more creatively in learning	4,38
17	Encouraging students to create a fun learning environment	4,35
18	Encouraging students to create a fun learning environment	4,31
19	Project-based learning methods make it easier for students to understand the Accounting Process	4,38
20	Project-based learning methods make it easier for students to understand Internal Control	4,40
21	Project-based learning methods make it easier for students to understand how to create data flow diagrams, document flow diagrams, and business process diagrams	4,33
22	Project-based learning methods make students able to design a good Accounting Information System for a company	4,29
	Average Score	4,397

It can be seen from Table 4 that through Project-based learning, they can learn the importance of the need for accurate data. They also learned to compose a complete report; learn about the importance of

adequate data; learn to write essays according to standards; increase collaboration among students. Besides, they can improve their ability to understand the given task, understand the importance of argument in completing assignments, and learn how to make reports that are easy to understand.

In addition to that, they can improve the ability to solve problems; can improve student skills to manage learning resources obtained; Able to encourage students to improve or develop and practice communication skills; Project-based learning methods make it easier for students to understand Internal Control; Can provide an experience for students to organize a project; Can encourage students to think more creatively in learning; make it easier for students to understand the Accounting Process; Able to make students more active and successful in solving complex problems; Encouraging students to create a fun learning environment; Learning about the importance of adequate data; Project-based learning methods make it easier for students to understand how to create data flow diagrams, document flow diagrams and business process diagrams; Able to encourage students' ability to carry out an activity or work that is important and very valuable; Encouraging students to create a fun learning environment; and make students able to design a good Accounting Information System for a company.

The learning model and the ability of educators are important factors that support the success of educators in carrying out the teaching and learning process. By applying various learning models, student learning activities are expected to be more effective and improve learning outcomes. Therefore, a good learning model is a learning model that can foster student learning activities and use a variety of models. This research indicates that the Project-Based Learning model positively impacts improving student learning outcomes. This can be seen from students' understanding and mastery of the material that has been delivered by educators during the learning process so that student learning outcomes also increase.

Some learning is said to be successful if there is a change in the ability and behavior of students in a positive direction from not knowing to know from not understanding to understanding. Nasution explains that learning success is a change that occurs in individuals who learn, not only changes in knowledge, but also knowledge to form skills, habits, attitudes, understanding, mastery, and appreciation in individuals who learn [13]. Meanwhile, [14] says that learning outcomes are changes in students' abilities and behavior as a whole such as changes in attitudes, appreciation, actions, changes in behavior from not knowing to knowing, from not understanding to understanding.

Based on research conducted from cycle I and cycle II, it turns out that the Project-Based Learning

learning model has been able to improve student learning outcomes in the Management Information System course. This can be seen in the increase in student scores before applying the Project-Based Learning model and after applying the Project-Based Learning model as shown in cycle I and cycle II (as shown in tables 1 and 2). In cycle II, student learning outcomes have been classically good because the lowest score obtained by students is B.

## 5. CONCLUSIONS AND SUGGESTIONS

Based on the results of learning activities, discussions, and analyses carried out for two cycles, it can be concluded that learning with the Project-Based Learning model can improve student learning outcomes in the Accounting Information System course. This is indicated by an increase in student learning outcomes in each cycle. It is hoped that the learning process will be more effective and provide optimal results for students, so implementing the Project-Based Learning model requires special abilities of educators so that students better understand the material being taught. It is also hoped that other researchers will re-examine the Project-Based Learning model in other courses.

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