

The Implementation Of *PAIKEM* Based On Project-Based Learning And Cooperative Learning

Indrayati

Management Accounting Program, Accounting Department, Politeknik Negeri Malang, Indonesia
Corresponding Author: Indrayati

ABSTRACT: The learning of Management Accounting in Politeknik Negeri Malang (Polinema) or State Polytechnic of Malang still cannot deliver results that match the needs of the world within cognitive, psychomotor, and affective aspects. Therefore, in the upcoming year, researchers developed a new method which is called as *PAIKEM* (*Pembelajaran aktif, inovatif, kreatif, efektif serta menyenangkan*), meaning innovative, creative, effective, and fun learning based on project-based learning (PBL) and cooperative learning. The purpose of this study is to develop and apply *PAIKEM* method with PBL and cooperative learning so that the Accounting Department in Polinema can produce such high-quality human resources who are able to compete in global or international markets. The research method used is applied qualitative with classroom action research. The researcher identifies the problems that occur in the classroom, checks the field, and then plots the problem-solving plan, as well as implements the collaborative learning methods. The arisen problems will be analyzed and solved by student's skills which are based on existing theory. The results of this research show that the students become more competent in understanding and applying theory into the real world and able to solve the existed problems. This also resulted in the formation of a new learning prototype such as *PAIKEM* with PBL and cooperative learning, RPS, syllabus, teaching materials, and practice questions in websites and multimedia platforms.

Keywords: Project-based learning, cooperative learning, student achievement, performance courses.

Date of Submission: 10 -07-2017

Date of acceptance: 20-07-2017

I. INTRODUCTION

Politeknik Negeri Malang (State Polytechnic of Malang, hence called as "Polinema") is a college with vocational education background that prioritizes the advancement of capabilities application (skills) of the students to become a professional in implementing, developing, and disseminating science and technology in the community. Accounting program is one of the majors in Polinema aimed to produce alumni who are ready to work, skilled in accounting, and able to compete in the global market in accordance with its vision-mission.

In order to improve the quality of teaching, the availability of high and adequate human resources is necessary to compete in national and international global market--this should be continuously arranged to deliver high performance.

The assessment of the education quality is firstly seen in the development of basic attitudes such as a scientific-academic critical behavior and the willingness to always seek the truth (Yumarma, 2006). Therefore, the concept of education is not only focused to the examination that merely measures knowledge transfer (cognitive) but broadly to the formation of skills (psychomotor) and basic attitudes (affective) such as criticality, creativity, as well as an openness to such innovations and other various inventions. Those are necessary for students to survive and answer the evolving challenges. In this case, educators are required not just as a transfer of knowledge but as an enlightenment agent. The idealism of educators, to borrow Socrates's term is ethics, a field that helps students to produce innovation and science.

HELTS 2003-2010 that was issued by the Directorate of Higher Education in April 2003 gave a mandate that one of which was the application of Student-Centered Learning (SCL) principles in the learning process. There are a variety of learning methods in Student-Centered Learning (SCL) including the Case-Based Learning, Cooperative Learning and Project Based Learning, as well as Problem-Based Learning.

Today, the practice of the learning process is largely a lecture (lecturing). In the class, students only limited to understand and make notes, even sometimes they feel sleepy. Lecturers become the center in the achievement of learning outcomes (teacher-centered learning) and seemed to be the only source of knowledge.

The pattern of active lecturers and passive students has a low learning effectiveness. The effectiveness is generally limited in which it happens in the final moments approaching the exam. We assume that the current

learning is only focused on material understanding. From the applied method, students do not have the picture of the materials that will be applied in the business world. Therefore, the current learning method has not been able to improve student's analysis skills, problem sensitivity, problem-solving, and holistic problem evaluation.

In the previous application of Management Accounting study program, students still have low abilities or skills in which it is proved from the students' score as shown in Table 1 below.

Table 1. The percentage of students' ability in Management Accounting in 2016

Total students: 300

Final Grade	Management Accounting Course
A	40%
B+	15%
B	10%
C+	20%
C	10%
D	5%

It appears that the traditional learning method of Management Accounting has the highest score of A as much as 40% of the students, B+ as much as 15%, B as much as 10%, C+ as much as 20%, C as much as 10%, and, the lowest, D as much as 5%. For the upcoming years, the lecturers have the policy to increase the value of this learning with B as the minimum and A as the maximum in semester 2017. By that, according to HELTS, the new learning strategy will be based on the application of student-centered teaching and learn principles with the implementation of project-based learning and cooperative learning for Management Accounting to improve students' competence or ability.

II. LITERATURE REVIEW

2.1 PAIKEM Teaching Approach

According to Ahmadi (2011: 30), PAIKEM is an active, innovative, creative, effective, and fun learning. Syah and Kariadinata (2009: 1) said that PAIKEM stands for *Aktif, Inovatif, Kreatif, Efektif, dan Menyenangkan* (Active, Innovative, Creative, Effective, and Fun Learning).

Furthermore, PAIKEM can be defined as an approach to teaching that is used together with certain methods and various aids and environmental regulations so that the learning process will be active, innovative, creative, effective, and fun. The purpose of each word in PAIKEM according to Suparlan *et al.* (2008: 70) are: 1) Active (*Aktif*) means that in the process of learning, lecturers must create atmosphere in such a way that students will actively ask questions, deliver ideas, and solve problems, 2) Innovative (*Inovatif*) means that lecturers have to create new learning conditions and activities according to the demands and development of education such as the use of project-based learning, cooperative learning, and case-based learning. 3). Creative (*Kreatif*) means that teachers should create a diverse learning activity that meets various levels of students' ability or creativity in problem-solving. 4). Effective (*Efektif*) is to produce what should be mastered by the students which are to achieve the goals or competencies. 5). Fun (*Menyenangkan*) means that lecturers should be able to create a fun learning environment so that students will focus and have a fast learning process with the provision of teaching aids and materials (handouts) and the use of multimedia and website. Tarmizi (2009) explained that PAIKEM stands for *Aktif, Inovatif, Kreatif, Efektif, dan Menyenangkan* (Active, Innovative, Creative, Effective, and Fun Learning). Active means that, in the learning process, lecturers should create an atmosphere in such a way that students become active to ask, speak-up the ideas, and solve the problem. Innovative learning can adapt from fun learning models that are based on projects, cooperatives, cases, tasks, and the use of multimedia and visual aids.

PAIKEM method is one of the ideal learning models. This helps students to get their own ideas in the learning process that goes with the approach of the environment. The positive impact of PAIKEM model is that students can be encouraged by their curiosity in the environment. If we contemplate the four pillars of education which are learning to how, learning to be, learning to do, and learning to live together.

The differences between teaching methods based on Teacher-Centered Learning and Student-Centered Learning are presented in Table 2.

Table 2. The differences between Teacher-Centered Learning and Student-Centered Learning

	Teacher Centered Learning	Student-Centered Learning
A	The knowledge is transferred from lecturer to student.	Students actively develop the knowledge and skills they learn.
B	Students receive passive knowledge.	Students are actively involved in managing the knowledge.
C	Emphasize more on the mastery of	Not only emphasize the mastery of the material but also in

	the material.	developing the character of students.
D	Utilize a single medium.	Utilize many media (multimedia).
E	Lecturer acts as main informant and evaluator.	Lecturer acts as a facilitator with the evaluation that is done together with the student.
F	The learning process and assessment are done separately.	The learning process and assessment are conducted continuously and are integrated.
G	Emphasize the correct answer only.	Emphasize the knowledge development process. Errors can be one source of learning.
H	Suitable to develop science in one discipline only.	Suitable for the development of science by an interdisciplinary approach.
I	Climate learning is more individualistic and competitive.	The developed climate is more collaborative, supportive, and cooperative.
J	Students are the only party that is considered to do the learning process.	Students and lecturers learn together in developing knowledge, concepts and, skills.
K	Lectures are the biggest part of the learning process.	Students can learn not only from lectures but can use different ways and activities.
L	Emphasize on the completion of learning materials.	Emphasize on the achievement of competence and not the completion of the material.
M	Emphasize on how lecturers do the learning process.	Emphasize on how students can use a variety of teaching materials, methods, and interdisciplinary as well as on problem-based learning and skill competency.

Source: Directorate of Higher Education, 2004.

To create an effective learning situation, Combs (1976) believed that it takes three characteristics such as 1). A conducive atmosphere to explore the meaning of learning. Participants have to feel safe and accepted. They want to understand the risks and benefits of acquiring new knowledge and understanding. The class should be conducive to engage, interact, and socialize with a businesslike approach. 2). The participants should always be given the opportunity to seek new information and experience. This opportunity is given to the students not only in the form of information reception but an encouragement to seek information. 3). New understanding must be obtained through a process of personal discovery. The method must be very individual and in accordance with the students' personality and learning styles. Some aspects that distinguish Cooperative-Based learning with traditional learning are described by Thomas, Mergendoller, and Michaelson (1999) as in this following Table 3.

Table 3. The Differences of Cooperative-Based learning and Traditional Learning

<i>Educational Aspects</i>	<i>Traditional Learning</i>	<i>Project and Cooperative Based Learning</i>
The focus of the curriculum	Contents	Gradual understanding
	Knowledge of facts	Mastery of concepts and principles
	Learn the "building-block" skills in isolation	Develop complex problem-solving skills
Scope and Order	Strictly follow the order of the curriculum	Following the learners' interest
	Walk from block to block or unit to unit	Large units are formed from complex problems and issues
	Centered, discipline-based focus	Expanding, interdisciplinary focus
The role of teacher/lecturer	Lecturer and director of learning	Provider of learning resources and participants in learning activities
	As an expert	As a supervisor/partner
The focus of assessment	Product	Process and product
	Test score	Real achievement
	Comparing with others	Standard performance and progress over time
	Reproduction of information	Demonstration of understanding
Learning Materials	Text, lecture, and presentation	Direct original sources: printed

		materials, interviews, documents, etc
	Activity and exercise sheet developed by teacher	Data and materials developed by learners
Use of technology	Advocates, peripherals	Main, integral
	Executed by teachers/lecturers	Directed by teachers/lecturers
	For teacher presentation expansion	To expand the presentation of learners or strengthen the ability of learners
Class context	Students work alone	Students work in groups
	Compete with each other	Collaborative with each other
	Students receive information from teachers	Students construct, contribute, and synthesize information
Students role	Running teacher commands	Conducting self-directed learning activities
	Reminders and repeaters of facts	Assessors, integrators, and presenters of ideas
	Students receive and complete short report tasks	Students define their own duties and work independently in a big time
Short-term goals	Knowledge of facts, terms, and contents	Comprehensive understanding and application of ideas and processes
Long-term goals	Extensive knowledge	Intensive knowledge
	Graduates who are successful on standardized achievement tests	Skilled graduates who develop independently, self-sufficient, and learn continuously.

2.2 The Advantages of Cooperative Learning

Moursund, Bielefeldt, and Underwood (1997) examined a number of articles on classroom projects that can be considered as testimonials to teachers, especially how teachers use projects and the perceptions of how successful they are. The profit attributes of Project Based Learning are as follows:

- [1] *Increasing motivation.* Written reports about the project say that students like to persevere to the extent of the deadline; they try hard in achieving the project. Teachers also reported that there was a development in attendance and reduced delays. The students said that learning in projects was more fun than other curriculum components.
- [2] *Enhancing problem-solving skills.* Research on the development of high cognitive skills emphasizes that students need to be involved in problem-solving tasks and in specialized learning to find and solve problems. Many sources describe that a project-based learning environment makes students be more active and able to solve complex problems.
- [3] *Increasing the collaborative skills.* The importance of group work in projects requires students to develop and practice their communication skills (Johnson & Johnson, 1989). Cooperative working groups, student evaluations, and online information exchange are the project collaborative aspects. New and constructivist cognitive theories assert that learning is a social phenomenon, students will learn more in a collaborative environment (Vygotsky, 1978; Davydov, 1995).
- [4] *Improving the skills to manage resources.* To be an independent student is to be responsible for completing such complex tasks. Project Learning is a well-implemented project that provides students to learn and practice a project organization. They also assigned to make time and other resources such as the equipment to complete tasks. When students work in teams, they discover the skills of planning, organizing, negotiating, and making consensus on the issues of the task, on who is responsible for each task, and on how the information will be collected and presented. The skills identified by these students are essential to their success and are important in their workplace later. It is noted that the nature of project work is collaborative so that the development of the skills takes place among students. In a group work, the individual strengths and learning styles are intended to reinforce the teamwork as a whole.

2.3 Cooperative Learning Model

The cooperative learning model is a series of learning activities conducted by students in certain groups to achieve the objectives of learning that have been formulated. There are three basic ways in which students can interact with each other: competitive, individualistic, and cooperative. Students can compete to see who is the best among them, can work individually to achieve goals without paying attention to other students, or can work together and give attention to each other.

Smith and MacGregor (1992) defined cooperative learning as “the most carefully structured end of the collaborative learning continuum” (Ravenscroft, 1995). Meanwhile, Johnson, Johnson, and Holubec (1994) described cooperative learning as “the instructional use of small groups so that students work together to maximize their own and each other’s learning” (Phipps *et al.*, 2001).

Various research on cooperative learning showed consistent results that a cooperative learning will improve achievement, more positive interpersonal relationships, and higher self-esteem than the competitive or individualistic model (Phipps *et al.*, 2001). The cooperative learning model is expected to be more productive than the competitive or individualistic model when the cooperative model is under certain conditions. This condition is a basic element of cooperative learning including the need for positive independence, face-to-face interaction, individual accountability, use of collaborative skills, and group processing.

The four important elements in cooperative learning are: (1) the presence of participants in the group, (2) the existence of group rules, (3) the existence of learning efforts of each group, and (4) the existence of goals to be achieved in the study group.

This learning is based on a small team grouping system which is between 2 to 4 people with different backgrounds of academic ability, gender, race, or ethnic (heterogeneous). Furthermore, the assessment system is performed on the group. Each group will receive rewards if the group shows the expected progress. The formation of this group aims to provide opportunities for all students to be actively involved in the process of thinking and learning activities.

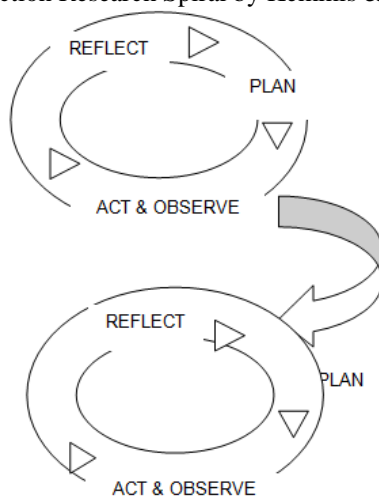
The learning objectives of this cooperative learning are to develop the following capabilities:

- [1] *Communication skills*. This skill is basically concerned with the ability to grasp the meaning of what is heard, read, seen, smelled, touched, or done and then explain and process it with our own interpretation so that it is understood by others.
- [2] *Initiative and creativity skills*. Essentially, this ability is a willingness or readiness ability; the courage to do something new in handling a job or to utilize resources and solve problems.
- [3] *Synergy or cooperation skills*. Synergy or cooperation is the spirit and willingness to work with others (in groups) in handling an activity that is consciously designed together to gain maximum benefits.

III. RESEARCH METHOD

One of the well-known Classroom Action Research definitions is the Lewin Model interpreted by Kemmis and Carr (2005). Both authors argued that Classroom Action Research is a reflective form of research conducted by actors in society and aimed to improve the work as well as to understand the work and situation--in which the work is done including the field of education. (Kemmis & Carr, 2005). Classroom Action Research is also described as a dynamic process in which all four aspects such as planning, action, observation, and reflection should be understood not as a measure of static resolved on its own but rather as moments in a spiral shape associated with planning, action, observation, and reflection.

Figure 1. The Action Research Spiral by Kemmis & Taggart, 1988



Classroom Action Research according to Moleong (2006) is a problem identification, problem discussion between researchers, library and problem review, problem redefinition, change and evaluation method selection, and change implementation. The subject of this research was 300 students on 4th semester of 2017/2018 who take the study program of Management Accounting in Polinema. The data was collected through interviews, observations, discussions, and triangulation. The procedures of the Classroom Action Plan are presented in the section below. The research began with 'pre-test' and after the research had ended, there will be 'post-test'. The procedures of this research implementation were based on (1) general idea that was to improve student ability to understand auditing in an integrated way, (2) reconnaissance I; the analysis of facts and findings, (3) general plan; to be implemented and monitored, (4) reflection or reconnaissance II that was made to see the failure and success of the proposed learning model (Kemmis in Elliot, 1991:70). The data collection procedures in this Classroom Action Research were by selecting partners for the research, preparing the research project, preparing the working hypothesis, conducting the research stages/cycles, making observations, making field notes, conducting discussions and post-cycle reflections.

On the other hand, the program evaluations planned in this study were "multiple strategies" in observing the developments as well as in assessing the products which were adjusted to the learning objectives. The results of the planned products were in the form of "students' performance", soft data from the project, and technological capabilities. By that, the implemented assessment strategies were; a) the final product including soft data and performance of each presentation, b) the process of working every task that was part of every project, c) the creativity development owned by every student, d) the way students solved the problems of each problem encountered, e) the completeness of each task, and f) the understanding of the task. Assessing the process means that the teacher or the researcher could not work alone, the involvement of students in analyzing and monitoring the resulted product in here is needed. Thus, the teacher who plays at the same time as a researcher has helped students in developing the patterns of thought and in creating creativity to complete the project.

In the management of this Management Accounting study program, the evaluation of the students was also done by the lecturer by using the method suggested by Michaelson (1998). He divided the assessment criteria into three areas of performance: 1) individual performance, 2) group performance and 3) individual contribution to the group (measured by using a form of peer evaluation). The composition of the value has been discussed with students at the beginning of the lecture within the sense that students determine the weight of each component but the limit of the weight is determined by the lecturer. The components of the process and the results of the assessment can be seen in Table 4 and 5.

Table 4. Conversion of Scores (Source: Handbook of State Polytechnic of Malang)

Interval of Scores	Value (in letters)
80 – 100	A
74 – 79	B+
65 – 73	B
60 – 65	C+
50 – 60	C
39 – 50	D
0 – 39	E

Table 5. The Component of Assessment Process and Student Learning Outcomes

Individual Performance		
Surprised/Pre-test	10.00%	
Task/Proposal resume	10.00%	
Total components of individual assessment		20.00%
Group Performance		
Group activity in class	15.00%	
Cases/projects and presentations	15.00%	
Total components of Group Assessment		30.00%
Group contributions (Peer evaluation)		10.00%
Midterm Examination		20.00%
Final Examination (post-test)		20.00%
TOTAL		100.00%

IV. RESULTS AND DISCUSSION

The results of this study are the formation of Competence in Management Accounting study program, the creation of Learning Development Plan, and the making of SILABI, Management Accounting instructional materials with power point and animation, and last but not least, the report of Management Accounting implementation to small, micro, and medium enterprises (MSMEs).

Table 6. The percentage of students' score in Management Accounting study program (2017)
Total students: 300

Score Ranking	Management Accounting Course
A	85%
B+	10%
B	5%
C+	5%
C	-
D	-

The response of the students to the new learning model of Management Accounting shows that 95% of them agree with the implementation of the project based learning model. This happens because this new learning model makes them active, innovative, creative, effective, and fun; this makes students have more competence and better understanding both in knowledge and skills. The rest of the 5% said that they are still happy with the traditional learning method. This research implemented a new teaching method in Management Accounting study program with the method of project-based learning and cooperative learning and the utilization of teaching materials, exercises, and props by using multimedia as well as students' projects or tasks to solve the problems of Management Accounting application in a company.

The problems are based on theories and concepts that have been taught or in accordance with the competency-based curriculum (KKNI) as well as the teaching materials that have been made by lecturers. This project will help companies in preparing cost reports, calculating the cost of sold goods, cost control, alternative decision-making or relevance cost analysis, activity cost analysis, departmental cost allocation, standard cost analysis, accounting accountability (process value analysis, activity performance measure, basic concept of balance scorecard), quality control and cost planning, environmental costs, performance evaluation, segment reporting, cost-volume-profit analysis, capital investment decisions, and financial statements as there are many MSMEs that do not have the records of financial transactions related to expenses incurred. This may also arise problems in decision-making related to the Management Accounting theory so that they are difficult in making financial reports and make decisions. Learning becomes easier, students are not bored, they have more understanding of the theory and then solve the existing problems so that cognitive, psychomotor, and affective aspects can be achieved. In Management Accounting study program, a new teaching method is implemented, namely, PAIKEM that is based on project based learning with the use of teaching materials and props along with multimedia or animated power point.

V. CONCLUSION

Based on the results of the study, it can be concluded that this study results in the following: (1) the establishment of curriculum-based competence (KKNI) through learning development plan and syllabus; (2) the formation of learning development plan in GBPP and SAP; (3) the creation of teaching materials and questions; (4) the provision of visual aids by using multimedia in the learning process; (5) the creation of new teaching methods such as project-based learning as well as cooperative learning and student-centered learning; (6) the survey shows that students are more pleased with the project based learning method; and (7) the value of the students becomes better than before.

REFERENCES

- [1]. Kamdi, W. 2010. Project Based Learning. *Unpublished Thesis*. Malang: Universitas Negeri Malang.
- [2]. Kemmis, S. & Carr, W. 2005. *Penelitian Tindakan Kelas*. Bandung.
- [3]. Kemmis, S. & McTaggart, R. 1999. *The Action Research Planner*. Victoria: Deakin University Press.
- [4]. Moleong, 2006. *Penelitian Tindakan Kelas*. Bandung.
- [5]. Smith, B.L. & MacGregor, J. 1992. *Collaborative Learning: A Sourcebook for Higher Education*. University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment (NTCLA): 9-22.
- [6]. Phipps, M., Phipps, C., Kask, S., and Higgins, S. 2001. University Students' Perceptions of Cooperative Learning: Implications for Administrators and Instructors. *Journal of Experiential Education*, 24: 14-21.

Indrayati. "The Implementation Of PAIKEM Based On Project-Based Learning And Cooperative Learning." *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)* 22.7 (2017): 37-43.