International Journal of Management and Administrative Sciences (IJMAS)
(ISSN: 2225-7225)
Vol. 3, No. 09, (48-56)
www.ijmas.org

ON TRANSFORMING MONOTONOUS CLASSES: IMPLEMENTING PROBLEM BASED LEARNING CONJOINED WITH COOPERATIVE LEARNING IN COLLEGE CLASSROOMS

Indrayati
Accounting Department, Politeknik Negeri Malang
Jawa Timur Province, Indonesia
indrayati@polinema.ac.id

ABSTRACT

Monotonous teaching and learning activities lead to students' low achievement and feelings toward the classes, as it has long happened in two accounting-based courses at Politeknik Negeri Malang, Indonesia. The present paper is to report the implementation of Problem Based Learning conjoined with Cooperative Learning in the two classes in order to increase the students' final grades and motivation. The method of the research is Classroom Action Research with qualitative data analysis and display. The results indicate that the students' grades increase significantly in both courses. The students also show happier feelings toward the classes. In conclusion, the implementation of Problem Based Learning conjoined with Cooperative Learning is proven to increase students' achievement and motivation.

Keywords:*problem based learning, cooperative learning, students' achievement, students' feelings*

1. INTRODUCTION

Politeknik Negeri Malang (POLINEMA) is an Indonesian college that puts priority in increasing the application capabilities (skills) of students in order to prepare them to become members of the community who have professional skills to implement, develop, and disseminate science and technology. Among the available programs under the campus, Accounting Programis aimedto produce graduates who are ready to work, skilled in accounting, and able to compete in global markets in accordance with the vision and missions of the program.

Evaluation on the quality of education products is first seen in the development of basic attitudes, such as critical academic stance and the willingness to continue scientific search for truth. Therefore, the concept of education is not only to the test knowledge transfer alone (cognitive), but,broadly speaking, to include the formation of skills (psychomotoric) and the basic attitude (affective), such as criticality, creativity and openness to innovation and various inventions. All is essential as learners are able to survive and meet the ever-evolving challenges. In this case, educators are required not only to transfer science, but also acts as an agent of enlightenment. The idealism of educators, to borrow a phrase by Socrates, is *eutika*, a field that helps learners make innovation and create knowledge.

The Higher Education Long-Term Strategy (HELTS) 2003-2010, issued in April 2010 by the Indonesia's Directorate General of Higher Education, mandates on the application of the principle of Student-Centered Learning (SCL) in the learning process. There are a variety of learning methods in the Student-Centered Learning (SCL), including the Case-Based Learning, Cooperative Learning, and Project Based Learning (PBL).

Nevertheless, the teaching and learning process at the campus, particularly in *Sistem Informasi Akuntansi* (Accounting Information System, hence called SIA) and Auditing courses, seems to be far away from the mandate. There, the lecturers mostly apply one teaching strategy in their daily teaching practice, that is, lecturing. At the time of attending or listening to the lectures, students simply take notes which makes them fall into boredom and sleepy feeling. In regard with this traditional method, the lecturersplay a central role in the achievement of learning outcomes, more closely-related to the teacher-centered learning, and seem to serve as the only source of knowledge.

It is widely acknowledged that the teaching strategy in which the lecturer plays active role, while students play only passive role, leads to low learning effectiveness. With the practice of this teaching strategy, the focus of the class will not go beyond the understanding of the delivered materials. In such class, students will not have much chance to apply the materials to the real world since the conventional strategy is impossible to hone students' skills in analyzing problems, understanding the problems well, drawing conclusion, and evaluating the problems holistically.

The disadvantages of the traditional teaching strategy practiced in the two courses are proven to be one of major cause of the students' low achievement. Table 1 displays the percentage of students who managed to achieve each final grade at the end of the course in 2014.

Table 1. Percentage of Students' Achievement in SIA and Auditing Course 2014

Total number of students: 300

Final Grade	SIA Course	Auditing Course
A	30%	25%
B+	15%	10%
B	5%	5%
C+	40%	25%
C	5%	20%
D	5%	15%

As seen from Table 1, there are 5% of students in SIA Course and 15% of students in Auditing Course who were unable to pass the courses due to the campus's policy not to pass those who score below C. On the other hand, the lecturers have reached a concensus that bigger number of students have to achieve the best grade, i.e. A, in the two courses by the end of the semester of 2015 academic year.

Therefore, as mandated by the HELTS, a new teaching strategy on the basis of student-centered teaching and learning principle is to be implemented. The aim of this study is to investigate the implementation of Problem

Based Learning (PBL) conjoined with Cooperative Learning principles in the two courses in order to increase the students' achievement.

2. LITERATURE REVIEW

Project Based Learning

Project Based Learning (PBL) is an approach or strategy of learning designed to bring students of higher education closer to the world of work with the project to make a report on the observation of the world of business and industry as one of the tasks of the implementation of this approach. Project Based Learning will be effective if supported by technology, such as multimedia and props. Both are intended to improve the quality of project results from the implementation of Project Based Learning.

The results obtained from the implementation of Project Based Learning are not only in the form of a written report (text) but also through the presentation with multimedia that can be displayed through a combination of graphics, photos, slides, tape, animation, video, and audio and props or often referered as e-learning. This presentation can be displayed via the personally-designed website, computer presentation, or video program (San Mateo County Office of Education, 2001). With the strategy, learning skills of students is expected to increase and according to the specifications required by the labor market in relevant job areas. Some of the aspects that distinguish Project Based Learning with traditional learning, according to Thomas et al. (2004) are presented in Table 2.

Table 2. Differences between Project Based Learning and Traditional Learning

EDUCATION ASPECT	TRADITIONAL LEARNING	PROJECT BASED LEARNING
Curriculum	Content	Comprehension
	Knowledge about facts	Understanding of concepts and principles
	Learn "building-block" in isolation	Developing skills on complex problem solving
Scope and Stage	Follow the curriculum strictly	Follow learners' interest
	From block to block or unit to unit	Larger units are formed from complex issues and problems
	Centered, based on discipline	Diverged, interdisciplinary
Role of lectures	Lecturing	Provide source of learning materials and participant in learning
	The master	As partner
Assessment	Product	Process and product
	Score from tests	Real achievement
	Comparing one another	Standard performance and development from time to time
	Reproduction of information	Demonstration of understanding
Learning Materials	Text, lecturing, presentation	Authentic sources, textbooks, interview, documents, etc.
	Activities and worksheet developed by teachers	Data and materials developed by students
Technology Used	Supporting, peripheral	Main, integral
	Teacher centered	Student centered
	For extensive teachers' presentation	For extensive students' presentation or strengthen learning
Classroom Context	Students work by themselves	Students work in groups
	Competitive	Collaborative
	Students get information from teachers	Students construct, contribute, and synthesize information

Role of Learners	Students do teachers' command	Students do independent learning
	Remember and memorize information	Analyst, integrator, and presenter of ideas
	Students accept and finish assignment in form of short reports	Students decide their own tasks and work independently
Short-Term Objectives	Knowledge on facts, terms, and content	Understanding and application of complex ideas and process
Long-Term Objectives	Width of knowledge	Depth of knowledge
	Graduates mastering knowledge and successful in completing standard tests	Graduates with attitude and skills, who can develop themselves independently and perform lifelong learning

Upon the implementation of PBL in classes, particularly those of higher education, some advantages can be derived. First, it will increase students' motivation**.** Written reports about the project say that students strive to achieve the objectives of the project (Kamdi, 2010). Teachers also report low absenteeism and high punctuality. Students report that learning in the project is more fun than the other components of the curriculum.

Second, it will improve the ability to solve problems. Research on the development of high-level cognitive skills of the students stresses the need for students to engage in problem-solving tasks and the need for specialized learning to find and solve problems (Kamdi, 2010). Many sources describing project-based learning environment make students become more active and managed to solve complex problems.

Third, it will increase the collaborative skills. Group work in a project requires students to develop and practice communication skills. Cooperative working group, student evaluations, and online information exchange are collaborative aspects of a project. New cognitive theories and constructivist insist that learning is a social phenomenon, and that students will learn more in a collaborative environment.

Finally, it will improve the skills to manage resources. Part of being an independent student is responsible for completing a complex task. Project Based Learning implemented properly gives chances for students to learn and practice in organizing the project, and make the allocation of time and other resources such as equipment to complete the task.

Cooperative Learning

In reality, students interact in three basic ways with each other: competitive, individualistic, or cooperative. Students may choose to compete to see who the best are, exacerbate the individualistic work to achieve the goal without giving attention to other students, or work together and paying each other attention. The latter is what is now called as Cooperative Learning (CL).

CL model is a series of activities conducted by students in certain groups to achieve learning objectives formulated. Smith and MacGregor define cooperative learning as the most carefully structured end of the collaborative learning continuum(1992). Furthermore, Johnson, Johnson and Holubec define cooperative learning as "the instructional use of small groups so that students work together to maximize their own and each other's learning" (in Phipps et al., 2001).Various research on cooperative learning demonstrate consistent results that cooperative learning will improve achievement, more positive interpersonal relationships, and higher self-esteem compared to competitive or individualistic efforts (Phipps et al., 2001).

Cooperative learning efforts are expected to be more productive than competitive or individualistic efforts, when done under certain conditions. Such a 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 participants in the group, (2) the rules of the group, (3) efforts to learn in each group, and (4) the goals to be achieved in the study group. Learning is based on grouping system of small team, which is between 2 to 4 people, who have a background in academic ability, of different gender, race, or ethnicity (heterogeneous), systems assessment made against the group. Each group will receive reward if the group shows the required achievement. The formation of this

group aims to provide opportunities for all students to be actively involved in the process of thinking and learning.

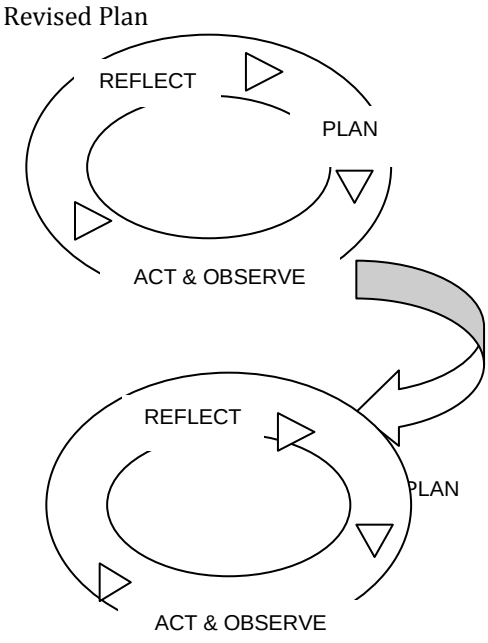
Learning goals of cooperative learning among others are to develop various capabilities as follows: (1) communication skills, which is basically about the abilities of understanding meaning of what is heard, read, seen, kissed, touched, or done and then explain the meaning or significance with the language or words to be understood by other people;(2) initiative and creativity, which is essentially a willingness or courage to do new things or new ways in solving problems; and (3) synergy or cooperation, which refers to the spirit and the willingness to act together with others in groups in dealing with an activity that is consciously designed together to obtain the greatest benefit.

Kamdi (2010) has carried out research on student active learning and Project Based Learning. The results show that the method is appropriate to be applied to vocational education as students will be more aware to practice or apply it in real world.

3. RESEARCH METHOD

The study employees a Classroom Action Research design in accordance with the Lewin Model (Kemmis & Carr, 2005), while the data are displayed qualitatively. Classroom Action Research is a form of reflective research aimed to improve the work, understand the work and the situation in which this work was done, including the field of education (Kemmis & Carr, 2005).Classroom Action Research is also described as a dynamic process in which all four aspects, namely planning, implementation, observation, and reflection should be understood not as the static steps, resolved by itself, but rather are in a spiral shape associated with planning, implementation, observation, and reflection (Kemmis & Taggart, 1988).

Figure 1. The Action Research Spiral (Kemmis &McTaggart, 1999)



The subjects in this study are 300 students of Accounting Department of POLINEMA engaged in SIA and Auditing Courses. This study is planned to involve industry, i.e Small-Medium Enterprises, for the sake of involving the students in real-wold works (under the principle of PBL), carried out in groups (under the principle of CL). Data collection methods are interviews on the subjects and documentation. Data analysis technique is carried out by identifying the problems that occur in the classroom, checking the in the field, then making learning project plans, implementation, and observation.

In particular, among the 16 weeks of formal classroom meetings, 10 of them are spent in the classroom to strengthen the theoretical foundation of each course. Then the rest meetings are spent by giving the students a project to engage in a real case from the industrial world in groups. Each group, which consists of three students, is to design and create a financial report in the company the group is working with. The design is based on the theories and concepts that have been taught in the classroom or in accordance with the competency-based curriculum or in accordance with the teaching materials that have been made by the lecturer. The project to design systems will help the company in making financial reports because many SME that do not have an accounting system, so they find it difficult to prepare its financial statements. In the Auditing Course, students are given case or matter to be able to audit a company's financial statements and then make the paper work, and give the auditor's opinion on the results of audits that have been performed by the students.

Finally, the groups are asked to present their project result in the classroom in front of the lecturers and the other groups. The success of the students will be indicated through a series of assessment methods, namely pre-test, quiz, mid-test, daily test, final test, and project based learning tasks. The combination of the scores from each method is to be converted into the final grade according to the campus' policy (Table 3).

Tabel 3.Conversion of Students' Final Scores

Interval of Final Score	Final Grade
80-100	A
71-79	B+
66-70	B
61-65	C+
51-60	C
40-50	D
0-39	E

4. RESULTS AND DISCUSSION

Following the implementation of the PBL conjoined with CL in SIA and Auditing courses, the students experience an increase in their achievement. Table 4 shows the the percentage of students who managed to achieve each final grade at the end of the course in 2015.

Table 4. Percentage of Students' Achievement in SIA and Auditing Course 2015
Total number of students: 300

Final Grade	SIA Course	Auditing Course
A	85%	80%
B+	10%	15%
B	5%	5%
C+	5%	-
C	-	-
D	-	-

The results show that there is a significant increase on the students' achievement in the courses. As indicated in Table 4, there is not a single student that achieves final grade of C and D in SIA course, while in Auditing course all students managed to achieve the grades above C+. This means that all students not only pass the course, but also obtain a satisfying result for themselves.

Moreover, as many as 90% of the students agree that the implementation of PBL and CLmakes them more active, innovative, creative, effective and fun. They feel that they have grown more competence in SIA and Auditing courses both in knowledge and skills. Meanwhile, the remaining 10% are still happy with the traditional teaching or lecturing method. The following are some excerpts of the students' comments on the implementation of PBL and CL in their classes.

"I think SIA and Auditingcourses using Project Based Learning are more accurate, efficient because it is directly connected in the world of work. We understand the materials easily, especially with the module, materials, and multimedia in the form of power point animation. Anything that is done directly or practice will be easier than simply studying theory. And this also trains the skills at work later." (Anggun Rikmawati)

"In my opinion, SIA and Auditing courses using PBL make me become better informed as a result of the learning, which is not only theoretical but also practical to develop a system of accounting information in manufacturing companies, service, or trade. Not only that, we also can know the weaknesses of the system created so we can improve the system. Learning becomes more fun and easy by using modules and multimedia." (Lisna Hilmiyanti)

"In my opinion, the PBL is effective, it could make the students be more creative and innovative. In addition, we can apply SIA theory in the project, and we are involved directly in the learning project." (Dinda Ayu Kristalia)

"In my opinion, SIA and Auditing courses using Project Based Learning is more appropriate, as I become more familiar to practice to prepare financial statements in a company. Not only that, I can also understand the system deficiencies that have been made by the company. So I can fix the system to make it better." (Leila Nur Chasanah)

"I think SIA and Auditing Course by using ProjectBased Learning and multimedia make the students more active and creative; it is an effective teaching, innovative, fun, encouraging students to understand the material to apply to the world of work." (Erza Putra Rizky R)

"In my opinion, Project Based Learning is effective because the projects help students to practice and apply theories to the company or the real world. The use of multimedia (power point) with animation is good enough so that students will be more interested in understanding the material." (Rizki Tri Anugrahsari)

"SIA is a subject which can be considered boring, but with the Project Based Learning, it becomesunderstandable. I become close to the teacher and classmates. I enjoy the material. The power point and an interesting animation can add excitement in learning. Modules prepared makes it easier to learn or explore SIA." (Iritan Permata Sandy)

"In my opinion, SIA and Auditing Course using Project Based Learning is more fun. I am more familiar with the practical way to prepare financial statements in a company. And not only that, I understand more about strengths and weaknesses of SIA that had been developed by the company. I can fix the flaws of SIA developed by thecompany with this project. In essence, I am very happy and I strongly support this project." (Dwi Argo Putro)

"The Project Based Learning has helped me to better understand and grasp the concept and application of the design of SIA in the company. The SIA design helps the company in record of the transactions carried out and more efficient in its use. The learning becomes more interesting for me because it deals not only with theoretical concept but also with immediate projects in the context of the company that made me better understand SIA application in the workplace." (Othy Happy D.S)

"SIA and Auditing is one of the subjects that need a total concentration because of many theories that must be understood. In its application using Project Based Learning with the use of materials and multimedia, it becomes more effective. I feel very comfortable with the methods applied, because it helps in understanding and application of theory into practice ofmaking financial reports of a business entity." (Dita Octavia P)

"Learning SIA and Auditing with Project Based Learning makes students better understand the concepts and application to the world of work. Modules and materials are also very supportive and the use of multimedia with a power point and animations are also very helpful in the understanding of theoretical concepts." (Rizky Putri)

5. CONCLUSION

To sum up, the implementation of PBL conjoined with CL in SIA and Auditing courses at POLINEMA is considered successful. With the newly strategy of teaching and learning in the courses, the campus can expect more competent and anthusiastic students in learning both courses as shown by significant increase in the students' final grades at the end of the semester. Previously, the classroom activities in the courses were considered as conventional since they create nothing more than boredom. However, after this study is conducted, the students feel happier with the learning atmosphere as they can engage in real world by accomplishing certain projects.

REFERENCES

[1]. Kemmis, S. and Carr, W. 2005. Penelitian Tindakan Kelas. Bandung.
[2]. Kamdi, W. 2010. Project Based Learning.Unpublished Thesis. Malang: Universitas Negeri Malang
[3]. Smith, B.L. and MacGregor, J. 1992. Collaborative Learning: A Sourcebook for Higher Education. University Park, PA: National Center on Postsecondary Teaching, Learning, and Assessment (NTCLA): 9-22.
[4]. 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.
[5]. Kemmis, S. and McTaggart, R. 1999. *The Action Research Planner*. Victoria: Deakin University Press.