The Implementation of Collaborative Learning in Pharmacognosy Lessons

Suryati S. and Elidahanum Husni

Faculty of Pharmacy, Universitas Andalas, Padang, Indonesia

Abstract: Collaborative learning is an active learning method commonly applied in higher education. The objective of this study is to investigate the effects of collaborative learning on fourth-semester students' understanding of Pharmacognosy lessons. A total of 83 students participated in this study. The students' performance was assessed through formative and summative assessments. Formative assessment included assignments, presentations, peer assessments, and midterm examination. Meanwhile, the summative assessment included final examination. The finding revealed that students' performance improved in comparison with the previous semester. The study will benefit lecturers and students to improve teaching and learning practices in a big classroom.

1 INTRODUCTION

Pharmacognosy I is a compulsory subject for Bachelor Degree students of Pharmacy study program which provides knowledge about natural sources (plants, animals, minerals) used as medicine, crude drugs: nomenclature, production of crude drug, carbohydrates; tannins, glycosides; essential oil; resin, resin combination, fatty oil; alkaloid; including the crude drug which produces the group of compound. Every lecturer already has lecture material in the form of hand-out and power point. Teaching and learning strategy was the combination of TCL (Teacher Centered Learning) and group discussions. The assessment system as stated in the teaching plan was Midterm Examination and the Final Examination and group assignments. The problems that arise is that student's final score, which only focuses on the final assessment and does not take into account the on-going assessment (formative assessment) produces fewer students who score A and more who score below B-.

Cooperative learning is a learning situation in which two or more students work to complete a common task (Siegel, 2005). The characteristics and strategies in the implementation of collaborative learning strategies in the classroom include positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing.

The social and psychological benefits of cooperative learning methods have been well documented in the past few decades (Brufee, 1999; Johnson and Johnson, 1989; 1991). Therefore, the objective of this study is to investigate the effects of collaborative learning on fourth-semester students' understanding of Pharmacognosy lessons with regard to their final gradings.

2 METHODS

2.1 Participants

The participants are 83 students enrolled in Pharmacognosy I subject.

2.2 Procedure

This research conducted for three months from April – June 2018 consisted of 3 steps; preparation, implementation, and assessment. The activities were conducted inside and outside of the classroom. The research focused on resin, tannin and essential oils lessons. For the first step, students were divided into groups consisting of 10 – 11 members who appointed a leader. Lecturer instructed students to construct a list of questions (questionnaire) for interviewing respondents. For the second step, every group

members had to interview the respondents about the medicinal plants that they commonly use. Then, data on medicinal plants were summarized in the table and submitted to the lecturer. Lecturer and students discussed their findings in the classroom. Every group members was instructed to find the journal related to the medicinal herbs in order to identify the chemical constituents, pharmacological effects, and their usage. Then, every group chose at least two medicinal plants which contain resin, tannin and essential oils. They summarized their finding and made a powerpoint presentation.

Moreover, the appointed presenter and co-presenter to present their findings. At the end of the presentation session, lecturer summarized the topic. Students were assessed through formative and summative assessments. The presentation and assignment were assessed by using a rubric. The participation and teamwork of every group members were assessed through a peer assessment rubric.

3 RESULT

The number of students enrolled in Pharmacognosy I subject in the 2016/2017 Even Semester was 106 students, while in 2017/2018 Even Semester there were 83 students. **Figure 1**. shows the comparison of the distribution of marks between the 2016/2017 Even Semester and 2017/2018 Even Semester.
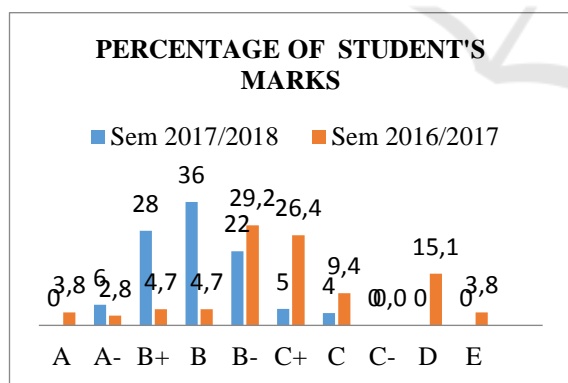

Figure 1: The comparison of the distribution of marks between Even 2016/2017 Semester and Even 2017/2018 Semester.

The result shows that in 2017/2018 Even Semester, 70 % of the students enrolled this subject got B grade and above. None of the students got A and E grades. Meanwhile, for 2016/2017 Even Semester, 83.9 % of the students got B- grade and below, and 18.9 % of students fail this subject.

The mean, lowest and highest marks were also compared between 2016/2017 Even Semester and 2017/2018 Even Semester. **Table 1**. shows the comparison of mean, lowest and highest marks between both semesters.

Table 1: The comparison of mean, lowest, highest marks between 2016/2017 EVEN Semester and 2017/2018 EVENSemester.

Semester	Marks		
	Mean ± SD	Lowest	Highest
2016/2017	61.7± 11.96	15	85.5
2017/2018	72.3 ± 5.39	59	82.6

The result shows in 2017/2018 Even Semester, the mean increase to 72.3 compares to the previous semester which was 61.7. The lowest marks increase to 59 compares to the previous semester which was only 15.

4 CONCLUSION

In collaborative learning method, there are five important elements, namely positive interdependence, face-to-face interaction, individual accountability, social skills, and group processing. (4). Positive interdependence was done through individual assignment and group assignments. The group assignments are summarized from individual tasks. The students' performances are quite good, because all the students carried out their tasks and submitted them according to the specified period. The success of group performance is a reflection of the individual contribution to the group (Johnson and Smith, 1991). group members should actively help, encourage each other and divide the task individually to create positive interdependence (Johnson and Smith, 1991; Johnson, 1993; Kagan, 1992). In the learning of this Pharmacognosy I subject, the implementation of Collaborative Learning method shows to be effective in improving the final grade, the mean marks, and the lowest marks. According to several studies, collaborative learning produces positive learning outcomes from several subjects such as statistics, sociology, political science and also when applied in large classes (Caulfield and Persell, 2006; Goerge, 1994; McKinney, 1993). Collaborative learning has proven to be more effective than traditional methods which are categorized as high and average attainments. However, 2 factors influence the

results, namely the number of respondents, the ability of teachers (Majoka et.al., 2011).

ACKNOWLEDGMENT

REFERENCES

Brufee, K. 1999. Collaborative Learning: Higher Education, Interdependence and the Authority of Knowledge. Baltimore: Johns Hopkins University Press.

Caulfield, S. and C. Hodges Persell. 2006. ''Teaching Social Science Reasoning and Quantitative Literacy: The Role of Collaborative Groups.'' Teaching Sociology 34(1): 39–53.

George, P. 1994. ''The Effectiveness of Cooperative Learning Strategies in Multicultural University Classrooms.'' Journal on Excellence in College Teaching 5(1): 21–28.

Johnson, D. W. and R. T. Johnson. 1989. Cooperation and Competition: Theory and Research. Edina, MN: Interaction Book Company.

Johnson, D., R. Johnson, and K. Smith. 1991a. Active Learning: Cooperation in the College Classroom. Edina, MN: Interaction Book Company.

Johnson, D. W. 1993. Reaching Out: Interpersonal Effectiveness and Self-Actualization, 6th ed. Needham Heights, MA: Allyn & Bacon

Kagan, S. 1992. Cooperative Learning. San Juan Capistrano, CA: Resources For Teachers,Inc.

Majoka, M. I., & Khan, M. S., & Shah, S. (2011). Effectiveness of Cooperative Learning for Teaching Social Studies to Different Ability at Elementary Levels. Retrieved from http://ezpolson.nme.edu;6744/docview/86357441

McKinney, K., and M. Graham-Buxton. (1993). ''The Use of Collaborative Learning Groups in the Large Class: Is It Possible?'' Teaching Sociology, 21: 403–408.

Siegel, C. (2005). Implementing a research-based model of cooperative learning. *The Journal of Educational Research*. 98 (6).1-15.