

Small Group Discussion (SGD) and Discovery Learning (DL) in Learning and Assessing “Satuan Proses”

Vioni Derosya¹, Daimon Syukri²
{vderosya@ae.unand.ac.id, daimonsyukri@ae.unand.ac.id}

¹Department of Agroindustrial Technology, Faculty of Agricultural Technology
Universitas Andalas, Padang, Indonesia

²Agriculture Product Technology Program, Faculty of Agricultural Technology
Universitas Andalas, Padang, Indonesia

Abstract. Satuan Proses is one of courses taken by sixth semester students in Agriculture Product Technology program. Student Center Learning (SCL) and Discovery Learning (DL) were applied for learning system for this new subject taught in the latest curriculum. The aims of this study were to observe and develop understanding, communication skill and working in team for students then to assess learning process. As the result, as much as 71.70% of students can get grade A and B. Further, students can work together in team to develop their teamwork however different discussion conditions were happened. Thus, lecturer should not only as facilitator during discussion but also need to turn on the discussion when it is needed.

Keywords: student center learning, scl, infographic, atsiri, agriculture.

1 Introduction

Student Center Learning (SCL) is one of the ways in conducting learning activities in the university. SCL will be a solution for solving condition that explained in Kusnandar that students in Teacher Center Learning (TCL) system only receive study material and there is no eager to have feedback questions [1]. On the other hand, *Satuan Proses* is a compulsory course and a new subject taught in Agriculture Product Technology Program based on the latest curriculum. It consists of three credits taken by the third grader of a bachelor degree. *Satuan Proses* discuss the chemical and biochemical process occurred in an agricultural product containing oil and fat, starch and sugar, flavor and aroma as the basic information on processing technology. Also, basic information from *Satuan Proses* can be more explored by students by taking several elective courses in the following semester.

SCL has several advantages for students including giving motivation and suitable condition that leads to discussion, broaden knowledge for both of lecturer and students through new information during activity, also give students self-acceptance since students have an unlimited chance for participating during studies [2][3][4]. Further, these advantages support effective and efficient education process.

To achieve the National Qualification Framework or KKNi, it is challenging to apply the Teacher Learning Center (TLC) for all learning activities. TLC offers situation where lecturer play the main role by giving lecture as the main source of knowledge [5] such as displaying material using slideshows. On the other hand, students only listen, take a note, do lecturer's instruction while some of them sleep because of boredom. TLC might have different goals to SCL have as explained in Godin, the teaching model that is only centered on instructors or lecturers aims to answer industry's needed such as leveling participant abilities and following instruction without being allowed to interrupt or discussion [6]. However, the current condition requires a collaboration and discussion idea in developing products. The tired and sleepy students during class are results of one direction of communication. Thus, learning method should be changed into a system where students become the center of discussion and activity to optimize material sharing and develop communication skills.

2 Methods

2.1 Developing Learning Method

In applying Student Center Learning (SCL) and Discovery Learning (DL) during Satuan Proses, the lesson plan was delivered on the first meeting explaining the relationship and application for agricultural processing and food. Further, learning outcomes and weekly activities were also explained. During the first meeting, there was also pre-test to gain initial information on student's knowledge. Small-Group Discussion (SGD) and Discovery Learning (DL) were applied to emphasize student center activity. Thus during a weekly meeting, students are required to act, work together, and deliver their idea while lecturer became facilitator during a discussion.

On the earlier weekly meeting, the material was given to students for searching further information and discussion material for a followed week. Besides, the topic and guiding steps are given to students. Students would discover and find information as Discovery Learning (DL) stage then they should prepare how to concise information and deliver to their classmate. Then, through Small Group Discussion (SGD), students presented information they discovered, gathered into an infographic in a small group using jigsaw type. These weekly tasks required student's creativeness, discussion, and an interesting way to deliver their discussion result to meet expected graduates.

Next week was for small group discussion, there were small groups consisted of 5-6 students. One group would handle one topic to be discovered and learned more. The issues will be discussed in this group and they should make an infographic for that topic. An infographic should also be published in student's social media for discussion outside the class. Further, every student in one group should explain to other groups what they found and discussed as jigsaw type discussion. As facilitator, the lecturer would monitor discussion and checked each group discussion. Agitation should be made when group discussion did not meet the expected condition for discussing information. Post-test was held at the end of the meeting though there were also mid-test and final test.

2.2 Developing Assesment Method

Assesment was conducted through group task which was making infographic, mid-test, and final test. For process assessment, there was presentation and task, and attendance. The proportion of assessment were 25% for mid-test, 25% for final-test, 10% for group task, quiz

10% and process including student attendance 20%.

Range of grades are followed:

Grade A	85-100	=	A	80-84	=	A-		
Grade B	75-79	=	B+	70-74	=	B	65-69	= B
Grade C	60-64	=	C+	55-59	=	C	50-54	= C-
Grade D and E	40-49	=	D	00-29	=	E		

2.3 Assessment Parameter

There were two parameters to evaluate the learning outcome in Satuan Proses which were:

1. Students understanding
2. Percentage of final grades

3 Results and Discussion

Based on the activities during class and outside class, there was an improvement and chance to develop soft skills of students using the SGD method. Among the observations made are: a). Ability to cooperate in teams, b). Active in group discussions and class discussions, c) courage and confidence to express opinions, d). The ability to collect relevant reference material and scientific value, e). Ability to observe and carry out practical work and make reports.

At the beginning of the lecture, lecture contracts, rules, assignments and making discussion group have been carried out in order the SGD and DL can be started on the following week. The discussion group is a group during the Satuan Proses course based on the diversity of backgrounds, gender and abilities. Group assignments and responses to these courses play an important role in the SGD discussion process. The absence of group team members can interfere with discussion activities that occur in several meetings especially if at the meeting it is the group's turn to have a discussion.

The planning and implementation of activities in the classroom are as follows:

1. At the first meeting the lecturer would deliver the Semester Learning Plan and including materials and learning systems
2. Students divided into small groups, each group consisting of 5-6 people
3. The lecturer prepared several case studies related to the material in the Satuan Proses course
4. Students discussed with group members related to the case or topic. In addition, students searched related material to support group topic as DL activities.
5. Students made discussion results as infographics then uploaded to the social media so that members outside the group and students who have not taken courses can see it. It also gave other group a chance to learn what other group make for their topic. Thus, class discussion optimally conducted. The discussion process of exposure in the classroom is done by visiting other groups (expert team)
6. Lecturers monitor the learning process and student learning outcomes, and provide an assessment of student activity

During implementation of SGD, Satuan Proses emphasized more on student-centered activities. On the other hand, the lecturer was expected to move as a facilitator and turn on the

discussion when it was needed. The lecturer was in charge of preparing initial material such as study case for student discussion in applying DL. Furthermore, students will be directed to explore and resolve existing problems and continue with class discussions presented by each small group. By finding as much information on the topic given, students were expected to explore journal, text book and other online resources, managed the idea and published in an interesting infographic by working in group followed by group discussions. This method is expected to support and improve the graduate's profile particularly in working in groups, use computer applications, and effective communication.

For responsiveness activities, students hold discussions regarding what they will display in infographics. After that, the students also discussed with the lecturer related to the infographic feasibility of the results of the group discussion. From this response activity, students train and analytical and creative thinking skills related to how they present a lot of information in terms that are not common from Unit courses. Processes such as chemical reactions that cause a decrease in the quality of fat, carbohydrate and other commodities become attractive and easy to understand through infographics.



Fig 1. Discussion on Social Media as Preparation for Class Discussion

During group discussion, groups presented their discussion results using infographic by visiting other groups as the jigsaw or expert team method for discussion. Based on observations during this research, when applying SGD using the jigsaw method or the expert team, students were more active in asking questions and discussing because discussion groups were smaller than group discussions in front of the class. When the presentation was held in front of class, interactions in discussion were very limited and only carried out by 1-2 people in the group. This discussion with the SGD jigsaw method required each member in a small group to speak up, discuss and prepare themselves for the presentation of the results from Discovery Learning on previous meeting.



Fig 2. Discussion in Class using Infographic

Furthermore, in observations related to activities in discussions, the activeness of discussion in a class depended on the group members in the class. There were groups that discuss interactively, actively ask questions and answer but some are just listening without interest. Therefore, the initial discussion from the four parallel classes were not the same condition, thus lecturer should become not only as facilitator but also need to turn on discussion by giving additional question. So that, discussion can provoke more curiosity from students to optimize discussion.

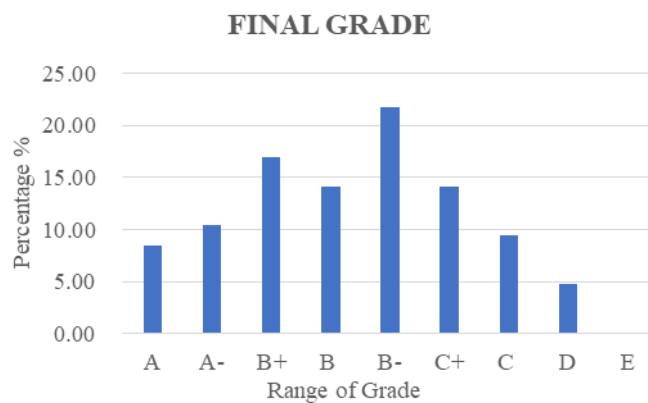


Fig 3. Satuan Proses Final Grade

For the parameter of grade percentage, as much as 71.70% were on A and B range of grade. This condition might be concluded that most of students can understand, optimize their ability and develop their softskill in Satuan Proses using SGD and DL method. Thus, it can help students to train their soft skill and prepare their final year in university before conducting their final project.

Acknowledgments

The authors are grateful to the Lembaga Pengembangan Pendidikan dan Penjaminan Mutu (Educational Development and Quality Assurance Institution) Universitas Andalas whom granted research fund for this study under contract No 054/UN.16.18/PT.01.03/2019.

References

- [1] Kusnandar. 2009. *Penelitian Tindakan Kelas*. PT. Raja Grafindo Perkasa. Jakarta
- [2] Harsono. 2009. *Aplikasi SCL dalam Proses Pembelajaran* dalam www.belajar.usd.ac.id/ accessed on 10 Februari 2019
- [3] Sudjana, SD. 2005. *Metode dan Teknik Pembelajaran Partisipatif*. Bandung: Production.
- [4] Kurdi, FN. 2009. Penerapan *Student Centered Learning* dari *Teacher Centered Learning* Mata Ajar Ilmu Kesehatan pada Program Studi Penjaskes. *Forum Kependidikan*. Volume 28, Nomor 2.
- [5] Khine, MS. 2005. *Classroom management: Facilitating teaching and learning*. Prentice Hall.
- [6] Godin, S (2017) & Robinson, K (2017) Six Fundamental things that need to be changed from current education system in *The Online Citizen* accessed on 10 Februari 2019 <https://www.theonlinecitizen.com/2017/11/24/six-fundamental-things-that-need-to-be-changed-from-current-education-system/>