



Implementation of Collaborative Participative Class to Enhance Students' Engagement and Their Awareness on Environmental Issues and Green Economy

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Abstract. Environmental education has gained its popularity in Indonesia, and it has been implemented in all levels of education starting from primary, secondary until tertiary levels. Students need to be aware of these urgent issues and they should be actively involved in solving the environmental problems in their surroundings. One of the techniques to engage and increase their awareness on environmental issues is by implementing case study method in classes. There have several researches in environmental education, however, most of the research focus on environmental education in primary and secondary school. This paper aims to explain the implementation of case method in a collaborative participative class which utilises materials related to environmental issues in higher education, particularly in speaking class. In addition, this paper also investigates the extent to which case method enables students to be more engaged and more aware with this issue. In completing the tasks, students in groups were given authentic cases in relation to environmental issues. Then, they built up the case, analysed the case from various points of views and proposed solutions to the case. Afterwards, they presented their solutions in the class. From the students' perspective, this activity increases their engagement with the course and class tasks. Moreover, the students believe that their awareness on environmental issues and green economy such as kinds of renewable energy, forest management, sustainable urban planning, solar energy in different countries also increases.

Keywords: nominal group discussion · collaborative participative · environmental issues · green economy · student engagement

1 Introduction

Indonesia is famous for its natural beauty and resources. However, the Indonesia's wealth of natural resources such as forests and marine sources have been exploited by irresponsible parties which resulted in some bad consequences such as pollution, climate change, loss of biodiversity and other calamities. This condition is worsened by the fact that society has limited environmental awareness (EE) and knowledge. Environmental awareness is defined by Mkumbachi, Astina and Handoyo [1] as environmentally

conscious behaviour such as pro-environmental behaviour. Thus, environmental education plays an important role to preserve Indonesia's natural resources. According to Goldman, Assaraf, & Shaharabani [2], environmental education "resonates with the model which refers to the environment in a holistic, human-oriented approach as interacting biophysical (organisms and life support systems), social (people living together), economic (livelihood, money and services) and political (power, policy and decisions) [2]. In a simple way, Prihantoro [3] defines environmental education as "the education activities in the environmental field that are organized by all levels of education". By implementing environmental education, it is hoped that people will have more positive perspective and behavior toward environmental issues, and they will be more care about environment from young age.

In regard to environmental education, Adisendjaja [4] proposes six purposes of environmental education. The first is **awareness**, in which EE will give encouragement to each person to be more aware and sensitive to environment problems. The second purpose is **knowledge** – meaning that people are expected to have various experiences and a basic understanding of the environment and its problems. The third is related to **attitude** - meaning that EE builds people sense of environment and encourage people to be more active and motivated in taking a part in environmental protection. The fourth purpose in **skills**. It is expected that EE will help people to have sufficient skill in identifying and solving environmental problems. The fifth is **participation** which means that EE will motivate people to participate actively in solving environmental problems. The last purpose is **evaluation**. By implementing EE, people are encouraged to be able to evaluate the environmental knowledge particularly in ecological, social, economic, political, and educational factors. In broader scope, EE also benefits in other aspects such as poverty alleviation [5] and socio-economic development [6].

In Indonesia, environmental issues are embedded into the curriculum system secondary level of education [3]. Besides, there are other program introduced at school such as Green school or *Adiwiyata* program [7] and "Kitakyushu Eco Model/KEM" which is initiated by a visual impairment school in Bandung [8]. In tertiary education level, some prominent universities in Indonesia offer undergraduate environmental programs, such as environmental planning and management, environmental laws, geographic information system, and ecology [9].

Considering the importance of environmental education, there have been research conducted in the area. Some of the researchers focus their study on the impact of several individual-related and school-related factors on environmental literacy [10, 11]. Other studies investigate how younger people perceive topics which are related to the impacts of the current environmental problems [12–14]. Research in the area of EE which discuss the classroom strategies in enhancing students' awareness in environmental issues particularly in tertiary education is still limited. Therefore, this paper aims to explain the use of case method in promoting students awareness and engagement toward EE. Case method is chosen to be the classroom strategy since in this strategy is in line with the focus of the 21st century learning skills particularly on communication, collaborative, critical thinking, and creativity. Besides, the implementation of case method and project-based learning are highly encouraged in higher education, and it becomes one of key performance indicators.

2 Literature Review

2.1 Collaborative Class and Case Method

Collaborative and participatory class concept is very acceptable with the Outcome Based Education (OBE) concept because the focus of this class concept is to give autonomy to students to be responsible for their learning process. Students are invited to explore study materials around them, deconstruct existing texts and interpret them critically to answer a problem. The collaborative and participatory class developed at Universitas Brawijaya uses group project-based evaluation and case studies. Project-based learning model is a learning model that uses projects/activities as learning to achieve attitude, knowledge, and skill competencies [15]. Project-based learning can encourage students to always be active in the learning process. This learning activity emphasizes collaborative learning activities in acquiring new knowledge and skills, student activity in solving problems, being responsible for obtaining and managing the information collected, as well as evaluating what they do [15, 16]. Teachers or lecturers function as facilitators and companions. While the case study method is a learning design based on the level of the education unit, this method is in the form of an explanation of a particular problem, event, or situation, then students are assigned to find alternative solutions, then this method can also be used to develop critical thinking and find new solutions to a topic that is solved [17]. By using this method, students are trained to define the problem, investigate, and develop persuasion on the problem.

2.2 Student Engagement

Student engagement was conceptualised in the 1980s and was seen the key to factor explaining student low achievement, boredom, alienation, and attrition [18, 19]. Student engagement has been increasingly researched in higher education because of this critical role in achievement and learning [20]. Engagement, however, is complex and multifaceted drawing on various research areas contributing to explain student success [19].

In the literature of student engagement, one popular approach proposed to explain the nature of student engagement is psychological perspective. Fredrick et al., [19] define student engagement as a meta-construct that includes behavioural, emotional, and cognitive. They suggest that behavioural engagement is defined in three ways, namely positive conduct such as following rules and classroom norms as well as the absence of disruptive behaviours. The second is involvement in learning and academic task which includes behaviours such as effort, persistence, concentration, attention, and contribution to class discussion. The last, they suggest that behavioral engagement includes participation in school-related activities such as athletics or school governance. Similarly, Finn and Zimmer [18] say that behavioural dimension of engagement deals with students' involvement in activities of classroom and school. They further detail that behavioural engagement includes paying attention to teachers, responding to teachers' questions, completing assignments, doing more than the minimum required task, and engaging with academic extracurricular activities. The emotional dimension of engagement refers to positive and negative relationships between students and their teachers, classmates and school [21].

Fredrick et al., [19] believe that emotional engagement deals with students' affective reactions in the classroom including interest, boredom, happiness, sadness, and anxiety.

The cognitive dimension of engagement refers to students' level of investment in learning [21]. Furthermore, Fredricks. et al. [19] define cognitive engagement as "drawing on the idea of investment; it incorporates thoughtfulness and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills." It means that when students are cognitively engaged, they can concentrate, focus on their study and they can deal with failure.

3 Research Methods

This research employs a qualitative approach. This study is qualitative since the data obtained were mainly explained descriptively. As described by Creswell and Clark [22], qualitative data consists of open-ended information that might be taken from interview, observation, documents, audio-visual materials. The qualitative data in this present research were obtained using two qualitative instruments, namely students' presentation and observation.

Moreover, case study is employed in this research because this research attempts to find deep understanding about the nature of critical review to develop students' critical thinking and student engagement within Speaking in Academic Discourse class. Yin [23] defines case study as an inquiry into a phenomenon of interest within its real-world context and it can be used to explain and explore a naturally occurring situation. In the context of this study, this design enables the researcher to explain how case method are perceived by students. In addition, by using this design, the researchers were able to explore how case method can develop students' awareness and engagement to environmental issue.

The participants of this research are students of one speaking class called Speaking in Academic Discourse at Universitas Brawijaya. This class was chosen since one of the topics included in its syllabus is Environment. At the end of the course, the students are expected to be able to (1). Use persuasive language; (2) give background information; (3) identify problems and suggest solutions; (4) keep a discussion moving; (5) use the language for debates and (6) Reference data in a presentation. The main activities in this course are group discussion and presentation. The research was conducted in one semester. During the group discussions, the nominal group discussion technique (NGT) was used to give exposures to students in comprehending environmental issues. NGT is a kind of small group discussion which aims at obtaining an agreement among the members of the group by prioritizing opinions and suggestions from the participants [24]. The implementation of NGT have various benefits such as encouraging group participants to share ideas, enhancing group participants' critical thinking and problem-solving skills, avoiding dominancy among group participants, facilitating more interactions among group participants, and producing a sense of closure and accomplishment among group participants [24–30]. NGT was chosen since there have been empirical evidence showing its effectiveness in promoting active learning and students' participation in discussion [31].

4 Results and Discussion

In the implementation of case method in Speaking in Academic Discourse class, students were working collaboratively with their friends in a group. Each group consists of four students and one of them has a role as a facilitator. During the discussion session, nominal group discussion technique was used. There are five stages in NGT, namely Silent Ideas Generation, Series Discussion of Ideas, Voting and Ranking, Concluding and Report Writing. In the speaking class, there was a modification of the stages to suit the schedule and the output of the group discussion (Fig. 1).

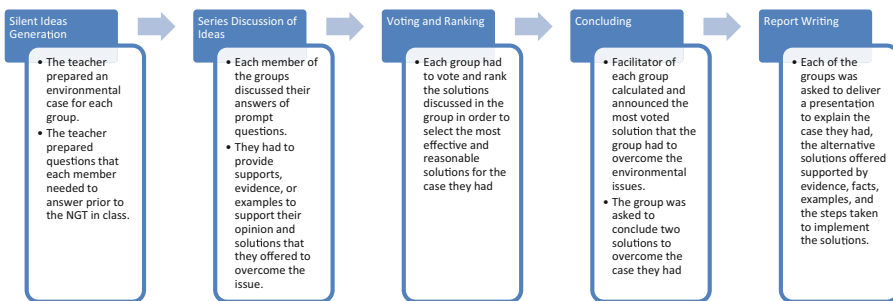


Fig. 1. The Implementation of NGT in the class

In the first stage, the teacher prepared students for the topic, i.e., Environment. In this Unit, the students are expected to be able to have a group discussion and deliver a group presentation about a change in the environment and discuss possible solutions to address the issue selected. Before the class, the teacher grouped the students and asked them to read current environmental issues in their surroundings or in a bigger scope. Then, the teacher gave an environmental case for each group. Some of the cases were about the increase of super storms around the world, ice melting in the artic, and destruction in amazon rainforest, renewable energy, forest management, sustainable urban planning, solar energy in different countries. The teacher also asked short questions for each of the students in the group in relation to the case given. The students were also required to read some references concerning the case they had.

The second stage, which is discussion of ideas was carried out in the class. In this stage, each member of the groups discussed the prompt questions given prior to the class. They had to give supports, evidence, or examples to support their opinion and solutions that they offered to overcome the issue. The facilitator of the group led the discussion and made a list of the responses in the group. Having heard the arguments from each member, the discussion came to the third stage which is voting and ranking. Each group had to vote and rank the solutions discussed in the group in order to select the most effective and reasonable solutions for the case they had.

In the concluding stage, the facilitator of each group calculated and announced the most voted solution that the group had to overcome the environmental issue. However, the group was asked to conclude two solutions to overcome the case they had. Having reached the conclusion for each group, each of the group was asked to prepare their

presentation for the following week. Since this is a speaking class, the final stage (Report Writing) was in the form of group presentation. Each of the groups was asked to deliver a presentation for about ten to fifteen minutes. They had to explain the case they had, the alternative solutions offered supported by evidence, facts, examples, and the steps taken to implement the solutions. After the presentation, the other groups were given opportunities to discuss the proposed solution and give feedback to the presenters.

Having had all the stages in NGT, the students were asked to write a reflection on how they felt about the process, the lessons they learned during the discussion, their perspective on environmental issues during the discussion.

From the discussions in the classroom, the researchers noticed that students were active participated in their groups. They were well prepared during the discussion since they had prompts questions regarding the case they had. Each member of the groups had opportunities to speak up. During the voting and ranking stage, some of the groups had difficulties to select the two most effective solution. They really thought about the solution and provide evidence to choose the best solutions. The researchers noticed that students actively learned from each other, and they engaged with the discussions. During the presentation, each of the member shared equal role to deliver ideas from the group. They showed good teamwork during the presentation. In the discussion, they mostly based their arguments and opinions on the references that they had.

Based on the students' reflection, all students stated that they were happy with case method and NGT technique. Most of the students mentioned that these processes widened their understanding and knowledge on the environmental issues happened in their surroundings or even in the world. They also said that the activities required them to think critically on the issue. The prompt questions given before the class helped them guide the information that they had to find to prepare for the discussion. Even though few students felt that they were not confident especially during the group presentation, they stated that the other members of the group supported them. Students assisted each other in the collaborative activity like case method. Since the series activities in the NGT were carried out in two meetings, students suggested to extend the length of time into three meetings, so they had more time to prepare the materials and discuss the solutions better.

5 Conclusion

Based on the finding and discussion above, it can be inferred that the case method assignment can enhance students' awareness to environmental issues and green economy such as kinds of renewable energy, forest management, sustainable urban planning, solar energy in different countries. Besides, the students were also motivated to do their best in doing this assignment. They tried to read as many resources as possible from different perspectives to enrich the understanding on the case and to provide good solutions to the problems identified. The students were very active in class and very creative in displaying their solutions using media. Those positive behaviors indicated that the students were engaged with the topic and the task. Therefore, it is suggested that case method especially by using nominal group technique during the group discussion on environmental issues is implemented in class. This activity can also be used for other topics.

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