Collaborative Learning Design: An Innovation through Sharing and Jumping Tasks

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ABSTRACT

The article was to implement collaborative learning through innovative sharing and jumping tasks. This qualitative descriptive research was conducted at Junior High School 8 of Muhammadiyah Batu from July to December 2019. The research was conducted in grade VII involving nine observers. Learning activities were carried out in two open classes with a cycle of planning, implementing, and evaluating. Collecting data used observation sheets, questionnaires, and learning implementation sheets. Data analysis was performed using the Miles and Huberman model. The results showed that teacher learning assistance in collaborative learning design with sharing task innovation and jumping task facilitates students' critical thinking and communication skills. It can be observed in two open classes and strengthened by the end of each stage's evaluation results. This study recommends teachers in designing collaborative learning with innovative designs of sharing tasks and jumping tasks.

Keywords: *Collaborative Learning, Jumping Task, Learning Design*

INTRODUCTION

The planning stage is fundamental to the implementation of the learning process (Sato, 2014; Straessle, 2014). In Indonesia, the planning stage's output is known as a learning implementation plan document (rencana pelaksanaan pembelajaran/RPP), which contains basic competencies, indicators, objectives, learning media, learning activities, references, and assessments (Fathonah, Ibnu, & Suharti, 2016; Miharja, Hindun, & Fauzi, 2019). Some experts state that the student learning process's success is mostly influenced by how well the teacher does the lesson planning (Bakar, Yun, Keow, & Li, 2014; McKenney & Reeves, 2014). Teachers are fully responsible for designing useful, fun, and meaningful student learning activities from a different perspective (Hindun, et al., 2019). Learning activities that bring students closer to real everyday phenomena packaged in an effective and fun way are known as innovative learning (Nusarastriya, et al., 2013; Suryawati & Osman, 2018). However, in its implementation, innovative learning is difficult to apply if the teacher has not made a comprehensive identification of the teaching subject and the potential resources it has. Moreover, teacher collaboration with peers and various stakeholders is also a key

factor for innovative learning success (Cajkler, et al., 2013; Chong & Kong, 2012; Le, Janssen, & Wubbels, 2018).

Collaboration is a very fundamental life skill for students in the millennial era (Binkley et al., 2012; Klucevsek & Brungard, 2016). It can be broadly interpreted that collaborative skills must be an internalized profile in 21st-Century educational products (Chu, et al., 2016; Scott, 2015). On the other hand, communal values have long been the driving force for learning in the lesson study for the learning community (LSLC) (Nurwidodo,et al., 2018; Saito, Atencio et al., 2018). LSLC implementation in general and collaboration, in particular, has been implemented in almost all regions of Indonesia. In its performance, the partnership built in the LSLC is limited to between students and between teachers, students, and teachers to the involvement of elements outside the school fence such as parents, academics, and education practitioners (Saito et al., 2015). Evidence of the implementation of these activities has resulted in good cooperation between schools and universities with the government (Nurwidodo et al., 2018; Rozimela & Anwar, 2019; Saito,et al., 2018).

This collaboration has been implemented in various efforts, such as developing innovative media (Miharja et al., 2019; Monteiro & Morrison, 2014) explicitly to improve student skills such as critical thinking (Kincal et al., 2016; Suparya, 2016), creativity (Thompson, 2017), and communication (West, 2015). Another action set is the preparation of innovative learning designs that adapt to students' collaborative learning activities (Froelich, 2009; Fujii, 2016; Haviz, 2015). In this case, the learning plan is outlined in the lesson design, which emphasizes three elements, including learning objectives, learning activities, and assessment (Froelich, 2009; Mas'ud et al., 2019). However, the development of lesson design has not been carried out massively. The teacher focuses on lesson plans and lesson design content that has not explicitly identified potential sources of learning and prediction of student learning responses (Mas'ud et al., 2019). In this case, the prediction of learning responses is a value that the teacher needs to explore and anticipate because it is closely related to what learning aids can be given to students (Fatimah et al., 2018; Suratno et al., 2009).

The analysis results show that studies related to learning designs have not comprehensively improved students' collaborative skills, partially or integrally with other skills. As previously reviewed, critical and collaborative thinking skills are fundamental skills that need to be applied and measured in the learning process. Implementing learning that optimizes collaborative and critical thinking skills can be initiated by integrating the application of sharing tasks and jumping tasks on an ongoing basis. According to Asari (2017), Fatimah et al (2018), and Zubaidah (2010), sharing lessons can improve students' communication and collaborative skills. More than that, continuous efforts to provide various information can increase students' cognitive level due to the repetition of words to last longer as long-term memory (Jeong & Hmelo-Silver, 2016; Lewis, 2009). On the other hand, jumping tasks in instructional design are indicated to strengthen students' critical thinking skills by giving them patterned and graded assignments (Andini et al., 2017; Asari, 2017; Fatimah et al., 2018).

Previous studies have not specifically described how innovative learning is carried out in the classroom (Asari, 2017; Rozimela & Anwar, 2019). Moreover, the variables measured in this study still focus on cognitive learning outcomes (Susetyarini & Miharja, 2017; Widyaningsih & Yusuf, 2018). The urgency of this research is to measure the impact of the implementation of sharing tasks and jumping tasks on critical thinking and collaboration as part of 21st-Century skills. This study aims to

measure and implement innovative learning by sharing tasks and jumping tasks in improving students' collaborative and critical thinking skills.

METHOD

This qualitative descriptive research was carried out at the Muhammadiyah 8 State Junior High School located in Batu, East Java. This study involved VII grade students as research subjects. In addition, this study also involved nine observers consisting of lecturers, teachers, and teacher-student candidates. This research was conducted in July - December 2019 and was carried out in two cycles of open class science subjects. The theme raised in this study is the structure and function of plants (cycle I) and plant morphology and anatomy in cycle II. The research stages refer to the implementation of lesson study (Saito & Atencio, 2015), which includes three stages: open plan, open class, and reflection.

The data collection instruments were tests (assignments) and non-tests with interview and documentation techniques. In this study, the primary data source is the value of student assignments, while secondary data is the result of interviews, discussions, and documentation during the research implementation in each cycle. Data analysis used the Miles and Huberman model, which consisted of data collection, reduction, presentation, and interpretation. The analysis was conducted qualitatively by using triangulation to obtain data validity before interpretation (Miles, Huberman, & Saldana, 2014).

RESULT AND DISCUSSION

Stakeholder involvement in innovative learning needs to be manifested in various activities. LSLC implementation facilitates communication between components that can run well, both at the planning, implementation, and reflection stages (Nurwidodo et al., 2018; Saito et al., 2015). The planning stage carried out in this study was carried out at the beginning of each cycle. The planning stage is held openly by involving colleagues, school principals, and higher education academics, including lecturers and student-teacher candidates (Figure 1).

The subject teacher plans to learn the plant structure and function (first cycle) and plant anatomy (second cycle). The first step taken is sharpening the idea of implementing collaborative learning by identifying essential topics and conveying them in the form of a chapter design (Kallio et al., 2018; Yücel & Usluel, 2016). The structure and function of plants discussed in the first cycle of learning are the morphological and anatomical structures of higher plants and each organ and tissue's functions. The results of the identification of essential topics include the characteristics and functions of dicot and monocot plant organs, i.e, roots, stems, leaves, and flowers. Meanwhile, the purpose of the second cycle of learning was to distinguish the anatomy of spinach (*Amaranthus* sp) and napier grass (*Pennisetum purpureum*) by microscopic observation. The second step is the development of lesson designs that illustrate the focus of the learning objectives. The agreed learning objective was that students could distinguish the morphological characteristics of dicot and monocot plants through direct observation. Besides, it is necessary to determine a sample of students who experience problems during learning. The student sample determines to facilitate identification and observation, whether the learning design is sufficiently solutive in helping student learning (Ali, 2016; Khoirina, Cari, & Sukarmin, 2018). The teacher determines two students as targets, with the initials MM and HA, while in the second

cycle, the teacher adds FH students as the target of observation. These three students often show a lack of enthusiasm and tend to be passive in class.

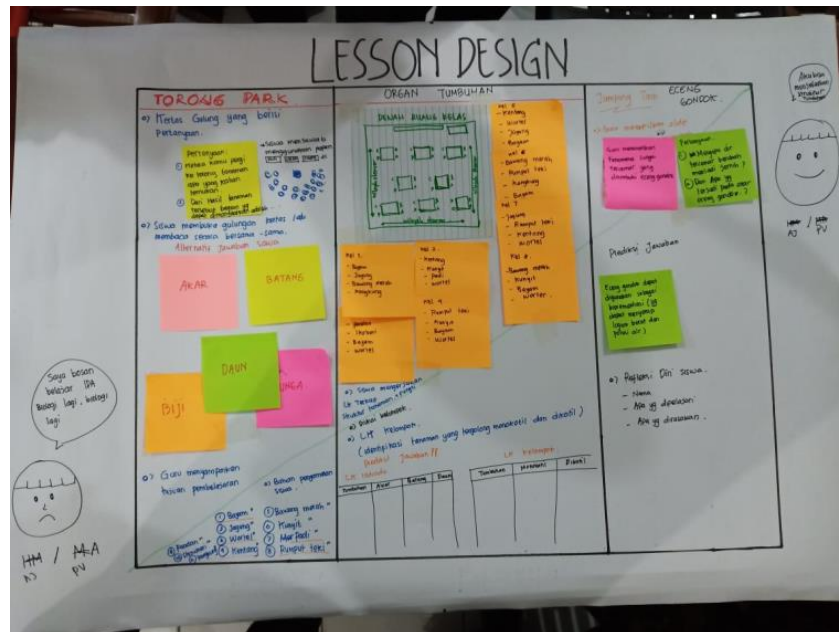Figure 1. The planning stage involving various learning stakeholders

Figure 2. Lesson design learning in the first open class, named Torong Park

The results of the lesson design discussion are presented in Figure 2. Lesson design is divided into three columns: perception, core activities consisting of sharing tasks, and jumping tasks (Fujii, 2016; Mas'ud et al., 2019). In the model teacher's apperception column with the help of rolling paper media on which questions are written about "Torong Park". Sharing tasks were carried out in small groups (eight groups). Each group observed the morphological structure independently (Table 1). Teacher assistance is provided in the form of observation guides and discussions on worksheets.

Table 1. The observation of plant morphology in small groups

No	1st Group	2nd Group	3rd Group	4th Group	5th Group	6th Group	7th Group	8th Group
1	Spinach	Potato	Pandanus	Sedges	Turmeric	Shallot	Corn	Shallot
2	Corn	Turmeric	Strawberry	Turmeric	Carrot	Sedges	Sedges	Turmeric
3	Shallot	Rice	Spinach	Spinach	Corn	Kale	Potato	Spinach
4	Kale	Carrot	Carrot	Carrot	Spinach	Spinach	Carrot	Carrot

Meanwhile, the second lesson design lesson's perception was through a demonstration of soaking the roots of the water henna (*Impatiens balsamina*) in two different media (mineral water and water with dark red dye). Students are invited to make observations and identify how plant stems immersed in red water also turn red. Students, collaboratively, are stimulated to find possible answers according to them (Kuhn, 2011). It aims to train students' critical thinking skills. The sharing task session was conducted to observe the roots and stems of spinach and napier grass.

This session is intended to sharpen the students' analysis, either independently or in groups (Arani et al., 2017; Asari, 2017). The teacher accompanies student discussions and reinforces the response to answers given by students (Donald, 2012; Guleker, 2015). Teacher assistance is provided in the form of a simple practicum guide and microscopic observation tools, including microscopes, glass objects, cover glasses, razors, and pipettes.
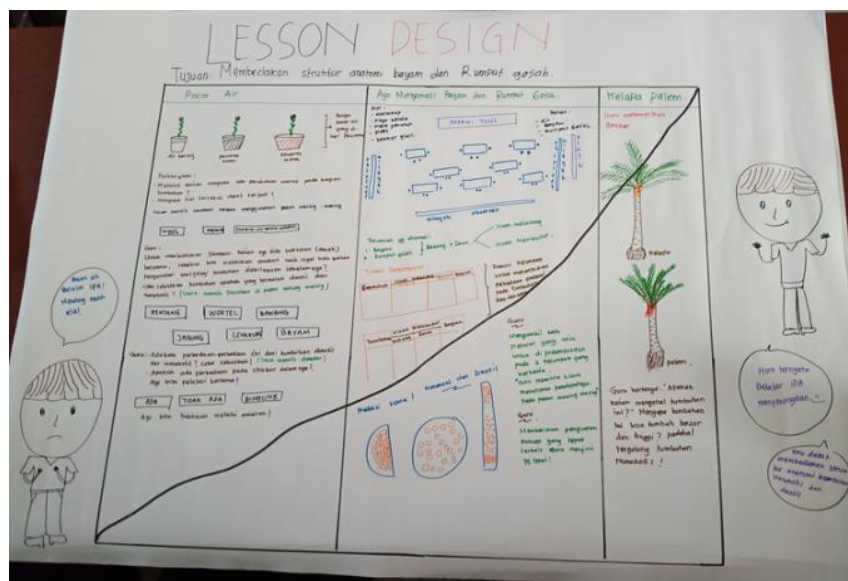

Figure 3. Lesson design in the second open class about plant anatomy

The Jumping task is the last session of each learning process. This session aims to provide problems one or two levels higher than students' problems at the sharing task stage (Fatimah et al., 2018; Rozimela & Anwar, 2019). Some researchers believe that students' critical thinking and questioning skills will develop gradually following the teacher's learning stimulation response (Dowd, Thompson, Schiff, & Reynolds, 2018; Miharja et al., 2019; Serrat et al., 2014). From a different perspective, the study results show that students' motivation will increase if they have succeeded in solving one particular problem (McCrum, 2017; Virtanen, Tynjälä, & Eteläpelto, 2014).

Figure 4. Collaboration between students in sharing task sessions

In this study, jumping tasks were given based on problems that were close to students related to structure and function and plant anatomy. Students are faced with the problem of water hyacinth (*Eichhornia crassipes*) blooming in a river near the school. The teacher asks why polluted waters become clean after being overgrown with water hyacinths and what happens to water hyacinths? In the second jumping task, the teacher displayed a palm plant picture and asked why palms get bigger and taller, even though palms are monocots.

The results of the observation showed that the students were motivated to solve problems in jumping tasks. Individually, students try to solve problems by utilizing various learning resources and available devices such as smartphones and internet networks. The facilitation provided by the teacher included providing learning resources and flexible completion times. Some researchers stated that the jumping task character is not a necessary task and can be completed simultaneously because it depends on how deep the questions are given (Abosalem, 2016; Andini et al., 2017; McNeill, Gosper, & Xu, 2012). On the other hand, the teacher also needs to recognize how the character of student learning so that the goal of giving jumping tasks is achieved (Fatimah et al., 2018).

This study indicates that students' thinking skills cannot be improved simply by providing conventional learning experiences for students, mostly if done quickly (Binkley et al., 2012; Scott, 2015). These critical thinking skills can be cultivated through adaptive learning models to high-level skills carried out consistently and continuously (Husamah, Fatmawati, & Setyawan, 2018; McCrum, 2017; Serrat et al., 2014). More than that, teachers need to design activities and learning experiences that are tiered to follow students' developing cognition (Bensley & Spero, 2014; De Hei, Strijbos, Sjoer, & Admiraal, 2015; Tal & Tsaushu, 2017). The jumping task's philosophy is to facilitate students to learn in a frame of mind that is one level or several levels higher than what they have mastered (Fujii, 2016). However, it needs mature skills from the teacher in designing the extent to which jumping tasks are given to students. Some researchers believe that collaboration between teachers and students in the learning process will help teachers design jumping tasks that are measurable and interesting for students (Abosalem, 2016; Le et al., 2018). More than that, a collaboration between teachers and peers in schools also needs to be fostered (Miharja, Wahyuningrum, Iffah, & Eskasasnanda, 2020). Collaborative action that is institutionalized in a school will form

a mutually reinforcing learning environment. Researchers believe that cognitive changes and student attitudes are not something instantaneous and can be seen in a short span but somewhat over a relatively long time. Jumping tasks and sharing tasks will also be meaningless if only done partially and in a short time. This study recommends implementing jumping tasks and sharing tasks over a more extended period to see how much impact, and learning changes are experienced.

CONCLUSION

This study's results indicate the existence of collaborative attitudes and critical thinking skills of students after learning by implementing sharing tasks and jumping tasks, both in the first open class and in the second open class. Thus, this study recommends teachers to adopt innovative learning using sharing tasks and jumping tasks through collaborative learning.

AUTHOR CONTRIBUTION STATEMENT

Groups in teams carry out this collaborative learning project at Muhammadiyah School. The team consists of several members with specific expertise and skills. Rr. Eko Susetyarini is the team leader and is the principal researcher in this activity. Meanwhile, Sri Wahyuni and Fuad Jaya Miharja are researchers and lesson study activists who underlie this collaborative learning activity. Roimil Latifa is a botanist involved in the morphological structure and plant anatomy, while Cantia Putri is a lesson study activist at SMP Muhammadiyah 8 Batu who regulates the implementation of research in schools. Fuad Jaya Miharja prepared this research article as a corresponding author.

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