

COLLABORATION OF THE ISLAMICS' SCHOOL STUDENTS IN SOLVING THE JUMPING TASK DURING THE COLLABORATIVE LEARNING IN A MATHEMATICS CLASSROOM

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ABSTRACT

This research aims to describe the collaboration of Islamics' school students in solving the jumping task during the collaborative learning in a mathematics classroom. Collaboration referred to indicators of social ability and emotional development of students that were learn from, care for, and respect one another. The research result indicated that students tended to have attitude of learn from and care of each other with maximal answer truth while care for ability had not yet appeared in students. Students tended to (1) be able to learn from the use of IT-based learning media or visual aids as well as from students' books that had been provided by teachers in solving mathematical problems, (2) able to express their opinions when there were friends who asked about math concept, and (3) able to discuss well between boys and girls.

Keywords: Collaboration, islamics' school, mathematics classroom, collaborative learning

INTRODUCTION

Collaborative classroom is a model for all teachers respecting and supporting all student activities by creating a safe, happy, and exciting atmosphere (Armstrong, 2011). Therefore in this research, what was meant by collaborative mathematics classroom was a model that all math teachers could use to create a learning atmosphere in a fun math class and give students the opportunity to construct their knowledge. Collaborative learning is a learning model referring to communication theory by John Dewey and development theory by Lev Vygotsky (Sato, 2014)

There are four core principles of succeeding a collaborative classroom: 1) social and academic curricula have to be interdependent and related each other, 2) fostering the caring relationship and developing an inclusive and safe environment, 3) classroom learning experiences have to be built around the knowledge developed by students and engage in their actions, and 4) respecting and building the students' intrinsic motivation leading to their engagement and achievement (Classroom, 2015). The four principles were also applied to this research which focused on mathematics learning. Hence, the implementation plan of mathematics learning designed in this research also focused on these four principles and gave every student the opportunity to learn math maximally. During collaborative learning on mathematics learning, students were expected to have good collaboration skills.

Collaboration into several skills, namely (1) demonstrating the ability to work effectively and respectfully with different groups, (2) training fluency and willingness to assist in making compromise needs to accomplish the main goal, and (3) accepting the sharing of responsibilities for collaborative work and the value of individual contributions made by each member of the group (P21, 2016). Future expectation is one day when every school and every classroom provides a safe and supportive environment where children can take the risks needed to grow themselves both socially and academically, and eventually grow into a principled, critical thinker who learn from, care and respect for each other (Anonymous, 2015). Based on the explanation, the collaboration indicators in this research referred to the indicators of social ability and emotional development of the students that learn from, care for, and respect one another. Students had the learning collaborative skill from IT-based learning media, mathematics tools, student books, and explanations from friends and teachers. Furthermore, students had a sense of care for each other which were being brave to ask friends if there was understandable material, caring

to friends by discussing together, and collaborating with friends in solving the jumping problems given by the teacher. Collaboration activities were done when students solved the jumping problem in group discussions.

Jumping task is a suitable task to develop collaborative skill among students (Sato, 2014). Based on Lev Vygotsky's theory, students cannot learn by themselves to develop their academic skills but students develop more if they learn with their friends (Vygotsky, 1980). Jumping task is a set of problems above the students' Zone of Proximal Development (ZPD). This is because students having the low ability or high ability have not been able to solve problems existing in the jumping task, so it needs the collaboration among students in groups. The ZPD is the distance between a student's ability to perform a task under adult guidance and / or with peer collaboration and the student's ability solving the problem independently (Crawford, 1996). According to Vygotsky, learning occurred in this zone.

Student collaboration at Islamic schools in Jember regency, East Java Indonesia had not developed maximally especially collaboration of male students with women students. The collaboration was in the form of mutual learning communication between male students with women students. In addition, students in Jember Regency had not utilized maximally the use of the internet in searching for some mathematical materials that could help them to solve the problems given by the teachers. In everyday life, students used IT for facebook and online games. Furthermore, students also had not been able to have good caring attitude, for example students having good skills (smart) did not want to teach his friends; otherwise, students having low ability did not have the desire to be brave to ask. The use of blackboards at Islamic schools in Jember occupied by teachers and students was also not optimal in helping the smooth learning in the classroom. This resulted student collaboration with blackboard or student collaboration with teachers was also not maximal. Besides, by using a whiteboard maximally, it could improve the learning quality in the math class and able to improve students' learning ability (Balta & Duran, 2015). The use of learning media either interactive projector or general data projector can also improve students' math learning ability (Liu & Cheng, 2015), so it is necessary to collaborate with learning media in the form of interactive projector and general data projector.

Some problems causing students' high order thinking skill of Islamic school were not maximal. It was in accordance with the results of previous research stated that there were 80% of students in Islamic schools around Jember coffee plantations belonging to the Apprentice category, ie students had not been able to have performance ability, especially the utilizing coffee plantations understanding that can support the process of solving math and science problems (Suratno & Kurniati, 2017). Therefore, it was necessary to trace collaboration among students during classroom learning through giving the jumping task. After knowing the collaboration among students in Islamic schools, it could be known the learning model with suitable learning environment used in Islamic schools, especially in Jember, East Java, Indonesia.

METHOD

This research was a descriptive research using qualitative approach. Research aims to describe the collaboration of Islamic school students in solving the jumping task during the collaborative learning in a mathematics classroom. Observations of the students' collaboration were carried out continuously during the collaborative learning. Focuses of the collaborations' observation were how students do learn from, care for, and respect one another. This research was conducted in the Islamic school in Jember regency, East Java, Indonesia. The research subjects were 36 students.

The stages of this research were (1) giving jumping task to each group consisting of 4 students with 2 male and 2 female, (2) observing the collaboration of the four students in one group during doing the jumping task, (3) the analysis of each student's collaboration was based on the observations either written on the observation sheet or video recording during doing the the jumping task, (4) interviewing to some students who were considered observers had not been seen clearly the collaboration process, and (5) determining the collaboration tendency of all students in finishing the jumping task on mathematics collaborative learning . The observation sheet in this research referred to an open observation sheet and can be seen in Figure 1. The given problem was an essay question, and there were 4 questions relating to the sub-subject of two-dimensional figure. Giving the jumping task was done continuously for four meetings for two-dimensional figure material. The seat position was designed by using cross-linked between male students and female students. It can be seen in Figure 2

Observations' Sheet

Benchmark: _____ **Date of Observation Lesson:** _____

Names of the students: _____

Lesson Objective: _____ **Notes about students:** _____

Anticipated problems: _____

Content Area: _____

Students say or do (learn from, care for, and respect one another).....

Figure 1. Observations' Sheet

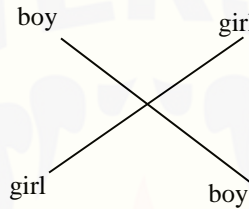


Figure 2. Seat Position

RESULT AND DISCUSSION

The research test was conducted on two Islamic schools in Jember regency namely MTsN 2 Jember and MTsN Arjasa 1 Jember with the research participants of 36 students. The research participants were divided into 9 groups. Each group consisted of 4 students (2 males and 2 females). The seat position was designed by using cross-linked between male students and female students.

The seats in the classroom were set in U position. It was expected that there were collaborations between students and teachers and students with different groups. Each group was given the opportunity to share with other groups (but it was emphasized not to cheat the answers of other groups). Observation was focused on student collaboration activities with students, teachers, instructional media, student books, and student work sheet during collaborative-based mathematics learning. Collaboration indicators in this research were learn from, care for, and respect one another.

Groups 1, 2, and 3 were able to solve all the problems given on the jumping task correctly. Female students in group 1 were able to work with male and female students; as well as, male students were able to work with female and male students; so that, male and female students in groups 1, 2, and 3 were able to work well despite the U-seat seating position. When completing the question no 1, the students jointly designed a mathematical model by drawing a house design consisting of two-demintional figure of triangular, rectangles, parallelogram, and square. Furthermore, in solving the problem no 2, students groups 1, 2, and 3 were able to utilize Microsoft Excel program to determine the estimated value of the area of two-dimentional figure in the form of a garden with an approach of number 5 integration. In the problem no 3 and 4, students utilize books in the library and props provided by the teacher correctly in helping them solve the problem about the design of a house completed by a garden in order to make the house look beautiful with minimal expenses. During the process of solving the problem in jumping task, male or female students in groups 1, 2, and 3 were able to collaborate well, for example one female student having high math ability had concern for three friends having low math ability. Furthermore, the other three students were also brave to ask the smart friend when having difficulty in solving the problem.

Groups 4 and 5 had the same tendency in solving problems on jumping tasks. There were 3 questions from 4 questions answered correctly by groups 4 and 5. Students had the ability to draw a house design consisting of

two-dimensional figure of triangular, rectangular, parallelogram, and square to solve the problem number 1. Furthermore, students were also able to utilize the book in the library and props provided by the teacher correctly in helping them solve the problem about the design of a house completed by a garden in order to make the house look beautiful with minimal expenses. However, students had not been able to utilize Microsoft Excel program in solving the problem number 2. In addition, female students of groups 4 and 5 had the same tendency that was able to collaborate with male and female students while male students were unable to collaborate with female students although they were in one group. Male students felt awkward in communicating with female friends. However, all students in groups 2 and 3 were brave to ask the teacher if they had difficulty in solving all the problems.

Groups 6 and 7 had similar collaboration tendency among their students. However groups 6 and 7 were able to complete 3 true questions from 4 given questions. Problem that could not be done was the problem no 1 about utilizing the media in the process of solving the problem. Students in groups 6 and 7 were able to utilize Microsoft excel programs, props, and books in the library in solving the problems 2, 3, and 4. The tendency owned by students in groups 6 and 7 was similar to the tendency of student collaboration in groups 4 and 5, ie female students were able to collaborate with men and women students while male students were only able to collaborate with male friends. In addition, all students in groups 5 and 6 were also brave to ask if they had difficulty in solving the problems to the teacher, and had a concern to friends having difficulty.

Students in groups 8 and 9 were only able to do 2 questions from 4 questions given. This was because students had not been able to utilize the props and books provided in solving the problems. In addition, students also had a tendency to communicate only to friends who had same sex and to teachers. The care of students to ask when they experienced difficulty developed well, but the care of helping each other in solving problems in jumping task was not maximal yet.

Based on the results of collaborative analysis of each group, the tendency of male students' collaboration occurred only with male students. It was different from female students who were able to cooperate with male and female students. Male and female students had similar tendency when they collaborated with II-based learning media, props, and student books. Students were able to utilize the media and books to help them solve the problems provided by the teacher. Furthermore, male students did not have a caring attitude towards friends who were unable to solve the problems, but they had the ability to ask a friend in his group if there was something they did not understand. It was different from female students having a caring attitude towards friends having difficulty. They conveyed their opinions related to the knowledge they had to help friends; as well as, some female students were brave to ask if they did not understand the material in the questions.

Referring to the results of each group's collaboration tendency, it could be seen that a group with good collaboration skills would impact on the result of the jumping task. Students were able to solve all problems correctly if all three collaboration indicators were met. It was in accordance with the results of other researches suggesting that collaboration among students can have a positive impact on students when they solve the problems (Zumbach, Reimann, & Koch, 2006). Therefore, learning of mathematics must be done continuously and it had to focus on collaboration among students and utilize the jumping task; so that, students' math skills would increase.

CONCLUSIONS

The research result indicated that students tended to have attitude of learn from and care of each other with maximal answer truth while care for ability had not yet appeared in students. Students tended to:

1. be able to learn from the use of IT-based learning media or visual aids as well as from students' books that had been provided by teachers in solving mathematical problems,
2. be able to express their opinions when there were friends who asked about math concept,
3. be able to discuss well between boys and girls.

SUGGESTION

Mathematics learning activities especially in Islamic school is done by focusing on collaboration among students, especially caring for among students, for example students having good ability have to care to other friends whose ability are low by teaching and discussing each other. Furthermore, students having low ability have to be brave to ask friends who have better ability than his ability or to the teacher, so the ability of math

increases. Collaborative activities have to be a culture in school learning either in math or other subjects. The quality of learning will increase if students' collaboration and student-teacher collaboration maximally implement. The research results can be used by Islamic schools to determine the learning model and what kind of learning environment is suitable to be used in improving the learning quality.

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