Characters of Senior High School Students in Cooperative-Based Learning Reviewed from Mathematics Learning Achievement

M Ilyas*, Ma’rufi1, Fitriani A1, and Karmila1
1Universitas Cokroaminoto Palopo
*Email: muhammadianyas949@yahoo.com

Abstract. This study aims to describe the character of students of Class X MIA SMAN 6 Palopo in Cooperative Based Learning reviewed from mathematics learning achievement. This study was descriptive research using the qualitative approach. Subjects were students of class X MIA SMAN 6 Palopo. Techniques of data analysis used were (1) percentage description, (2) data reduction, (3) data presentation, and (4) taking conclusion. This study was conducted in even semester of academic year 2018/2019. The topic focused was the cosines rules. The results found that character of students in cooperative based learning (1) responsibility, (2) Independent, (3) curiosity, and (4) hard work. Students whose high mathematics learning achievements had a better character than those whose low mathematics learning achievements.

Keywords: Character, cooperative based learning, lines and angles, mathematics learning achievement.

1. Introduction
Education is not only about increasing knowledge but printing (developing?) quality human resources. Quality human resources are those who are intelligent in knowledge, technology and have skills accompanied by good character. Presidential Regulation number 87 of 2017 concerning Strengthening Character Education makes character education a national education platform to equip students as the golden generation of 2045 with the soul of Pancasila and good character to face the dynamics of change in the future (section 2). According to Samani [7], character is a basic value that builds an individual’s personality, influenced by heredity and environment, which distinguishes it from others, and is manifested in attitudes and behavior in daily life. Ministry of National Education [4] mentions that there are 18 values in the nation's character education to be developed in shaping the personality of students. The values of the nation's character for the formation of learners' personalities include: religious, honesty, tolerance, discipline, hard work, creative, independent, democratic, curiosity, national spirit, love of the motherland, valuing achievement, communicative, loving peace, fond of reading, caring about the environment, caring socially and responsibly. Character provides excellence in someone who can deliver on achievement. These characters can be built and developed through the learning process. Learning in class does not only emphasize student knowledge about the material being taught but is expected to be able to direct students to be intelligent in their knowledge and character in a whole and balanced manner.

Curriculum 13 emphasizes the integration of the learning process with student character education. Mathematics is one of the subjects that has an important role in education and life. Mathematics does not only talk about routine problems but also non-routine problems.
problems, knowledge, creativity and strong character are needed to be able to find a solution. One learning model that can develop student character is the cooperative learning model. The cooperative learning provides students of different backgrounds and conditions with opportunities to work interdependent on shared tasks and through the use of cooperative reward structures (and?) learning to respect one another [12]. The interaction of students with problems and between each other in cooperative learning is expected to foster good attitudes and behavior. This article studied the characters of senior high school students in cooperative based learning reviewed from mathematics learning achievement.

2. Method
This research is qualitative research on cosines rules topic using cooperative learning in class X students of SMAN 6 Palopo. The implementation was conducted on March-April 2019 in even semester of 2018/2019 school year. Subjects in this study were students with high learning achievement and students with low learning achievement obtained through subject teacher information and the daily (assessment?) scores of previous material. The research instrument was the researcher herself with supporting instruments, namely, learning videos, observer notes about student activities, and learning transcripts.

The characters of the students that were focused in this study were: 1) responsibility, that is, the attitude of a person in carrying out the task and always bear for what he has done; 2) independent (independence?), namely, the attitude to complete the task without depending on others. 3) curiosity, namely, is the attitude of wanting to know something; and 4) hard work, namely, an action taken seriously in dealing with learning problems and completing tasks well. Data were obtained through observation of student activities during learning. Data validation was performed using triangulation techniques. Data analysis using Miles and Huberman techniques, namely, Data Collection, Data Reduction, Data Display and Verification (reference is needed).

3. Result and Discussion
Result of students’ characters in cooperative learning reviewed from mathematics learning achievement namely 1) responsibility, 2) independent 3) curiosity and 4) hard work.

3.1. Responsibility

| Subject | Responsibility |
|---------|----------------|
| High    | The attitude of students during learning: 1) completing activities on the worksheet on time; 2) answering questions of friends visiting the group; 3) providing opportunities for teammate to work on the worksheet; 4) explaining to classmates who do not understand the problems; 5) answering questions of the teacher; and 6) writing the solution of the problems in front of the class. |
| Low     | The attitude of students during learning: 1) not completing the worksheet and 2) not paying attention to the explanation of friends. |

Based on Table 1, it can be seen the differences in students’ attitudes in dealing with the problems presented by the teacher. The cooperative learning conducted by the teacher gave equal opportunities to everyone in solving problems by distributing worksheets to each student in the group. Teachers often gave questions to remind students of the knowledge they have. The teacher drew an ABC triangle with known angles A and sides a and gave questions

\[ T: \text{This is the unknown (pointing to side c).} \]
\[ S: \frac{a}{\sin A} = \frac{c}{\sin C} \] (2 students answering together).
\[ T: \text{Why? (while writing students’ answer)} \]
\[ S: \text{Because the given are angle A and side a (other students answering)} \]
Students with a high ability took turns answering the teacher questions. From this condition it was concluded that there were some students who remembered the material that had been studied previously. Students who had knowledge responsibly answered the teacher questions.

Cooperative learning emphasizes solving the problems presented in LK. Cooperative learning has emerged as a “new” approach to classroom instruction. It involves a number of people working to complete an assigned task. However, cooperative learning is not simply a division of labor among group members; it is a division of responsibilities [11]. The attitude of responsibility is embedded if students do assignments regularly. States that responsibility is the behavior of a person to carry out the duties and obligations that he should be doing, towards himself, society, the social environment of the State and God Almighty [5]. Correspondingly, the results of the study showed the use of integrated lecture strategies increased the character of responsibility, honesty, persistence and learning outcomes [6]. Learning by asking questions and learning opportunities using the worksheet can foster student responsibility.

3.2. Independent

| Subject | Independent |
|---------|-------------|
| High    | Students' attitudes during learning: 1) doing the worksheet instruction by themselves and 2) solving the problem using other procedures. |
| Low     | The attitude of students during learning: 1) waiting for the completion of a friend and 2) rewriting a friend's answer. |

Based on Table 2, it can be seen the differences between the two categories of students' ability to independently solve student problems. Cooperative learning with sine rules material used worksheets designed to build students' own knowledge. The material presented in LK used step-by-step instructions. Students whose good initial abilities would be able to find (construct?) their own knowledge. Students with low ability could only finish the beginning of the worksheet and then waited for answers and explanations from classmates.

The learning process using LK is an opportunity for students to develop an attitude of independence in learning. Ali and Asrori stated that independence is an internal force that is obtained through the process of independence and the process towards perfection [1]. According to Suid, learning independence is one of the factors that determine students' success in learning, so that this attitude of independence is important to be owned by anyone who wants to achieve success in life. Independence in learning can find knowledge and lead students to learning success [9].

3.3. Curiosity

| Subject | Curiosity |
|---------|-----------|
| High    | Student attitudes during learning take place: 1) paying attention to the teacher's explanation carefully; 2) reversing the notes; 3) asking various questions related to the initial material submitted by the teacher; 4) investigate the problems given carefully; 5) visiting friends in other groups; and 6) being involved in the group. |
| Low     | The attitude of students during learning takes place: 1) occasionally listening to the teacher's explanation; 2) playing mobile; and 3) answering the teacher's questions. |

Based on Table 3, the curiosity of high-ability students was seen by paying attention to teacher's explanation of the previous material related to the problem to be solved. Enthusiastically working on the steps at LK to find new knowledge. In the process there were some instructions that were not understood and (missing subject?) asked for the teacher's explanation with a show of hands. When the teacher explained (missing object?) students with low ability paid less attention and did other things.
There were also students who paid attention to group members who worked on the steps in the worksheets.

High critical thinking and curiosity are one of the important foundations which have to be owned by the students to reach the high quality mathematics education [3]. The 2013 curriculum with cooperative learning emphasizes the discovery of students' knowledge independently with learning activities on LK. The LK provided only displays steps to find (build/construct/develop?) new knowledge. Students can actively break down problems not apart from teacher assistance. Initial knowledge and motivation of teachers can foster courage and never give up (perseverance?). These activities can add experience and new insights. Desi Setiyadi's research results revealed that the learning process involving student activities in learning activities could increase curiosity and student achievement (reference?). Learning activities using LK can help students explore and find their own knowledge.

3.4. Hard work

Table 4. Students’ hard work in cooperative learning

| Subject | Hard work |
|---------|-----------|
| High    | The attitude of students during learning: 1) questioning the teacher steps not yet understood; 2) trying to solve the problem in another way; and 3) paying attention to the teacher's explanation related to questions on the worksheet that is not yet understood. |
| Low     | Student attitudes during learning: 1) being indifferent to the problems faced by friends and 2) looking the worksheet when teacher or other students explain |

Based on Table 4, the effort made by high ability students to solve problems was more than that of low ability students. The work (problems?) on the worksheets was sometimes found to be an obstacle, but it did not make students despair. Efforts were made by students to look for other sources in their previous notes, visit other groups and ask questions to the teacher and review the previous steps with the help of the teacher.

One element of the cooperative learning

\[ T : \text{Consider to angle } BQC, \text{ Which sines was asked?} \]
\[ S : \text{This Sines mom? (shows what was asked in worksheet)} \]
\[ T : \text{Nah it is wrong, this is not appear because this one is wrong. Then consider angle } BQC. \text{ Which one is the angle } BQC? \]
\[ S : \text{This one. (shows angle } BQC) \]
\[ T : \text{Nah, which sines was asked? Sines of what angle was asked?} \]
\[ S : \text{Sines C} \]
\[ T : \text{Nah, sines C. Which one is the sines C?} \]
\[ S : \text{This one (Shows sines C).} \]
\[ T : \text{In front of C on which angle of BQC?} \]
\[ S : \text{This one (shows sines C).} \]
\[ T : \text{Nah not this one right? (shows side that is not in front of angle C), this one because not angle ABC was asked but angle } BQC. \text{ Nah rewrite this one then this one can be appear.} \]

Realizing this mistake, students wrote down the correct answer again and continued to the next stage. The elements of cooperative learning were that the provision of prerequisite material and the giving of questions when mentoring stimulate students to remember the knowledge they have. The existence of this knowledge is a provision for solving problems. With the basic knowledge they have makes students confident in what they do. Sumiyati students concluded how to foster the character of hard work and never give up on students by: strengthening the prerequisite material, providing motivation, mentoring teachers, delivering learning little by little and giving practice questions that are many and repetitive [10].
4. Conclusion
Character is one of the factors supporting the success of students in learning. By actively learning, students' knowledge and experience develop. Students with high abilities had responsibility, were independent, working hard, and curious in learning so as to provide new experiences and knowledge. In contrast, students with low ability tended to wait for an explanation from both the teacher and friends in the group.

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