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Application of the broken square learning model to increase student activeness and learning outcomes in citizenship subject of grade xi senior high school of the Indonesian school of Davao

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Abstract
This research was motivated by the lack of students' activity in learning Civics in grade XI Senior High School of the Indonesian School of Davao. Based on the results of initial observations during the teaching and learning process, there were only 2 students who got the active category, 6 students were quite active and 9 students were less active. Besides of being less active in learning activities, students' learning outcomes are also low. Out of the 17 students, there were only 2 students or 11.7% who passed the Minimum Passing Grade (MPG). This type of research is Classroom Action Research. In this study, the subjects were the students of class XI Senior High School of Sekolah Indonesia Davao – Philippines with a total of 17 students consisting of 9 boys and 8 girls. The data collection instruments used were student observation sheets, teacher activity observation sheets in the application of the Broken Square learning model and student learning outcome tests. This Classroom Action Research was carried out in two cycles where in each cycle started from the planning stage, implementation of action, observation and reflection. The application of the Broken Square learning model is considered successful if the class completeness reaches 60% with MPG score of 70. Meanwhile, for student activity, it is expected that students can reach 70%. The results showed an increase in the activity and learning outcomes of grade XI Senior High School of the Indonesian School of Davao by using the Broken Square learning model. Student learning activity at the initial condition obtained an average grade of 49, then after the action in the first cycle increased to 55 and in the second cycle it became 80. Meanwhile, student learning outcomes also experienced the same thing. The passing percentage was 11.7%, then the first cycle increased to 64.7% and increased again to 81.25% in the second cycle. Based on these, it can be said that the use of the Broken Square Type Cooperative Learning Model has an effect on increasing the activeness and learning outcomes of grade XI students. In addition, it is hoped that this research can be published in international journals with accepted status.

Keywords: Application, learning model, broken square, activity, learning outcomes

Introduction

Education has a significant role in the effort of building a nation. Therefore, it is need to be understood by everyone that an education which is able to support the development is a quality education. That is an education which requires its learners to actively participate in the learning activities so that they are able to develop the potentials within the learners. Hoping that learners are able to face and solve life problems they face.

The results of Programme for International Student Assessment (PISA) 2018 survey which was publish on Tuesday (3/12) pictured some problems of Indonesian education. The reading ability, science, and math categories, Indonesia's score is low because it ranks 74th out of 79 countries (Kumparan: 2019) [6].

This is in line with the findings of the researchers at the most basic level of educational problems which is at the level of the education unit. Based on the results of the observations and a series of tests conducted by the researchers on Tuesday, September 28, 2021, it was found that grade XI in Civics class at the Indonesian School of Davao, the learning atmosphere was less active and tend to be monotonous. Based on the observations made during the learning process, some students were quiet, daydreaming, sleepy, went to the toilet often and sometimes had fun talking to their seatmates. The less active learning atmosphere is suspected to be because the teacher still dominates and becomes the center of learning activities (*teacher center*) when the learning activity took place. The learning that has been carried out has not led to a learning that activates students (*student center*). Less active students in learning will certainly affect student learning outcome.

According to Suyatno (in Suarni, 2017:130) [11], active learning is one type of cooperative learning that involves students in doing something and thinking about what they are doing. While Rosalia (in Zaeni, 2017:417) [14] said that students are said to have activeness when found behavioral characteristics such as: often asking the teacher or other students, willing to do the assignments given by the teacher, able to answer the questions given, pleased to be given assignments, and so on.

Due to lack of students' activeness in the leaning activities ultimately affect students learning outcome. Based on the pre-test results conducted on September 28, 2021, out of 17 learners only 2 students or (11,7%) who passed according to the determined Minimum Passing Grade criteria which is 70.

Syah (in Rostika, 2016:59) [7] defines that learning outcome is a measure of student's achievement both quantitatively and qualitatively after they are given a learning process within a certain period of time.

One of the strategies that can be taken by educators in order to increase student's activeness and learning outcome is by applying active and innovative learning models. Later on participants are required to take an active role in learning activities in class. Arends (in Haryati, 2017: 10) [2] explained that learning model is a pattern of interaction between learners, educator, and learning materials that include strategy, approach, method, and learning technique.

From the above description, it is necessary to have a learning strategy that is expected to increase students' activeness. One of the strategies so that student become more active in the learning process is by using the precise model. The learning model in order to overcome it is by using *Broken Square* learning model. The choice of using the *Broken Square* model is because: a) This learning model has never been done in grade XI; b) The *Broken Square* learning model demands students to think at a higher level, *High Order Thinking Skill*. This is in accordance with the demands of 21st century skills; c) *Broken Square* learning model also requires students to be active and collaborate with their group mates.

In addition, according to Komalasari (2010: 86) *Broken Square* is often called also as a *puzzle*, where the students gather the scattered (broken) materials into a unified material concept that is formed in a triangle / square / heart / parallelogram / rhombus / trapezoid, etc. To make the *Broken Square* media illustration clearer, it is shown below:

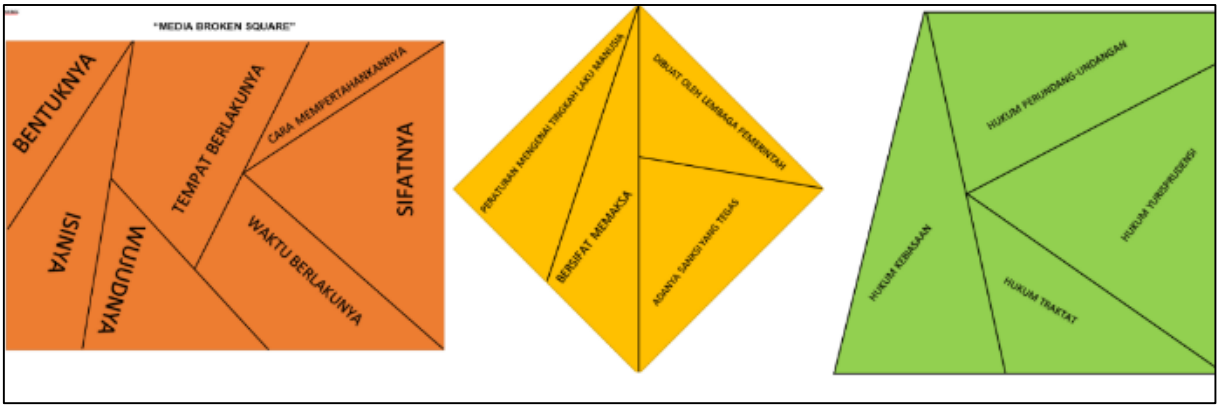

Fig 1: Broken Square Media

The steps in the *Broken Square* type of Cooperative Learning Model are as follow: 1) Teacher prepares the *Broken Square* media which is divided into a several cards. Each card contains one option description of the material concept; c2) Students make groups randomly with a total of 4-5 team members; 3) Each team will be given LKPD and a few pieces of *Broken Square* media card; 4) Each team is tasked to rearrange the *Broken Square* media to form a unified material concept; 5) Each group of students who can arrange the *Broken Square* media before the time limit will be given points; 6) Each group of students paste the *Broken Square* media which was successfully compiled in the prepared students' worksheets; 7) After arranging, by working together, each team determine the concept of the material contained in the Broken Square media pieces; 8) Each team present the results of their team work in front of the class in turns; 9) Students from other groups provide responses, rebuttals and questions; 10) Students give conclusions on the material being studied with the assistance of the teacher.

Methods

In conducting the research, the researchers used Classroom Action Research. According to Kemmis (in Salim, and friends, 2015:19) [9] states that action research is a form of self-reflection research conducted by the participants in social situations (including education) to improve their own practices. This classroom action research was conducted with the aim of improving and enhancing the quality of learning. This research will be conducted in the Indonesian School of Davao-Philippines specifically in grade XI Senior High School. The time for conducting the research is from September until November 2021. This study consists of two

cycles with each cycle consists of several stages such as: planning, implementation, observation, and reflection. The tools or instruments used in this study were lesson plans, students' worksheets, teaching materials, learning media, evaluation, guidelines for observing student learning activeness and guidelines for observing the implementation of Broken Square.

For the data collection, the researchers used Teacher Observation Sheets, Student Observation Sheets, and Test Results. With this data analysis technique, an overview of the improvement in student learning outcomes, as well as a description of teacher and students' activeness in the learning process.

Results and Discussion

Research Result

Researchers conducted classroom actions with the aim of the increasing activeness and learning outcomes in Civics lessons by using the Broken Square type of cooperative learning model for grade XI Senior High School students of the Indonesian School of Davao. This classroom action research was done in 2 cycles and each cycle was carried out in one meeting. The discussion about the object of the research in the form of activeness and learning outcome of grade XI Senior High School students of the Indonesian School of Davao with a total of 17 students.

The data collected in this classroom action research consists of data in the form of grade yang dikumpulkan dalam penelitian tindakan kelas ini terdiri dari data berupa skor nilai keaktifan belajar siswa. Data yang kedua yaitu hasil belajar siswa berupa nilai siswa mengerjakan soal setelah pembelajaran berlangsung. Data yang diperoleh melalui pengukuran kemudian dianalisis dengan menggunakan perhitungan matematika berupa presentase dan nilai rata-rata kelas.

Tabel 1: Results of Data Processing based on Students' Learning Activeness

No	Name	Initial Data		Cycle I		Cycle II	
		Score	Category	Score	Category	Score	Category
1	Clark Laurence J. Tiempo	80	A	80	A		Transferred
2	Dandy Mendome Harman	40	KA	60	CA	80	A
3	Joselyn Lantimona Salim	40	KA	40	KA	80	A
4	Josephene Lantimona Salim	40	KA	40	KA	60	CA
5	Kichi Chloe C. Coralde	60	CA	80	A	100	SA
6	Ryan Jr. Rabika Elarde	60	CA	80	A	100	SA
7	Aaron Dj P. Pontongadil	80	A	80	A	100	SA
8	Alferjay Rabika Callaga	40	KA	40	KA	60	CA
9	Difa Putri Nalia	40	KA	40	KA	80	A
10	Jerly Layang Manis	20	KA	20	KA	40	KA
11	Josafat M. Mahaling	60	CA	80	A	100	SA
12	Helen Mamuno Pangumpia	60	CA	60	CA	100	SA
13	Irish Gold Arbaan Gatdula	40	KA	40	KA	60	CA
14	Kibrat Masalon Barahama	40	KA	40	KA	80	A
15	Krisdianto P. Kalase	60	KA	60	CA	100	SA
16	Lawrence Mahaling	60	CA	60	CA	80	A
17	Riza-Jane K. Wangka	20	KA	40	KA	60	CA
Total / Category		49	Less	55	Enough	80	Active

Ket: **SA** = Very Active, **A** = Active, **CA** = Enough, dan **KA** = Less Active

Tabel 2: Results of Processed Data based on Students Learning Outcomes

No	Name	Gender	Grade Initial	Grade Cycle I	Grade Cycle II
1	Clark Laurence Joven Tiempo	M	80	90	-
2	Dandy Mendome Harman	M	65	70	70
3	Joselyn Lantimona Salim	F	55	75	75
4	Josephene Lantimona Salim	F	45	60	70
5	Kichi Chloe Cabulusan Coralde	F	60	80	80
6	Ryan Jr. Rabika Elarde	M	70	85	85
7	Aaron Dj Panggilawan Pontongadil	M	65	80	80
8	Alferjay Rabika Callaga	M	60	70	75
9	Difa Putri Nalia	F	50	55	70
10	Jerly Layang Manis	F	30	35	45
11	Josafat M. Mahaling	M	65	70	70
12	Helen Mamuno Pangumpia	F	60	75	75
13	Irish Gold Arbaan Gatdula	F	50	65	65
14	Kibrat Masalon Barahama	M	55	70	70
15	Krisdianto Pangumpia Kalase	M	55	75	75
16	Lawrence Mahaling	M	60	65	75
17	Riza-Jane Kaletuang Wangka	F	40	35	50
Total			965	1.115	1.130
Average			57	68	71
% Passing			11.7%	64.7%	81.25%

Ket: KKM = 70

Research Discussion

The effort that has been made by the researchers to increase the activeness and students' outcome in the Pancasila and Civics Education subject in grade XI Senior High School of the Indonesian School of Davao is by using *Broken Square* learning model through learning steps: a) Conveyed the learning objective, b) Provided opportunity for the students to cultivate literacy by reading the materials and watching videos about law, c) Teacher did question and answer whenever a student have difficulties in understanding the material, d) Teacher gave task to the teams using Student Worksheet, f) Learners worked in groups to find concepts and arrange charts into a complete and perfect form, g) Teams did presentations, h) Teacher gave questions or quiz to all the students, i) Teacher gave evaluation to know the student mastery of the academic materials that has been studied, f) recognition of the highest scores of groups and individual.

The activeness observed in this study covers several aspects including (1) Students worked together during group tasks; (2) Students gave suggestions and opinions during group discussions; (3) Searched for information to find concept in Broken Square media; (4) Students were creative in compiling the Broken Square media; (5) Students were brave enough to ask and convey the results of their team work in front of the class. Based on the results of the study that have been conducted, the activeness of the students has increased from cycle I to cycle II. In the 1st cycle, there were 5 students with a percentage of 29.4%, 23.5% enough category and the remaining 47% less active category. In accordance with the predetermined success standards, students should reach 60% from the total number of students of grade XI. So, the researchers did some reflection, then the second cycle was carried out on the following week's meeting. Based on the results of the actions that have been taken, there is an increase in students' activeness. Very active category previously did not appear on the first cycle. Therefore, on the 2nd cycle it started to show the 29.4% or 5 students under very active category. While for the active category there is a total of 35.2%, enough 23.5%, and 5.8% less active category.

Mulyasa (in Wibowo, 2016:130) learning is said to be successful and of good quality if all or the majority of the learners are actively involved both physically, mentally, and even socially in the learning process. Student learning activeness is in a success category when conditions begin to appear marked with the involvement of students such as asking, express opinion, doing tasks, can answer teacher's questions, and can work together with other students, as well as responsible for the given tasks.

This is also in accordance with the constructivist learning theory which is pioneered by oleh Lev Vygotsky. Yuberti (2014:49) says that

"The constructivist view defines learning as a process of knowledge formation. This formation must be done by the students. The student must be active in carrying out activities, think actively, drafting concept, and give meaning to the things which are being studied, but what determines the most the realization of learning symptom is the student's own learning intentions. The teacher does not transfer the knowledge that he has, but help the student to mold his own knowledge and required to better understand the way of thinking or the perspective view of students in learning".

In the application of this theory, students are given the opportunity to express their ideas in their own language, to think about their experiences so that students will become more creative and imaginative and can create a conducive learning environment.

In addition to the increased activeness, the learning outcomes obtained by the students after participating in learning using Broken Square model also increased. At the initial condition before the researchers conducted the study, the average learning outcomes of grade XI was 57 and the students who reached MPG were 11.7%. On the last part of cycle I with the application of *Broken Square* learning model, students learning outcomes showed an increase. The average grade of students learning outcome on cycle I is 68, with students who reached the MPG as much as 64.7% or 11 students. In this case, the target set by the researchers in cycle I has been achieved. The average target score that the researchers had set in cycle I is 60%, while the average result in cycle I was 66.7 with the percentage of 64.7% of students who reached the MPG. Even though the researchers' target in the first cycle has been achieve, to ensure the achievement of learning outcomes, therefore, there is a need for the researchers to apply the same learning model in conducting the second cycle.

After the application of the 2nd cycle. At the end of the cycle II by applying the same model, which is the *Broken Square* type of cooperative learning model, the learning outcome of the students again showed an increase. The average grade of the students on cycle II was 71 with a total of 81.25% percentage of students who reached the MPG. It shows that the data has exceeded the target set by the researchers which the average grade is 70 with 70% of students reached the MPG.

Thus, it can be concluded that this research has been successful because the two research variables showed improvements and the target set for each cycle have been achieved. Aside from the two variables

Thus, it can be concluded that this research has been successful because the two research variables have shown improvement and the targets set for each cycle have been achieved. In addition to the two predetermined variables, students also gave a positive response to the application of the Broken Square learning model in the Civics subject for grade XI.

Conclusions and Suggestions

Based on the results of the data processing obtained from the actions that have been carried out by the researchers in cycle I and cycle II, the following results are obtained: 1) Student learning outcomes initially there were only 2 out of 17 students who passed the pre-test. There was an increased after an action was taken by giving *Broken Square* learning model. In cycle I, from 17 students there were 11 who passed the MPG or 64% and in cycle II out of 17 students there was an increased in the passing grade of learning outcome turned to 81%. In the end of the study the total number of students who passed was 13 out of 16 students. 2) Meanwhile, for the students' learning activeness, from the five aspects observed by students showed an increase of learning activeness which the initial average grade was 49, in cycle I became 55, and in cycle II became 80. When viewed from the activeness data obtained from the results of the questionnaire also increased which was 49% on the initial activity, became 65% in cycle I, and in the end of cycle II was 88%.

Based on the results of that has been conducted, the researchers then suggest: The educators to always innovate in using active and fun learning models and methods. With the

interest and activeness of students, students will be easier to accept and understand the material being taught. In addition, it is expected that educators will be able to use a variety of learning models in delivering subject matter to the students.

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