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THE IMPLEMENTATION OF QUIZ TEAM TYPE ACTIVE LEARNING STRATEGY TO INCREASE THE UNDERSTANDING ON MOVEMENT SYSTEM CONCEPT AT JUNIOR HIGH SCHOOL

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ABSTRACT. This study was conducted to increase the understanding on movement system concept at Junior High School. This study belongs to pre-experimental using *One Group Pretest and Posttest Design*. Subjects of the research were 32 students. Analysis of research data is carried out descriptively quantitatively. Result of this study shows that: (1) lesson plan gets average score of 3.72 which is categorized as excellent; (2) Normalized Gain Score is 0.71; and (3) students response positively; 98,74% of students state they are pleased with this teaching model, 96,88% state it is new for them, 98,75% state it is easy to do, 98,13% state their agreement, and 91% request the application of this model on the following lessons; and (4) the highest learning activity is reading teaching material, of 22,85% students. As a conclusion from this research is that *quiz team* model of teaching is applicable to increase the understanding on movement system concept at Junior High School.

Keywords: *quiz team, understanding of concept.*

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INTRODUCTION

School, as education institution and society miniature, has to develop learning based on the needs of times. It is needed to know learning is the main activity in all of education process at school. Learning process is a stage in which learners develop their cognitive, affective and psychomotor ability. This means that the success of educational goals depends on how the learning process takes place effectively (Hamruni, 2011).

Learning is considered as success and qualified if all or at least almost all of students show high learning activities, great learning spirit and strong confidence. Mulyasa (2003) says that learning is considered as success and qualified if it has uniformly produced a qualified output, as well as in accordance with the needs of community development which means that students have to know more, do much, be excellence, be sociable and be morally. This is meant by superior, moral and hardworking human beings that demands of global community.

Hamruni (2012) says that one of the important principles in learning process is environment creation effort that can make or change students' cognitive structure. Environment creation is aimed to provide learning experience. This is not different far from what is said by Piaget that cognitive structure will grow when students have learning experience. Learning process in a classroom requires student activities fully to look for find and by themselves.

Suprijono (2009) states that in fact, teaching and learning activity at school this time is deeper in memorizing to material learnt rather than the structures in it. Furthermore, Suprijono rates a teacher understanding to learning meaning will give a big influence to the way the teacher teaches.

Warsono and Hariyanto (2012) state that people in 21st century realize more on the importance of preparing young generation whom are bending, creative and proactive in order to create generations skilled in finding solution, wise in making decision, creative thinking, like deliberating, able to communicate ideas effectively and able to work efficiently either individually or in groups.

Active learning is learning which is concluding some ways to make students active since the beginning through activities that build group work and in short time make them think about the learning (Silberman, 2007)

Active learning strategy with quiz team type has the advantage of activating learning environment, activating the students to ask and answer and also nurturing to be responsible through what they learn with fun and non-boring learning strategy. Bransford and Cocking in Beloff (2016) state that National Research Council points out the importance of allowing children to take control in active learning, meta-cognition and knowledge transfer.

The Quiz method according to Devi (2014) is also functioned as an alternative to the use of innovative methods for teaching in medicine. Kirom (2011) states that the use of active learning of quiz team can stimulate student activeness in class so that understanding concept can be achieved.

Movement system material is a material that is important enough to be understood by the students because it contains knowledge about bones, muscles, and joints that connect between the bones and their functions, so it can support the movement of the bones in the body. This material will add students insight into the mechanism of the occurrence of a movement so that students will become more concerned with their body by maintaining health and preventing diseases that can be caused. Discussing with teammates, passing on information obtained, organizing tasks, asking questions and answering questions from the opposite teams, will be able to enliven the learning environment, activate students and provide an experience that can make long-lasting information to students in non-boring way.

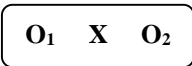
Research Purposes

Research objectives can be formulated as follows:

1. Describe the implementation of lesson plan (RPP) with the active learning strategy of the quiz team type.
2. Describe students activities during the implementation of active learning strategies with the type quiz team.
3. Describe the student's response to the active learning strategy with the quiz team type.
4. Describe the improvement of students' conceptual understanding after active learning of the quiz team type.
5. Describe any difficulties faced in implementing the learning strategy with the quiz team type.

RESEARCH METHODOLOGY

Research subjects from the implementation of active learning strategy of quiz team type in this study are students of class VIII SMPN 1 Tenggarong East Kalimantan academic year 2016-2017 with the number of students as many as 32 people. This research uses One Group Pretest-Posttest Design model developed by Campbell and Stanley (Arikunto, 2010). The design of this study can be described as follows:



Notes:

O1 = pretest to measure students' level of understanding the material before learning.

O2 = post-test to measure the students' level of understanding the material after learning.

X = Treatment of learning with Quiz Team method.

A. Research Instruments

1. Learning Device Validation Sheet

Learning tools in the form of lesson plan, material book and test instrument pieces of concept comprehension that the quality will be measured with the validated instrument.

2. Observation Sheet of the Implementation of lesson plan

Lesson plan implementation sheet is an observation instrument that contains learning steps that teachers should perform on learning activities.

Instrument reliability uses the following formula:

$$R = \frac{A}{D + A} \times 100\%$$

Notes:

R = Reliability (Percentage of Agreement)

A = Frequency of match between two assessors (Agree)

D = Frequency of mismatch between the two assessors (Disagree)

According to Borich (1994), the instrument of observation sheet of lesson plan implementation is said to be reliable, if reliability is $\geq 75\%$.

3. Student Activity Observation Sheet

The instrument contains student activity points and is used to record student activities that arise during the learning process.

4. Concept Understanding Test Sheet

The test sheet contains items that are used to measure or know the contribution of active learning

type quiz team in improving concept understanding on teaching and learning activities.

DATA COLLECTION

Data collection is done in the following ways:

1. Observation

Observation technique is conducted to observe the implementation of learning and student activities that arise during teaching and learning activities.

2. Test

The test is conducted to obtain information about the improvement of students' understanding concept on the movement system material. The test is done twice, pretest, to know the initial knowledge of the students, and the post test to know the result of the implementation of active learning strategy type quiz team.

3. Provision of Questionnaire

Given to students to get information on learning strategy that is done.

DATA ANALYSIS

1. Analysis of Lesson Plan Implementation

Technique of data analysis of lesson plan is done by calculating the average of its implementation according to data given by observer and presented by descriptive quantitative. This implementation assessment is then analyzed by using the following equation:

$P = \frac{\text{Total stages done in teaching and learning process}}{\text{Total stages in lesson plan}} \times 100\%$

Percentage of Lesson Plan's implementation can be found using the following references:

P = <40% (Not implemented)

P = 40% - 55% (Undertaken less well)

P = 56% - 75% (Exactly good enough)

P = 76% - 100% (Implemented well)

(Arikunto, 2010)

The assessment criteria obtained by comparing the mean of the scoring scale are given by both observers with the following assessment categories:

Table Category of Lesson Plan Implementation

Interval Score	Rate Category
1, 00 – 1, 49	Not good
1, 50 – 2, 49	Not good enough
2, 50 – 3, 49	Good enough
3, 50 – 4, 00	Good

(Ratumanan dan Laurens, 2011)

2. Observation Analysis of Student Activity

Data analysis technique of student activity observation uses quantitative descriptive to give description of student activity during learning activity with quiz team learning model. Data on observation of student activity during learning activity were analyzed by using percentage.

The percentage formula of student activity can be presented in the form of the following equation:

$$P = \frac{\sum R}{\sum N} \times 100\%$$

Notes:

P = percentage of student activity

$\sum R$ = number of observation categories

$\sum N$ = total frequency of all observation categories
(Arikunto, 2010)

3. Analysis of Students' Understanding Concept

The analysis to know the improvement of students' understanding concept is obtained by calculating the increased score as follows:

$$(g) = \frac{S_{Post} - S_{Pre}}{S_{Max} - S_{Pre}}$$

Notes:

(gain) = increased understanding of concepts

SPRE = average pretest

SPost = average post test

Smax = maximum score

Furthermore, from the calculation of N-gain is then converted with the following criteria:

Table 3.5 Normalized Gain Criteria

N-Gain Score	Normalized Gain Criteria
$0,70 < N-Gain$	High
$0,30 \leq N-Gain \leq 0,70$	Medium
$N-Gain < 0,30$	Low

Hake (1999)

4. Analysis of Student Response Data

Student response data was obtained from questionnaire of student response to learning activity, and then analyzed by using descriptive quantitative. The response data obtained is used to follow up the learning activities using the quiz team model. Mathematically it can be written as follows:

$$P = \frac{\sum K}{\sum N} \times 100\%$$

Notes:

P = percentage score of student response

$\sum K$ = number of scores obtained

$\sum N$ = Maximum score

Scores obtained can be interpreted by the criteria in the following table:

Table 3.6 Interpretation Score

Respondent Percentage (%)	Interpretation
Figures 0 – 20	Very weak
Figures 21 – 40	Weak
Figures 41- 60	Enough
Figures 61 – 80	Strong
Figures 80- 100	Very strong

(Riduwan, 2010)

RESEARCH RESULT

Observations in this study were conducted on several things including: the implementation of Lesson Plan, the activities of learners, learning outcomes of learners, the response of learners, and difficulties. Analysis of the research results are in the form of description of the average score and percentage. The results obtained at the implementation stage consist of the following data:

A. Observation Results of Lesson Plan (LP) Implementation

No	Aspects Rated	Rata2 Keterlaksanaan			
		Yes	No	LP	C
1	Introductory Activity	√	-	3,91	SB
2	Main Activity	√	-	3,68	SB
3	End Activity	√	-	3,50	SB
4	Time Management	√	-	3,66	SB
5	Class Atmosphere Observation	√	-	3,83	SB
Average Performance		100 %		3,72	VG
Reliability		84,13			

Notes: C = Criteria VG = Very Good

The table above shows that the percentage of LP implementation reaches the criteria of "Very Good", this is in accordance with criteria according to Ratumanan (2011). The value of reliability at each meeting reached a value of $\geq 75\%$ which means that the instrument used was very good (Borich, 1994).

No	Pretest		Posttest		Gain Score	Criteria
	Score	Rate	Score	Rate		
1	40	1,6	80	3,2	0,67	Medium
2	36	1,44	80	3,2	0,69	Medium
3	36	1,44	84	3,36	0,75	High
4	36	1,44	76	3,04	0,63	Medium
5	40	1,6	80	3,2	0,67	Medium
6	40	1,6	76	3,04	0,60	Medium
7	40	1,6	84	3,36	0,73	High
8	44	1,76	80	3,2	0,64	Medium
9	68	2,72	96	3,84	0,88	High
10	36	1,44	80	3,2	0,69	Medium
11	64	2,56	96	3,84	0,89	High
12	32	1,28	76	3,04	0,65	Medium
13	32	1,28	72	2,88	0,59	Medium
14	32	1,28	76	3,04	0,65	Medium
15	52	2,08	88	3,52	0,75	High
16	48	1,92	88	3,52	0,77	High
17	44	1,76	80	3,2	0,64	Medium
18	36	1,44	80	3,2	0,69	Medium
19	36	1,44	80	3,2	0,69	Medium
20	60	2,4	92	3,68	0,80	High
21	44	1,76	80	3,2	0,64	Medium
22	36	1,44	80	3,2	0,69	Medium
23	52	2,08	84	3,36	0,67	Medium
24	68	2,72	96	3,84	0,88	High
25	40	1,6	84	3,36	0,73	High
26	40	1,6	80	3,2	0,67	Medium
27	36	1,44	80	3,2	0,69	Medium
28	44	1,76	84	3,36	0,71	High
29	40	1,6	84	3,36	0,73	High
30	40	1,6	88	3,52	0,80	High
31	40	1,6	76	3,04	0,60	Medium
32	40	1,6	84	3,36	0,73	High
Rata2	42,9	1,72	82,6	3,31	0,71	High

B. Observation Results of Student Activity

Observation of the student activity during the learning process with the quiz team model performed by 2 observers using the instrument on student activity sheet as shown on. Observations of student activities at each meeting can be summarized as follows:

No	Aspects Observed	Meeting			Average
		1	2	3	
1	Listening to teacher explanations	8,14	7,81	7,68	7,88
2	Reading textbook	26,82	21,16	20,57	22,85
3	Paying attention to drawings / props	10,48	14,26	12,63	12,46
4	Working on material book	11,07	11,91	11,91	11,63
5	Discussing the onmaterial book	11,78	12,57	13,35	12,57
6	Actively participating in quiz	11,00	11,39	12,83	11,74
7	Asking questions	4,17	4,17	4,17	4,17
8	Answering questions	8,33	8,33	8,33	8,33
9	Conveying ideas/opinion	3,78	4,10	5,08	4,32
10	Irrelevant Behavior	4,43	4,30	3,45	4,06
	Total	100	100	100	100
	Reliability (%)	89	90	90	89,67

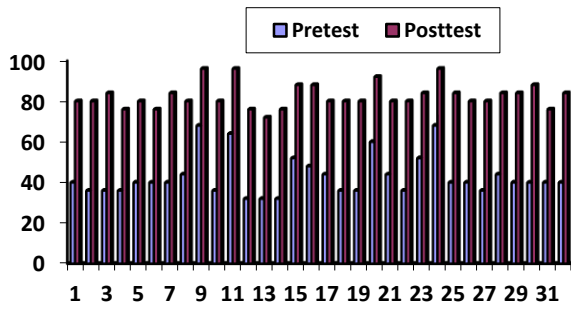
The average reliability gained from meeting 1, meeting 2, and meeting 3 is 89.67%, this indicates the instrument used to observe student activity qualify reliability. (Borich, 1994)

C. Improvement Analysis of Concept Understanding

Assessment of students' understanding concept is an assessment of knowledge learning outcomes (Understanding Concepts). Assessment of the learning outcomes of knowledge is taken by using a test instrument of learning outcomes. Recapitulation of student learning outcomes is presented in the following table:

Table 4.3 n gain Score

Obtaining scores of learning result of concept comprehension can be visualized in the following graphic:



Picture 4.3 Graphic of Pretest Score

D. Student Response to Learning

Students 'responses to learning are obtained by analyzing the students' answers to the student response questionnaire listed in the appendix.

Table 4.4 Student's Response to Learning

DISCUSSION

A. Observation Results of Lesson Plan Implementation

The assessment of the implementation of the learning scenario with the quiz team model at three meetings was given by two observers who stated the criteria were implemented and not implemented by giving the scoring score. The data provided in the form of an assessment of Teaching and Learning Activities includes preliminary activities, core activities and closing activities, time management and classroom atmosphere. Meeting percentage of lesson plan implementation of 3.61 with reliability of 78,57; Meeting 2 percentage of lesson plan implementation of 3.70 with reliability 83.33 and meeting 3 percentage of lesson plan implementation is 3.85 with reliability 90.48, so the average score for the lesson plan implementation is 3.72 and got very good criteria with average the average reliability of the instrument of the lesson plan implementation of 84.13%.

Detailed data indicate that learning has been done in accordance with the plan that has been prepared. According to Arikunto (2010) this implementation has the criteria of "Well done". Table 4.1 also shows that the percentage of lesson plan implementation reaches the "Very Good" criteria. The value of reliability at each meeting reached a value of $\geq 75\%$ which means that the instrument used is very good (Borich, 1994). Percentage of implementation at each meeting shows a gradually increasing change, it can be interpreted that the ability of teachers to implement learning in the class the better

B. Student Activities During Teaching and Learning Activities

Dalvi (2006) says that the quiz team animates the atmosphere and activates the students to ask and answer. This learning actually also increases the activity of asking and answering questions, seen in enthusiastic students raised their hands to ask and answer. Teaching quiz teams quite effectively spur the courage to ask students, although at first some students seemed forced to do so. This happens because each students gets the job to ask questions to other groups and answers questions from other groups. Questions or answers may be of assistance from a group of friends with more competence, but herein lies the interaction between groups. Students who lack the help of students who have advantages. This is in line with what Freeman, et al (2006) suggests that through quiz team learning can enhance peer interaction and active learning in the

No	Opinion	Percentage (%)	Category	
1	Pleasure	Yes	98,75	Very strong
		No	1,25	Very weak
2	Update	Yes	96,88	Very strong
		No	3,12	Very weak
3	Ease	Yes	98,75	Very strong
		No	1,25	Very weak
4	Approval on learning strategy	Yes	98,13	Very strong
		No	1,87	Very weak
5	Approval for the use of strategy on the next subject	Yes	91,00	Strong
		No	9	Weak

classroom.

The results of this study at the same time prove what Kiron (2011) states that the quiz team model can enable learners, and Prince (2004) concluded that the active learning strategy is the most relevant used in the Faculty of Mechanical Engineering.

C. Improvement of Concept Understanding

Kardi (2012) states that learning categorized comprehension can include understanding concepts and applying concepts. Understanding the concept in this study was obtained by performing tests twice which are pretest and post test. Obtaining the value of the test is then analyzed by calculating the normalized gain score. The normalized gain scores were used to determine the improvement of students' conceptual understanding of motion system materials in human between before and after learning using the active quiz team type learning

strategy. Analysis of test values is also the basis for calculating the sensitivity of the item as shown in Table 3.3 which shows the numbers ranged from 0.31 to 0.47. This value indicates that the item points are used to measure the understanding of sensitive categories of concepts, which means they can provide reliable measurable information. According to Gronlund (1982) an item is said to be sensitive to learning when $S \geq 0.30$. The greater the sensitivity, the sensitivity of the item to the learning effects is also greater (Arikunto, 2010).

Increased understanding of the concept of knowledge has an average value of 0.71 which means having high criteria (Table 4.3). Determination of this criteria in accordance with that has been proposed by Hake (1999) that the gain score is said to be high when it reaches above or equal to 0.70. This result proves that active learning can improve students' conceptual understanding of teaching materials, as J.S. Bruner that in learning the students should actively participate with the concepts and principles, so that they gain experience, and conduct experiments that allow them to discover their own principles (Slavin, 2011).

Understanding the concept of students on the material of the human motion system has improved after through learning with the Quiz Team model. (Table 4.3) The comparison of pretest and post test values can be seen as follows: none (0%) of students who understood 7 indicators when pretest changed to 63% of students at post test, 3% of students had an understanding of 6 indicators (pretest) this value increased to 31% (post test). 9% of students have an understanding of 5 indicators (pretest), down 6% (post test), 25% of students understand 4 indicators (pretest), to 0% (post test). 50% of students understand 3 indicators (pretest) to 0% (post test) and 12.5% of students only understand 1 pretest indicator to 0% (post test).

Learning with this strategy is considered successful inviting student activeness in the classroom so as to improve understanding of student concept. This is in accordance with the results of Maisaroh (2010) and Kirom (2011) research which stated that the implementation of Active Learning method of Quiz Team type has given a positive influence to the improvement of student learning outcomes. The results of this study are supported by the previous studies results (Prahani, et al., 2015; Prahani et al., 2016; Prahani, et al., 2018; Sudiarman et al., 2016; Yasir, et al., 2016) that the media, teaching materials, devices, and learning models of quality and feasible (meet the valid, practical, and effective aspects) can improve student learning outcomes.

D. Student Response

Student response to learning with active learning strategy type quiz team obtained from the

questionnaire that filled by students at the end of the study. Descriptions presented in the questionnaire include updated learning components, interest (happy / unhappy) during learning, and approval of applied learning strategies. Data obtained from the questionnaire, presented in Table 4.4 illustrates that the learning component applied is new to the students, in general the students feel happy with this new strategy. Students express their seriousness and interest through approval using this strategy on sub-subject of the next. Interest in this strategy was detected from students' activities by reading 22.85% of textbooks as a confirmation for questioning during the learning activities followed by their enthusiastic discussions of 12.57%, working on material book 11.63%, and actively participating in quiz 11, 74%.

A positive response to the quiz model was also raised by Devi (2014) in his study of medical students. The students also suggest to use this model more on other topics because this model is considered more innovative, interesting, interactive, and informative than regular regular lectures, but it also makes them better prepare the material to be studied. This activity is designed by Silberman to avoid teacher-dominated teaching.

E. Problem and Solution

Problems and solutions encountered during the learning are conducted in the classroom, among others, are as follows:

Table 5.1. Barriers During Learning

No	Problems faced	Alternative Solution
1	Limited learning resources	Give students the freedom to use some learning resources such as the internet
2	The updating of this learning strategy makes the students a little awkward to do quizzes	Provide information about the clear type of quiz team learning if necessary simulate before the lesson
3	Enthusiastic students do question and answer when the quiz is high enough to expand the scope of the material	Provide clear material restrictions for each group in discussing the theme

F. Research Findings

Based on the research conducted and the results of data analysis obtained, it can be put forward some findings related to learning model quiz team, which are:

1. Lesson plan implementation achieve the average value of 3.55 with the category of "Very Good". This shows the active learning strategy of the quiz team type can be implemented well in class.
2. The student activity in the learning shows the step by step activity in the learning model of quiz team can be done well by students without difficulty and able to reduce the activity that is not relevant in the class.
3. Improved learning outcomes in this study showed a positive result that is equal to 71% with high category according to Hake (1999).
4. Student responses to the implementation of active learning strategy type quiz team showed a positive thing with the percentage of interest 98,75%, feel new in learning strategy as much as 96,88%, percentage of student assumed active learning strategy with quiz team model is easy to be implemented equal to 98,75%, percentage of students using the components of active learning component type quiz team of 98.13% and the percentage of students agree if this strategy is used on the next subject as much as 91%.

CONCLUSION AND RECOMMENDATION

A. Conclusions

Based on the analysis, discussion, and research findings, it was concluded that the active learning of the quiz team type of motion system material in humans can increase the learning activity of the students in the classroom so as to increase the understanding of the concept of junior high school students.

B. Suggestions

Some suggestions that can be put forward by researchers based on the findings in this study are as follows:

1. Preparation and management of learning needs to be well designed so that the implementation can be more optimal with the time available.
2. Learning Strategy The type of quiz team can be used for the subject matter of the movement system in humans and on other subjects or even on different subject areas, but the selection of the material needs to be adjusted.
3. Active learning type quiz team requires students to read more and find out, it would be

nice if the school has an available internet network.

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