THE INFLUENCE OF QUIZ TEAM LEARNING MODEL ON STUDENT LEARNING ACHIEVEMENT IN THE 1ST GRADE OF MTs MUHAMMADIYAH PURWOKERTO

IAIN PURWOKERTO

THESIS

Presented to Mathematics Education Study Program, State Institute on Islamic Studies Purwokerto as a Partial Fulfillment on the Requirements for Undergraduate Degree in Mathematics Education

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STATEMENT OF ORIGIN

Herewith I,

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Declared that this Thesis script **"The Influence of Quiz Team Learning Model on Student Learning Achievement in The 1st Grade of MTs Muhammadiyah Purwokerto"** is entirely my own research outcome or work, except in given parts which are cited the sources.

Purwokerto, on 7th October 2019

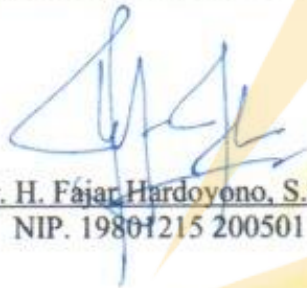Who I Declare

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APPROVAL

Thesis entitled :

THE INFLUENCE OF QUIZ TEAM LEARNING MODEL ON STUDENT LEARNING ACHIEVEMENT IN THE 1ST GRADE OF MTs MUHAMMADIYAH PURWOKERTO

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OFFICIAL MEMORANDUM OF SUPERVISOR

To the honorable
Dean of Faculty of Tarbiya
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Assalamu'alaikum Warahmatullahi Wabarakatuh

Having guided, analyzed, directed and corrected writing thesis by Istiqomah (Student Number: 1522407020) entitled :

"THE INFLUENCE OF QUIZ TEAM LEARNING MODEL ON STUDENT LEARNING ACHIEVEMENT IN THE 1ST GRADE OF MTs MUHAMMADIYAH PURWOKERTO."

I recommended that this thesis has been able to be submitted to Dean of Faculty of Tarbiyah and Teacher Education to be examined in order to get Belowgraduate Degree on Education (S.Pd).

Wassalamu'alaikum Warahmatullahi Wabarakatuh

Purwokerto, on 7th October 2019
Supervisor

Dr. H. Fajar Hardoyono, S.Si., M.Sc
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MOTTO

خير الناس

انفعهم للناس

واحسنهم حلقا

ممتاز ... ممتاز ...ممتاز

DEDICATION

I dedicate this little work to

My beloved parents, Dad Karsimin and Mom Soimah

My beloved handsome and *sholeh* brothers, Arif Fakhri and Dzikri Maftuh Hadi

And My beautiful young sister, Inayah Khoirunnisa

My Almamater IAIN Purwokerto

My Islamic Boarding School of eL-FIRA Purwokerto

My readers of my thesis

Me and my self that believe about spirit and miracle of "Life".

PREFACE

First of all, *Alhamdulillahirobbil 'Alamiiin,* thanks unto Allah SWT, who always given me happiness and healthiness for completing my thesis entitled, "The Influence of Quiz Team Learning Model to Students' Learning Achievement in Class VII Grade of MTs Muhammadiyah Purwokerto" smoothly.

Peace and salutation always be given to our beloved prophet Muhammad SAW, as the leader of the most perfect true Muslims.

With all the strength and patience that Allah Almighty has, that given to the writer. Finally, I can complete the preparation of my undergraduate thesis well and smoothly, though there are still many shortcomings. Accompanying to all those who provided support and encouragement, both morally, materially and sincerely, and thanks giving to :

1. Dr, H, Moh. Roqib, M.Ag., as Rector of IAIN Purwokerto.
2. Dr. Suwito, M.Ag., as Dean of Tarbiyah and Teacher Training Faculty of IAIN Purwokerto.
3. Dr. Suparjo, S.Ag., M.A., as Vice Dean I of Tarbiyah and Teacher Training Faculty of IAIN Purwokerto.
4. Dr. Subur, M.Ag., as Vice Dean II of Tarbiyah and Teacher Training Faculty of IAIN Purwokerto.
5. Sumiarti, M.Ag., as Vice Dean III of Tarbiyah and Teacher Training Faculty of IAIN Purwokerto.
6. Dr. Maria Ulpah, S.Si., M.Si., as Chief of Mathematics Education Study Program of Tarbiyah and Teacher Training Faculty of IAIN Purwokerto.
7. Dr. Mutijah, S.Pd., M.Si., as academic advisor who has guided the researcher during the study at IAIN Purwokerto.
8. Dr. H. Fajar Hardoyono, S.Si., M.Sc., as the supervisor who gives researcher best guidance, corrections, and advices by his patience.
9. Muflihah, SS., M.Pd. as the examiner of my thesis.

There is no word that the writer can convey, except thank you very much and do hope that everyone who had helped writer in completing the preparation of this thesis always healthy and hopefully always accepted all good deeds by Allah SWT. And this paper can provide benefits for writer in particular, and for readers in general.

Aamiin Allahumma Aamiin.

Purwokerto, 6th October 2019
Researcher,

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THE INFLUENCE OF QUIZ TEAM LEARNING MODEL ON STUDENT LEARNING ACHIEVEMENT IN THE 1ST GRADE OF MTs MUHAMMADIYAH PURWOKERTO

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ABSTRACT

Mathematics was still difficult subject for students of class VII in MTs Muhammadiyah Purwokerto. The new curriculum of 2013 had been applied, but teacher still taught the learning by lecture method in this school. Active student was very needed to build the good interaction in the class easily. Teacher could deliver the material with funny learning model exactly.

This research was aimed to know the influence of Quiz Team learning to Students' Learning Achievement in the 1st grade of MTs Muhammadiyah Purwokerto.

This research is quantitative research by quasi experimental design. The population were three classes of VII A, VII B and VII C. The sample was taken randomly. The Treatment of lecture method was applied in class VII A as control class that consist of 20 students. The Treatment of Quiz Team learning was applied in class VII B as experiment class that consist of 19 students. Class VII C was still learning the previous material, it was not a sample of this research. Data collection technique used tests of Pretest and Post test from 6 questions of Quadrangle material, and data analysis technique used students' score of Post Test and Pretest by N-Gain Score.

There was a positive influence in the amount of 0.65 by applying the Quiz Team learning model to student learning achievement on Quadrangle material in the 1st grade of MTs Muhammadiyah Purwokerto. And there was influence in the amount of 0.50 in the treatment of lecture learning. The different treatments of those classes were group discussion and student creativity to make questions for quiz.

Keywords: Quiz Team, Learning Achievement, Mathematics.

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CHAPTER I
INTRODUCTION

A. Background of The Study

Mathematics is a universal science that underlies the development of modern technology. It has an important role in various disciplines and advances human thinking power. The rapid development in the field of information and communication technology, today is based on the development of mathematics in the fields of number theory, algebra, analysis, opportunity theory and discrete mathematics. To master and create technology in the future requires a strong mastery of mathematics from an early age.[1]

In the field of education, Mathematics is a very important and crucial subject. Where students are intended to be able to have good understanding and skills in solving problems in life systematically and have a good level of analysis. In the level of education in Indonesia, the elementary school, junior high school and senior high school level are a place for Indonesian students to explore the world of education formally. And, one of the most important subjects is Mathematics.

Mathematics has several tangible links in student's life for junior high school students. How does mathematics train the level of student mathematical ability and analysis on some material that is concerned with geometry, opportunities, flat wake, statistics, and others. One of the concrete material that is learned in real life is about Quadrangle concept for students of class VII.

Students are introduced some of flat shapes that have four elements of length and width that having values and units. Students are expected to be able to calculate correctly and be able to measure flat wiring orderly and systematically. Quadrangle in life around, can be found in a flat square,

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[1] Dr. Ibrahim, *Pembelajaran Matematika Teori dan Aplikasinya,* 2012, (Yogyakarta: SUKA-Press), P. 35.

rectangle, trapezium, parallelogram, kite-laying, and rhombus. Students were first introduced to the concepts of square and rectangle.

Teacher is a part of important stakeholder to deliver the material to students in class. This is because, the teacher has several roles in the learning process, as follows: (1) The teacher as an educator. The teacher is an educator who is a character, role model, and identification for students, and their environment. Therefore, teacher must have certain quality standards that are includes of responsibility, authority, independence and discipline. (2) The teacher as a real teacher. The role of the teacher as a real teacher and mentor in the activities of students is influenced by various factors, such as motivation, maturity, student relations with the teacher, verbal ability, level of freedom, security and teacher skills in communication.

Teacher should have various skills as an effort to optimize this role, one of the way is applying the learning strategy. The learning strategy is an action plan (series of activities) which includes the use of methods and the use of various resources /strengths in learning. Some mathematics learning strategies include of cooperative learning strategies, innovative learning strategies, problem based learning strategies and others. Learning will be systematic, directed, and easy to achieve the expected goals by applying the suitable strategy.

The learning process does not run well if the teacher can not deliver the material by supporting of correct strategy in class. It will bring negative impacts that will disrupt the learning process. The negative impacts include of the steps in learning that are not well from expectations. The learning process has no direction in the process or objectives, and difficult to achieve the learning objectives.

This problem occured in the learning process of Mathematics in one of the Madrasah Tsanawiyah schools, MTs Muhammadiyah Purwokerto in class VII too. Based on the results of preliminary observations and interviews with the teacher who taught the mathematics subject, several problems could be identified besides of economy and struggle factors. Teacher has not applied a

specific strategy yet, and the students were less enthusiastic to take part in the mathematics learning process in the classroom.

The results of the diagnosis show that the problem is caused by the teacher that has not developed a new learning strategy to increase student learning achievement. Lecture method was still applying in this learning.

One effort that can be done to implement of learning process is active learning strategy. Active learning strategies in the learning process are students who are expected to be actively involved in learning activities to think, interact, do to try, discover new concepts, and produce a work. Conversely, students are not expected to be passive to receive subjects matter like an empty glass waiting to be filled. Students are not passive empty glasses, which receive the knowledge and information as described above only.[2]

One of the Active Learning Strategy is Quiz Team. Quiz Team learning can increase the student responsibilities by a pleasant atmosphere.[3] Students are guided to be active individually and in groups. Passive interaction was happened in the learning between students and teacher. The good interaction, student teamwork, and the confident are needed to be learned on mathematics learning. Student comprehension can be increased by their understanding while making quiz and the solution. Students were able to increase the enthusiasm and motivation to study mathematics, especially in Quadrangle material, square and rectangular. Regarding of those reasons, this research was conducted. This research is intended to increase student learning achievement.

Based on the problem of statements above, researcher feels comfort and interested to do a research under a tittle of "The Influence of Quiz Team Learning Model on Student Learning Achievement in The 1st Grade of MTs Muhammadiyah Purwokerto".

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[2] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan Pendekatan PAILKEM,* 2013, Jakarta : Bumi Aksara, P. 76 – 77.

[3] Hisyam Zaini dkk, *Strategi Pembelajaran Aktif di Perguruan Tinggi,* 2002, Yogyakarta : CTSD, P. 54.

B. Operational Definition

1. Influence of Quiz Team Learning Model

In Oxford Learner's Pocket (2008), Influence is an effect that something/somebody has on the way somebody thinks or behaves or on the way something develops.[4]

Quiz Team learning model is an active learning strategy. Active learning is an approach of learning that involve student activities to access the informations and knowledge to discuss and learn the process of learning. Student experience can be increased their comprehension on learning. According to Hisyam Zaini, Quiz Team learning model can raise student struggle and mindset critically. Quiz Team learning strategy can increase teamwork and can increase the student's responsibility about what they are learning in fun atmosphere.[5] Moreover, active learning can develop student intelligence comprehension, as like analyzing and synthetic, measuring on learning process, and apply in daily activity.[6]

2. Student Learning Achievement

The Regulation of the Minister of National Education (*Permendiknas*) Number 20 of 2007 states that the assessment of education is the process of gathering and processing information to determine the achievement of student learning achievement. Assessment of learning achievement conducted by teacher uses a variety of assessment techniques, namely in the form of tests, observations, assignments either individually or in groups, and other forms that match with the characteristics of competencies and the level of student development. Meanwhile, in *Permendiknas* Number 16 of 2007 stated that the assessment is one of the important elements that must be mastered by an educator in carrying out his duties in learning activities at school.

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[4] Oxford Learner's Pocket Dictionary. 2008. New York : Oxford University Press
[5] Ngalimun, *Strategi dan Model Pembelajaran,* 2016, (Yogyakarta: Aswaja Pressindo), P. 211.
[6] E. Mulyasa, *Kurikulum yang Disempurnakan Pengembangan Kompetensi dan Kompetensi Dasar,* 2009, (Bandung : Remaja Rosdakarya), P. 191.

In thıs research, student learning achievement is measured by *N-Gain* score. It is looking for the different score between *Post test* and *Pretest* that is given by researcher from Control class and Experiment class in Quadrangle material. And then, compare the average value from Control class and Experiment class.

C. Problem Statement

Based on the problems above, we can know that the problem statement of this research is :

Does Quiz Team Learning Model can increase the student learning achievement in the 1st grade of MTs Muhammadiyah Purwokerto?

D. Objective and Significance of The Research

1. Objective of The Research

   Based on the problem statement above, objective of this research is :

   Describe the influence of Quiz Team learning model to student learning achievement in 1st grade of MTs Muhammadiyah Purwokerto.

2. Significance of The Research

   Based on the problem statement above, significances of this research are :

   a. Theoretical Significances

      1) This research will be a reference for other researches.

      2) As a representation of influence of Quiz Team learning model to increase student learning achievement for learning contents of line and angle.

   b. Practical Significance

      The important of practical significances for :

      1) Student, by applying Quiz Team learning, students are able to interact to mathematics lesson actively and courageously, both of student and student, or students and teacher in classroom.

2) Teacher, teacher can make many variation of learning model as like Quiz Team learning model to increase the student active participation in the class.

3) School, can be used as a consideration in motivating teaachers to create active, effective, and efficient learning by applying the Quiz Team learning.

4) Researcher, researcher is able to add the perception of increasing the student learning achievement by applying Quiz Team learning model.

E. Literature Review

Literature review is a part of research to create a planning of research by learning the findings by exploring, examining, and identifying things that already exist to find out what is and what does not yet exist.

Based on the literature review, the researchers conducted a title that was almost the same as my research title, including:

A study conducted by Nugroho Susanto, Parijo, and Husni Syahrudin, a student in the economic education study program FKIP UNTAN Pontianak entitled: "Pengaruh Model Pembelajaran Team Quiz Terhadap Hasil Belajar Kelas XI SMA Muhammadiyah 2 Pontianak". The research method used is the Ex Post Facio method and the analysis used is quantitative analysis which consists of (quantitative descriptive analysis, statistical test and quality). By using a simple linear test and t test in this study, the results of this research show that the influence of the team quiz learning model is very influential on the learning achievement of class XI students of Muhammadiyah 2 High School in Pontianak. In my research, I used a research method that is quasi-experimental for mathematics subjects in the comparison material in class VII MTs Muhammadiyah Purwokerto.[7]

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[7] http://jurnal.untan.ac.id/index.php/jpdpb/article/view/1684, Vol.2No. 4, 2013 Tuesday, 14th May 2019 at 01:23 am.

A thesis from the research conducted by Wahyu Danang Saputro, a student from the Automotive Engineering Education Study Program at the Faculty of Engineering UNY (2016) entitled: "Pengaruh Metode Pembelajaran Team Quiz Terhadap Prestasi Belajar Siswa Pada Mata Pelajaran Teknologi Dasar Otomotif Kelas X Jurusan Teknik Kendaraan Ringan SMK Muhammadiyah 3 Yogyakarta". This research is a quasi-experimental study. The number of samples in this study were 52 students divided into two classes, namely the experimental class in TKR class X 3 and the Control class in TKR class X 1 with 26 students each. In this study, it was found the results of the study that the achievement of students taught by the Quiz Team method was higher than the students taught by the lecture method, with proven t count> t table that is equal to (6,503> 2,056). In my study, the object of the study was students from class VII of MTs Muhammadiyah Purwokerto using the Control class and the experiment class.[8]

A scientific publication manuscript written by Ningrum Herlinawati Sari from Muhammadiyah University of Surakarta (2015) entitled: "Pengaruh Metode Quiz Team Terhadap Hasil Belajar Siswa Kelas IV SD Aisyiyah Unggulan Gemolong Tahun 2014/2015". This study uses a population of all fourth grade students of SD Aisiyah Gemolong in 2014/2015. The analysis technique used is simple regression analysis and analysis prerequisite test in the form of normality and homogeneity test. The conclusion in this study is that there is a significant effect between the quiz team method and the influence of 46% on the learning achievement of fourth grade students of SD Aisyiyah in 2014/2015. In my research, using a quasi-experimental approach by raising the comparison material in class VII MTs Muhammadiyah Purwokerto.[9]

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[8]http://eprints.uny.ac.id/46253/ , ePrints@UNY, Tuesday 14th May 2019 at 14:20 pm.
[9]https://www.google.com/url?q=http://eprints.ums.ac.id/32616/13/NASKAH%2520PUB
LIKASI.pdf&sa=U&ved=2ahUKEwjcg03EKMnjAhWL2FAKHe3BCtcQFjAAegQIAhAB&usg=
AOvVaw1SG7MURFf8sAG4_cvUD0ym, Tuesday, 14th May 2019 at 15:00 pm.

F. Hypothesis

Hypothesis comes from the word hypo (*hypo*) which means *less than* and thesis (*thesis*) which means *opinion*. So, a hypothesis is an opinion or conclusion that is temporary in nature, not really status as a thesis. The hypothesis is a new one possible answer to the problem that was raised.

To solve the problem in this study, the researcher proposes the working hypothesis as follows :

H_o : There is no influence of Quiz Team learning model to student learning achievement in 1st grade of MTs Muhammadiyah Purwokerto.

To prove that this research is objective, the researcher submits a null hypothesis as proof :

H_1 : There is influence of Quiz Team learning model to student learning achievement in 1st grade of MTs Muhammadiyah Purwokerto.

If the null hypothesis is proven, the work hypothesis is rejected. Thus, it means that there is no significant effect of the Quiz Team learning strategy on student learning achievement in mathematics learning. And conversely, if the null hypothesis is not proven, the working hypothesis is accepted then. It means that there is a significant influence between the Quiz Team learning on student learning achievement.

G. Structure of The Study

This research are divided into three parts, beginning part, contents part and closing part.

The first part of this research consist of Cover Page; Page of Title; Page of Statement of Original; Page of Approval; Page of Official Memorandum of Supervisor; Page of Motto; Page of Dedication; Page of Preface; Page of Abstract; Page of Content; List of Table; and List of Appendices.

The second part is contents, consist of five chapters those are :

Chapter I is Introduction that consist of Background of the Study; Operational Definition; Problem Statement; Objective and Significance of Research; Literature Review; Hypothesis; and Structure of the Study.

Chapter II is Quiz Team Learning Model and Student Learning Achievement of Mathematics theories from research focus that are : Theoretical Framework (Quiz Team Learning, Learning Achievement, and Mathematics Learning in Junior High School) and The Correlation of Quiz Team Learning Model and Student Learning Achievement..

Chapter III is Research Method that consist of Type of Research; Time and Location of Research; Population and Sample of Research; Variable and Indicator of Research; Technique of Data Collecting; Technique of Data Analysis.

Chapter IV is Result and Discussion that consist of Description of School, Presentation of Research Output, Analysis of Research Output, and Discussion.

Chapter V is Closing Remarks that contain of Conclusion and Suggestions.

The last are Bibliography and Appendices.

CHAPTER II
QUIZ TEAM LEARNING MODEL AND STUDENT LEARNING
ACHIEVEMENT OF MATHEMATICS

A. Quiz Team Learning

1. Understanding of Learning Strategy

There are many opinions from instructional technologist about learning strategy, those are;

Kozma and Gafur (1989) generally explain that learning strategies can be interpreted as each selected activity, which can provide facilities and assistance to students towards achieving the learning objectives.

Gerlach and Ely (1980) explained that learning strategies are the methods that chosen to deliver of learning material in a particular learning environment. Further, the learning strategy include of nature, scope, and sequence of learning activities that can provide learning experiences for students.

Dick and Carey (1990) explained that learning strategies consist of all components of learning material and procedures or stages of activities used by the teacher in order to help student achieve that certain learning goals. According to them, the learning strategy is not only limited to the procedures or stages of learning. Rather it include of material arrangements or packages of learning program for students.

Gropper in Wiryam and Noorhadi (1990) explains that learning strategies are the selection of certain types of training that are suitable for the learning objectives to be achieved. He emphasized that every behavior expected to be achieved in learning activities and practiced by students. Considering that objectives learning and material are different each other, than needs require

different requirements for students. For example, to be a beautiful jumper, we must learn to swim first (a beautiful jumping condition is swimming) or to become a music arranger, must learn about musical notes first. Based on this example, it appears that each learning activity requires practice or direct practice.[10]

There are various learning strategies that can be developed in an effort to achieve competence. Learning strategies are basically used to achieve student competency appropriately in the time and cost as efficiently as possible to achieve student learning goals of cognitive, psychomotor, and affective aspects.

In cognitive learning is an effort to instill learning material in memory in the student's brain. Materials on cognitive competencies are material that are tiered from something concrete to something abstract. In this cognitive aspect the learning process will try to make something abstract to something concrete. This process is not something easy, for this reason then a learning strategy is developed. Thus, the learning strategy in cognitive aspects is basically to facilitate the acceptance of students by changing from something abstract to something concrete. These changes in the hope, that it will make it easier for students to understand and then store them in their memories for a long time.[11]

In the psychomotor aspects of learning strategies are used to instill skills in students about their skills master. Learning strategies in this aspect are used to make simple various complex movements that must be taught by the teacher to students, so that students can do it more easily.[12] For example, to be able to teach students a skill "put up" and "dismantle" the teacher must have the right strategy. So that, the technique of "installing" or "dismantling" can be easily

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[10] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan...*, P. 4 – 5.

[11] Sugeng Listyo Prabowo dkk, *Perencanaan Pembelajaran,* 2010, Malang : UIN Maliki PRESS, P. 106 – 107.

[12] Sugeng Listyo Prabowo dkk, *Perencanaan ...,* P. 107.

understood (is simpler) by students, then can be imitated easily or even modified it to be a better skill.

Whereas in the affective aspect, learning strategies are used to make aspects of value as forming attitudes something that is implemented in student life in everyday life, becoming a pattern of life in the lives of students everyday.[13] For example, to be able to teach students about caring for others, students must internalize these values or be aware of the importance of these values in everyday life. To internalize these values students must be shown the examples of behaviors that adopt these values and the benefits to be gained by implementing those values.

Mall Silberman in Dryden Gordon and Vos Jeannette (1999) about :

> *When I hear, I forget*
>
> *When I hear and see, I remember a little*
>
> *When I hear, see and ask questions about or discuss with someone else, I begin to understand*
>
> *When I hear, see, and discuss, and do, I acquire knowledge and skills*
>
> *When I teach to another, I master*

Based on Mal Silberman's statements above indicates that a good learning must be directed from the teacher. So that, students experiences are the direct process of what they have learned. Even if students are able to teach what they have learned to their friends, the students will gain more expertise and understanding of what they are learning. Thus, it is clear that learning strategies can be used as an effort to achieve the student learning achievement that have been planned effectively and efficiently.[14]

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[13] Sugeng Listyo Prabowo dkk, *Perencanaan ...,* P. 107.

[14] Sugeng Listyo Prabowo dkk, *Perencanaan ...,* P. 107=108.

Based on several views on the learning strategies above, than a new understanding of learning strategies, namely learning strategies are ways that will be selected and used by a teacher to deliver material. So, students can achieve learning goals easier.[15]

2. Active Learning Model

   a. Definition and Characteristics of Active Learning

The concept of active learning is not just a purpose of learning activities, but rather one of the strategies used to optimize learning process. Active in this strategy is a position of teacher as a person who creates a conducive learning atmosphere as a facilitator, while students must be active. In active learning process, there is an interactive dialogue between students and students, students and teachers, or students with other learning resources. In this active learning environment, students are not burdened the learning in solving problems encountered individually, but they can ask and discuss something each other. So, there is no meaningful learning burden. With this active learning strategy, it is expected to grow and develop the potential students that have in optimizing learning achievements.[16]

Some characteristics of active learning as stated in ALIS learning model of (Active Learning in School, 2019) as follows; (1) student centered learning, (2) learning related to real life, (3) learning encourages high level thinking children, (4) learning serves different learning styles, (5) learning encourage children to interact multi-way between students and teachers, (6) learning using the environment as a medium or

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[15] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan…,* P. 5.
[16] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan…,* P. 4 – 5.

source of learning, (7) learning centered on children, (8) structuring the learning environment makes it easier for students to carry out learning activities, (9) teachers monitor student learning, (10) provide feedback on student learning achievements.[17]

In achieving those efforts, one of the learning strategies that we can used is active learning strategy. Active learning is all forms of learning that allow students to play an active role in the learning process itself both in the form of interaction between students and students with their teachers in the learning process. According to Bonwell (1995) active learning has the following characteristics are:[18]

1) The emphasis on the learning process is not from the delivery of information by the teacher, but on the development of analytical and critical thinking skills on the topics or problems discussed.

2) Students just not only listen to lessons passively, but do something related to the subject matter.

3) The Emphasis on exploring values and attitudes are relating with the subject matter.

4) More students are required to think critically, analyzing and evaluating. Students Feedback will be occurred in the learning process quickly.

To create active learning, several studies (Uno Hamzah, 2009) found one of them, that children learn from their experiences. Children have to learn to solve their problems too. Children can learn from their experiences well. They learn by doing, using the senses, exploring the environment, both in the

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[17] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan...*, P. 75.

[18] Umi Mahmudah dkk, *Active Learning Dalam Pembelajaran Bahasa Arab,* 2008, Malang: UIN Malang PRESS, P. 64.

form of objects, places, and events around them. They learn from direct experiences and real experience (writing letters to their friends, planting flowers, measuring objects around, etc). Or learn from forms experience that touch their feelings (such as reading books, see paintings, watching TV, and listening to the radio). Active involvement with these objects or ideas can encourage their mental activities to think, analyze, conclude, and discover new concepts of understanding and integrate them with concepts that have been previously known.

Active learning strategies in the learning process are students who are expected to be actively involved in learning activities to think, interact, do to try, discover new concepts, and produce a work. Conversely, students are not expected to be passive to receive subjects matter like an empty glass waiting to be filled. Students are not passive empty glasses, which receive the knowledge and information as described above only.[19]

b. Understanding of Quiz Team Learning

Quiz is a part of learning to make students more active and innovative in their cognitive aspects.

Team is a significant part of Quiz Team learning. Students are divided into 3 groups. Teams will give supports of academic working in learning. For giving the respects and intention each others, interpersonal and students attitude. [20]

According to Hisyam Zaini, Quiz Team learning model can raise student struggle and mindset critically. Quiz Team learning strategy can increase teamwork and can increase the student's responsibility about what they are learning in fun atmosphere.[21] Moreover, active learning can develop student intelligence

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[19] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan…*, P. 76 – 77.
[20] Robert E. Slavin, *Cooperative Learning…,* P. 144.
[21] Ngalimun, *Strategi dan Model Pembelajaran,* 2016, (Yogyakarta: Aswaja Pressindo), P. 211.

comprehension, as like analyzing and synthetic, measuring on learning process, and apply in daily activity.[22]

Quiz Team learning model is an active learning strategy. Active learning is an approach of learning that involve student activities to access the informations and knowledge to discuss and learn the process of learning. Student experience can be increased their comprehension on learning.

c. Steps of Quiz Team Learning

One of the active learning model is Quiz Team. Quiz Team learning can increase the student learning responsibilities by a pleasant atmosphere.[23]

The steps for active learning strategy of Quiz Team type are :[24]

1) Choose a topic that can be delivered in three segments.

2) Divide students into three groups, A, B, and C.

3) Convey to students of the learning format that will be delivered, then begin the presentation. Limit the presentation to a maximum of 10 minutes.

4) After the presentation, ask group A to prepare their questions that are related to the material just delivered. Groups B and C use this time to see their notes again.

5) Ask group A to ask questions to group B. If group B cannot answer the question, throw the question to group C.Group A giving the questions to group C, if group C cannot answer, throw it to group B.

6) If this question and answer has completed, continue the second session, and appoint group B become the question group. Do it like a process for group A.

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[22] E. Mulyasa, *Kurikulum yang Disempurnakan Pengembangan Kompetensi dan Kompetensi Dasar,* 2009, (Bandung : Remaja Rosdakarya), P. 191.
[23] Hisyam Zaini dkk, *Strategi Pembelajaran ...,* P. 54.
[24] Hisyam Zaini dkk, *Strategi Pembelajaran ...,* P. 54 – 55.

7) After group B has finished with the question, continue the third session, and then designate group C as the questioner.

Closing part, finishing the learning by concluding the question answer and explain if there is a wrong understanding of students in the class.

B. Learning Achievement

1. Understanding of Learning Achievement

The best way to achieve the learning goals is by sorting and choosing the right model, strategy, approach, method, and learning techniques those are related with the subject matter. Both of the tasks must be measured, assessed, and evaluated for success. If the learning process is to be known then the process measurement is carried out while if the learning achievement are to be known then the learning achievement are measured.

Suke Silverius explained that measuring education has objects, namely: student achievement or learning achievement, student attitudes, student learning motivation, intelligence, talent, emotional intelligence, interests, and personality. Measuring student learning achievement means that they are given questions in the form of tests or questionnaires and processing the results of their answers in the form of numbers is the achievement achieved by students. The measurement of student learning achievement is obtained after several subjects of a mathematical material at the end of the semester are given a test (known as EHB = Evaluation of Learning Achievement), the result is learning value.

The Regulation of the Minister of National Education *(Permendiknas)* Number 20 of 2007 states that the assessment of education is the process of gathering and processing information to determine the achievement of student learning achievement. Assessment of learning achievement conducted by teacher uses a

variety of assessment techniques, namely in the form of tests, observations, assignments either individually or in groups, and / or other forms that match the characteristics of competencies and the level of development of students. Meanwhile, in *Permendiknas* Number 16 of 2007 stated that is the assessment is one of the important elements that must be mastered by an educator in carrying out his duties in learning activities at school.

The currently assessment has being carried out is a competency-based assessment. Assessment in mathematics learning with this system has a continuous scoring system, valuation techniques, bills (types and forms of instruments on bills), the domain of measurement, preparation of test grids, utilization of test results, preparation of reports.

The student learning abilities, values and measurements obtained from students can be used to describe student abilities during the learning process. Assessment of students in the category of high, medium and low ability students while attending mathematics learning.

2. Factors of Affecting Learning Achievement

Success in learning, if someone is able to show a change of him. These changes can be shown by their thinking abilities, skills, or attitudes towards an object.[25]

Success in learning is greatly influenced by the integrative functioning of each supporting factors. The factors that influence the success of learning, are:

a. Students by some backgrounds, which include of:

  1) Intelligence quotient

  2) Aptitude

  3) Attitude

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[25] Wahid Murni, etc, *Evaluasi Pembelajaran (Kompetensi dan Praktik),* 2014, *(Yogyakarta : Nuha Litera),* P. 18.

    4) Interest

    5) Motivation

    6) Belief

    7) Consciousness

    8) Discipline

    9) Responsibility

b. Professional teachers, who have:

    1) Pedagogic competence

    2) Social competence

    3) Personal competence

    4) Professional competence

    5) Adequate educational qualifications

    6) Sufficient welfare

c. The atmosphere of participatory and interactive learning whichis manifested by the existence of reciprocal communication and multiple communication in an active, creative, effective, innovative, and enjoyable manner, namely:

    1) Communication between teacher and student.

    2) Communication between student and student.

    3) Contextual and integrative communication between teacher, students, and the environment.

d. Facilities and infrastructure that support the learning process, so students feel comfortable and enthusiastic for learning, which includes:

    1) Land, including of school gardens, courtyards and sports fields.

    2) Buildings, consist of office rooms, classrooms, laboratories, libraries, and extracurricular activity rooms.

    3) Equipment, including of office stationery, learning media, both electronic and manual.

4) Curriculum as basic framework or direction, specifically regarding of behaviour change students are integrally, both related of cognitive, affective, and psychomotor.

5) The religious, social, cultural, political, economic, scientific and technological environment, as well as the surrounding natural environment, which is supporting the implementation of the learning process actively, creatively, effectively, innovatively, and pleasantly. This environment is an opportunity factor for the occurrence of contextual learning.

6) Thermostatic leadership that is healthy, participatory, democratic, and situational that can build intellectual happiness, emotional happiness, happiness in creating threats into adversity happiness, and spiritual happiness.

7) Adequate financing, both of recurrent budget and capital budget that is coming from government, parents, and other stakeholders. So that, school is able to move from being a user of cost to being a revenue.[26]

The above problems are reinforced by information that most researchers report that between lectures and discussions there is no difference that means in real mastery of factual information. Durability aspects, which are quite important, are rarely researched, and the results of existing studies tend to contradict each other. In an interesting study McLeish (1966) noted that after the lecture there were 40% received immediately, or 40% were recalled by students after the lecture. But one week later that knowledge shrank to 15 to 20%. The research conducted by Ward

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[26] Nanang Hanafiah, *Konsep Strategi Pembelajaran,* 2012, (Bandung: Refika Aditama), P. 8 – 10.

(1956) revealed that there was an interaction between student durability and ability.[27]

3. Indicators of Intellectual and Creativity Student

Changes in learning achievement as described above, in *Bloom's Taxonomy*, one can be said to succeed in achieving three domains, namely: (1) cognitive domain or thinking ability, (2) affective or attitude domain, (3) psychomotor domain or skills.

a. Indicators of Cognitive Aspects

Indicators of cognitive aspects, include of:

1) Knowledge, the ability to remember material that has been learned.

2) Comprehension, the ability to reach the understanding, translate, and interpret.

3) Application, the ability to use material that has been learned in real situations.

4) Analysis, the ability to decipher, identify and unite separate parts to build a whole, and so on.

5) Synthesis, the ability to conclude, unite separate parts to build a whole, and so on.

6) Evaluation, the ability to assess the value or price of something, such as a statement or research report based on a criterion.

b. Indicators of Affective Aspects

Indicators of affective aspects, include of:

1) Receiving, which is the willingness to present himself to receive or pay attention by stimulus.

2) Responding, consist of participation, reacting, showing pleasure and voluntary response.

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[27] Ivor K. Davles, *Pengelolaan Belajar,* 1991, Jakarta : Rajawali Pers, P. 233.

3) Organizations, integrating different values, solving conflicts between values, building value systems, and conceptualizing values.

4) Characterization, which is an affective process of their own value system that Controls their behaviour for a long time that shapes their lifestyle, these learning achievement are related to general patterns of personal, social, and emotional adjustment.

c. Indicators of Psychomotor Aspects

Indicators of psychomotor aspects (Samson 1974) include of:

1) Perception, which is the use of tools to guide the influence of motion.

2) Set, willingness to take an action.

3) The response guide, the initial stage of learning skills that is more complex, including the imitation of the motion and then experimenting by using multiple responses in capturing a motion.

4) Mechanism, which is a movement of appearance that describes the process by motion which has been learned, then accepted or adopted into a habit. So that, it can be displayed confidently and proficiently.

5) Complex over response, the appearance of advanced and careful movements in the form of complex movements, high-level motoric activity.

6) Adaptation, a better skill that has been developed, so that it appears to be able to process movements and adapt them to specific demands and conditions in a more problematic atmosphere.

7) Origination, the creation of a new movement pattern that fits in certain situations and problems as creativity.[28]

Munandar (1992) reveals that characteristics (indicators) of gifted students from intellectual terms, are; (1) easy to receive lessons, (2) high memory, (3) have extensive vocabularies, (4) sharp reasoning (logical thinking, critical thinking, understanding causal relationships), (5) good concentration power (attention is not easily distracted), (6) mastering many material about various topics, (7) happy and often reading, (8) able to express thoughts, feelings or opinions verbally or in writing smoothly and clearly, (9) able to observe carefully, (10) love to study dictionaries, maps, and encyclopedias, (11) can solve problems, (12) find errors quickly, (13) find principles in a description, (14) read at a younger age, (15) abstraction power is quite high, (16) always busy handling various things.

While in creativity terms, including of; (1) having great curiosity, (2) often asking weighty questions, (3) giving lot of ideas and suggestions for a problem, (4) being able to express opinions spontaneously and not be shy, (5) having and appreciate the sense of beauty, (6) have their own opinions and can express it, are not easily influenced by others, (7) have a high sense of humor, (8) have a strong imagination, (9) are able to put forward ideas for solving a problem that is different from others, (10) can work alone, (11) love to try new things, (12) are able to develop and specify an idea (elaboration ability).[29]

This stress research is assessment of student learning achievement, based on cognitive aspects in class VII on quadrangle material in MTs Muhammadiyah Purwokerto.

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[28] Nanang Hanafiah, *Konsep Strategi …,* P. 8 – 10.
[29] Hamzah B. Uno and Nurdin Mohamad, *Belajar dengan…*, P. 251 – 252.

C. Mathematics Learning in Junior High School

1. Understanding of Mathematics

Mathematics is a universal science that underlies the development of modern technology. It has an important role in various disciplines and advances human thinking power. The rapid development in the field of information and communication technology, today is based on the development of mathematics in the fields of number theory, algebra, analysis, opportunity theory and discrete mathematics. To master and create technology in the future requires a strong mastery of mathematics from an early age.[30]

According to Ruseffendi (1991), mathematics is the language of symbols; deductive science that does not receive inductive proof; the knowledge of patterns of order and organized structures, from elements that are not defined, to axioms or postulates, and finally to theorem. Whereas the essence of mathematics according to Soetadji (2009), which is to have an object of abstract purpose, rests on agreement, and a deductive mind set.[31]

Mathematics certainly seems to have an "image problem" when it comes to its likeability among adolescents. Students enjoy mathematics far less than reading (OECD, 2004). For educators and parents, the message is that mathematics instruction and assessment may need to change, perhaps dramatically, to win back the student who are prone to dislike mathematics and who suffer from associated anxiety.[32]

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[30] Dr. Ibrahim, *Pembelajaran Matematika …*, P. 35.

[31] Heruman, *Model Pembelajaran Matematika di Sekolah Dasar,* 2007, (Bandung: PT Remaja Rosdakarya), P. 1.

[32] Jacqueline P. Leighton, and Mark J. Gierl, *The Learning Science in Educational Assessment,* 2011, New York : Cambridge University Press, P. 164.

2. Objective of Mathematics Learning

   Objective of Mathematics Learning, which is to equip students by their ability to think logically, analytically, systematically, critically, and creatively, and the ability to cooperate. Competence is needed, so that students have the ability to obtain, manage, and use information to survive in an ever-changing, uncertain and competitive situation.[33]

3. Scope of Class VII Mathematics Subjects for SMP/MTs

   Competency standard is a framework that explains the basis for developing a structured learning program. Competency standard is the focus of assessment too.[34] Competency standard of graduate student for Junior High School (SMP) or Madrasah Tsanawiyah (MTs) Students, including of:

   a. Understanding real number concepts, calculating operations and their properties (commutative, associative, and distributive), simple numbers (arithmetic and nature - its properties), and use in problem solving.

   b. Understanding algebraic concepts, including of: algebraic forms and their elements, linear equations and inequalities and their solutions, sets and operations, relations, functions and graphs, systems of linear equations and their solutions, and using them in problem solving.

   c. Understanding geometric shapes, elements and their properties, measurements and measurements, including: relationships between lines, angles (painting angles and dividing angles), triangles (including painting triangles) and rectangles, Pythagorean theorems, circles (lines tangent allies, outer circles and inner circles of triangles and describe them), cubes, beams,

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[33] Dr. Ibrahim, *Pembelajaran Matematika…*, P. 35.
[34] Dr. Ibrahim, *Pembelajaran Matematika…*, P. 36.

prisms, pyramids and webs, congruence, tubes, cones, balls, and use them in problem solving.

d. Understanding the concept of data, collecting and presenting data (by tables, images, diagrams, graphs) the range of data, the average calculation, mode and median, and applying in problem solving.

e. Understanding the concept of sample space and opportunity of events, and utilizing in problem solving.

f. Having an attitude of respect for mathematics and use in life.

g. Having the ability to think logically, analytically, systematically, critically, and creatively, and ability for working together.[35]

Competency standard and basic mathematics competencies, in fact, have been compiled in a curriculum document as a learning platform for developing these capabilities. In addition, it is intended to develop the ability to use mathematics in problem solving and communicating ideas by using symbols, tables, diagrams, and other media.[36]

D. The Correlation Between Quiz Team Learning Model and Student's Learning Achievement

Active learning is a learning to invite students active in study. When students are active, it means that the activities are dominated in learning. Students are active to think and share their ideas, problem solving, or applying what they are learning, and the implementation in their life.

In this active learning, students are invited to participate in mental and physics learning. It mention that teacher teach students by finding active atmosphere in class, students can find, process, and construct the knowledge and new skills. Because of this way, usually students will feel

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[35] Dr. Ibrahim, *Pembelajaran Matematika…*, P. 38.
[36] Dr. Ibrahim, *Pembelajaran Matematika…*, P. 36.

comfort and excited to join the learning and maximize student learning achievement.[37]

By looking for student learning achievement, there is relation between material and the strategy of learning in class. Quiz Team learning as a part of Active learning will be influenced for students motivation,student understanding and student learning achievement. In this research, to measure student learning achievement by applying the Quiz Team learning model is coming from several factors beside of score of *Post test*, those are activities, teamwork, integrity, ethic, and discipline.

Student activities, can be showed by student participation individually or in group. Activities come from many factors, as like discussing, giving question, giving opinion and tutors of the same age. Teamwork, can be showed by students participation to make a good quiz that will be delivered for other groups and while student answer the quiz to get a score of their own team. Integrity, is a part of good manner for student's attitude. Ethic, can be showed from student presentation in front of class, and students moral by students and students, students and teacher, and so on. Discipline, based on the time of learning, students learn how to manage a good time for making questions, answering questions, discusssing problems, and giving conclusions.

In this research, knowing about Quiz Team learning achievement is presented by team creativity to make good questions as quiz that will be served to the rival team. A good team can build student motivation and struggle while join the class. Beside that, some of assessment of affective and psychomotor aspects are needed in this research too. It is presented by five points of assessment, those are : 1) the structure of presentation; 2) teamwork; 3) observe attentively; 4) skill of speaking; 5) active participation. The complete data can be read in appendix 17.

Quiz Team learning applies a quiz and a team. How students enthusiasttic to understand the Quadrangle material and discuss in a team.

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[37] Ngalimun, *Strategi dan Model…,* P. 204.

Learning about good interaction between students and students or students and teacher. Teacher can appreciate students achievement and increase students struggle for learning mathematics. So that, student learning achievement can be increased by Quiz Team learning as an appropriate learning.

In this context, it is necessary to present strategies related to active learning, in the sense that the word using active learning strategies in the classroom becomes very important because it has a large influence of student learning achievement. In mathematic learning, a capability to solve a mathematic problem is not enough. A limit solution of the problems lean to direct student for have a procedural certain thought, by formula without understanding sense of the formula. Misfortune, mathematics problem are solved by memorizing formula.[38]

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[38] Ariyadi Wijaya, *Pendidikan Matematika Realistik,* 2012, Yogyakarta : Graha Ilmu, P. 8.

CHAPTER III
RESEARCH METHOD

A. Type of Research

This type of research is an Experimental research with *Quasi Experimental Design* to look for the influence of Quiz Team learning model on the student learning achievement about quadrangle material in class VII of MTs Muhammadiyah Purwokerto. *Quasi Experimental Design* is used to control variables of this research. In this research, Researcher gives label for both of treatment. The treatment of Quiz Team learning was applied to the Experiment class, by dividing class into three groups discussion. Meanwhile, the treatment of Lecture method was applied to the control class.

Research design can be read on table 3.1.

Table 3.1
Research Design

Class	*Pretest*	Treatment	*Post test*
Experiment (E)	Y_1	X_1	Y_2
Control (C)	Y_1	X_2	Y_2

Explanation :

E   = Experiment class

C   = Control class

Y1 = First test for both of classes

X1 = Treatment of Quiz Team Learning

Y2 = Second test for both of classes

X2 = Treatment of Lecture method

At the beginning of this research, students were given a *Pretest* question to determine student ability to solve problems based on the material. Then, students of Experiment class were trained by applying the Quiz Team learning strategy. Meanwhile, students of Control class use lecture method strategies. At the end of this research after being treated, students were given a *Post test* question to find out the student learning achievement. The difference score of *Pretest* and *Post test* data that is increasing student learning achievement as the main data of this research.

B. Time and Location of Research

The research had begun with preliminary observations from December, 7th - 16th 2018 in MTs Muhammadiyah Purwokerto. And the main research has been carried out on July, 15th May - 15th July 2019, as material of consideration as follows:

1. Based on the observation, there has never been a research related to the Quiz Team learning model to student learning achievement in class VII MTs Muhammadiyah Purwokerto.

2. MTs Muhammadiyah Purwokerto has been fulfilled the requirements as school of general institution.

3. Students of Class VII have just implemented the learning of curriculum 2013 that is focused on active student in class.

The activity was started by giving instrument trial to 10 students of class VII of SMP Islam Walisongo, Kembaran. Then, giving a treatment in the form of *Pretest* and *Post test* as data to obtain the mathematics score of student learning achievement in MTs Muhammadiyah Purwokerto.

C. Population and Sample of Research

The subject of this research is students of class VII in MTs Muhammadiyah Purwokerto, those are divided into :

1. Population

Population is an object or subject that meets a certain conditions that is related to the research problems in an area.

The population is students of class VII in MTs Muhammadiyah Purwokerto there are three classes, 57 students. Details of the students are: *class VII A,* 20 students; *class VII B,* 19 students; and *class VII C,* 18 students.

2. Sample

The sample is a part of an object / subject that has the same characteristics of population.[39]

Sample of this research are class VII A as Control class and VII B as Experiment class. Class VII A consist of 20 students, and class VII B consist of 19 students, total students as sample of this research is 39 students.

Researcher does not choose class VII C because of they have not finished the last material and the number students is less than other classes. In this reason, researcher choose class VII A and class VII B as samples of this research.

D. Variable and Indicators of Research

Based on the title above, variables of this research are independent and dependent variables, as follows :

1. The variable of Quiz Team learning is chosen as independent variable. The indicator to measure this Quiz Team learning activity as follows:

   a. Teacher gives the main material and competencies achievement.

   b. Students think and study about the material or problems due to the material that teacher taught.

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   [39] Sugiyono, *Metode Penelitian*, 2017, Bandung : ALFABETA, P. 218.

c. Discussion in groups to make questions that related with the material, and will be given to other groups.

d. Take turns one of student each groups to come forward and read the question.

e. Students in groups (who stays in home) discuss to answer the question.

f. Accumulating scores each groups.

g. Giving conclusion and giving reward for the best group.

2. Variable of student learning achievement was selected as dependent variable. Student learning achievement is measured by some indicators as follows:

a. Students can determine wide and circumference of square.

b. Students are able to determine wide and circumference of rectangle.

c. Students are able to solve the problems due to the material about square and rectangle in daily life.

E. Technique of Collecting Data

In this research, data were obtained through preliminary observations which included of observation, interview, tests (*pre test* and *post test*), and documentation.

1. Test

a. *Pretest*

Pretest was used to calculate student's ability about the quadrangle material before giving treatment by Quiz Team learning in class VII B and Lecture method in class VII A.

b. *Post test*

Post test was used to calculate student's ability after giving treatment by applying Quiz Team learning model in class VII B and Lecture method in class VII A.

Students are pleasured to answer the *Post test* questions to measure student learning achievement. *Post test* is essay questions that is consist of 6 questions. Scoring of *Post test* is divided into number 1 until 4 maximum score is 15, and for number 5 and 6 maximum score is 20, depend on students answer in their answer sheets.

Student learning achievement was calculated by the different score between *Post test* and *Pretest* score that is used as main research after giving the treatment of Quiz Team learning as Experiment class and Lecture method as Control class,

Researcher choose 10 students of Class VII in SMP Islam Walisongo Kembaran as trial respondents before giving the treatment,. The reason is students class VII of SMP Islam Walisongo Kembaran have received the material in their school. The indicators of trial test is mentioned to know index of question difficulty, and discriminating index, as follows:

1) Difficulty Index

Difficulty Index is a student proportion that is correct answered with the number of all students.

This is the formula below :[40]

$$DL = \frac{\sum B}{\sum P}$$

Explanation :

DL = Difficulty level

$\sum B$ = number of students with the correct answer

$\sum P$ = number of students (all participants)

[40] Rizki Aulia Rachmah, *Thesis of Efektifitas Strategi Pembelajaran Team Quiz Terhadap Hasil Belajar IPA di MI Ma'arif NU 01 Langgongsari Banyumas, 2015,* IAIN Purwokerto, P. 46.

Table 3.2
Difficulty Index Category[41]

Coefficient Interval	Categories
0,00 – 0,32	Hard
0,33 – 0,66	Moderate
0,67 – 1,00	Easy

In this research, students will be given some questions that consist of hard, medium, and easy categories.

Table 3.3
Output of Difficulty Index Testing

No	Difficulty Index	Category
1	0,55	Moderate
2	0,55	Moderate
3	0,58	Moderate
4	0,31	Hard
5	0,37	Moderate
6	0,49	Moderate

Based on difficulty index testing of questions from 6 questions, consist of 5 questions that are include of medium category, namely number 1, 2, 3, 5, 6. Meanwhile, hard question category there are 1 question, number 4. The data that is due with the difficulty index can be read in appendix 11.

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[41] Rizki Aulia Rachmah, *Thesis of …,* P. 47.

2) Discrimination Index

Discrimination Index is a question classifier ability that can distinguish which one students of high ability and which one students of low ability.

These is the formula :[42]

$$DP = \frac{\sum T_B}{\sum T} - \frac{\sum R_B}{\sum R}$$

Explanation :

DP = Distinguishing Power

$\sum T_B$ = number of students that answer correctly of high ability students

$\sum T$ = number of high ability students

$\sum R_B$ = number of students that answer correctly of low ability students

$\sum R$ = number of low ability students

Table 3.4
Classification of Discrimination Index[43]

Coefficient Interval	Categories
$0,00 - 0,20$	Low
$0,21 - 0,40$	Moderate
$0,41 - 0,70$	High
$0,71 - 1,00$	Very High

[42] Rizki Aulia Rachmah, *Thesis of ...*, P. 48.
[43] Rizki Aulia Rachmah, *Thesis of ...*, P. 49.

Table 3.5
Output of Discrimination Index Testing

No	Discriminating Index	Category
1	0,22	Moderate
2	0,36	Moderate
3	0,67	High
4	0,42	High
5	0,37	Moderate
6	0,27	Moderate

Based on output of discrimination index testing in table 3.5, from 6 questions, there are 4 questions include of moderate category, number 1, 2, 5, and 6. And, there are 2 questions include of high, number 3 and 4. Some questions will be changed with other questions. The complete data can be read in appendix 11.

2. Observation

Observation technique is a supervision and entry for visible symptoms of research subject systematically.[44] In observation, researcher observes the student activity in applying the Quiz Team learning strategy in class VII B and Lecture method in class VII A.

In this learning both of Quiz Team learning and Lecture method, researcher focused on observing some student activities of:

a) Activity

b) Teamwork

c) Integrity

d) Ethic

e) Discipline

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[44] Ahmad Tanzeh, *Metodologi Penelitian Praktis,* 2011, Yogyakarta :Teras, P. 84.

3. Interview

Interview is used to collect the information regarding the student's ability of mathematics learning in class. In this research, there are two respondents, Mrs. Dra. Rasiwen as principal of MTs Muhammadiyah Purwokerto, and Mrs. Wiko Sari, S.Pd, as mathematics teacher in this school.

This research took the interviews on Saturday, 15th December 2018. From the information about learning system in this school, researcher knew that students still learning about the new curriculum of 2013. Sometimes, students felt confused to learn about mathematics. Beside of that, applying of team was rarely in class. Students were still lack interested for studying mathematics. The complete data can be read in appendix 1.

4. Documentation

Documentation is useful to complete the additional supporting data for this research. Researcher collects some data from staff administration in MTs Muhammadiyah Purwokerto as like teacher's schedule, list of student names of class VII A and class VII B. And the real teaching from some pictures are needed.

F. Technique of Data Analysis

1. *N-Gain* Score

N-Gain score is used to know the progress of student learning achievement before giving treatment and after giving treatment by Quiz Team learning. The progress of the average of student learning achievement are quantifiable by Normalized Gain formula.[45]

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[45] Zaenurrohman, etc, *Efektifitas Model Pembelajaran Mathematic Realistic Education Terhadap Pemahaman Konsep Perkalian Siswa Kelas II MI,* Prosiding Seminar Nasional Matematika dan Pendidikan Matematika Universitas Negeri Yogyakarta, 2018, P. 157.

$$N - Gain = \frac{S_{post} - S_{pre}}{S_{max} - S_{pre}}$$

Explanation :

$S_{post} = Postest$ score

$S_{pre} = Pretest$ score

$S_{max} = $ Ideal maximum score

To classify the predicate of student learning achievement based on the student progress, researcher use criteria that can be read in table 3.6.

Table 3.6
Criteria of *N-Gain* Score

Interval	Category
$g > 0,7$	High
$0,3 < g \leq 0,7$	Moderate
$g \leq 0,3$	Low

While the average of *N-Gain* score of *Post test* and *Pretest* are moderate and high category, it means that there is influence between Quiz Team learning to student learning achievement in class VII of MTs Muhammadiyah Purwokerto.

Meanwhile, if the average of *N-Gain* score of *Post test* and *Pretest* is low category, it means that there is no influence between Quiz Team learning to student learning achievement in class VII of MTs Muhammadiyah Purwokerto.

CHAPTER IV
RESULT AND DISCUSSION

A. Description of School

1. The Establishment History of MTs Muhammadiyah Purwokerto

   At the beginning of the establishment of MTs Muhammadiyah Purwokerto was called Madrasa Mualimin Mualimat. It has founded on 1ˢᵗ January 1958 with 6 years of education, 3 years of Madrasah Tsanawiyah at junior high school level and 3 years of Madrasah Aliyah at senior high school level. Over time, there was a change in name, namely MTs Muhammadiyah Purwokerto in 1858.

   By promoting a strong moral character and promoting the breadth of knowledge that hopes after studying in MTs Muhammadiyah Purwokerto, students have noble morals and ready to become a strong fortress to spread the pure teachings of Islam.

2. Geographical Location

   MTs Muhammadiyah Purwokerto is an Islamic Education Institution located in the lowlands at the coordinates of Latitude (Latitude): -7.420218 and Longitude (Longitude): 109.243243. The address at Jl. Overste Isdiman III, No. 20 TELP. (02816574775) Postal Code 53114 East Purwokerto District, Banyumas Regency, Central Java Province

3. Vision and Mission of MTs Muhammadiyah Purwokerto

   Vision:

   Piety, Smart, Excellent, Skillful, and Akhlaqul Karimah

   Mission:

   a. Forming students who are devoted to Allah, almighty god with the basics of knowledge of the teachings of Islam in accordance with the Qur'an and hadith.

   b. Create learning activities that are fun, creative and innovative.

   c. Prepare competitive students to continue to a higher level.

   d. Practice speaking in Arabic and English thematically.

e. Printing skilled, entrepreneurial and moral students.

4. Purpose and Objectives of Muhammadiyah Education

a. The realization of Muslim people who are virtuous, noble, competent, believe in themselves, love the motherland, useful for society, and the country, do charity towards the realization of a primary, just and prosperous society blessed by Allah SWT.

b. Promote, develop knowledge, and skills for the advancement of people in the development of the nation and state society.

c. Together with the government to advance the organization of cultural education in accordance with Article 31 of the 1945 Constitution, namely:

1) Every citizen has the right to receive instruction.

2) The government strives and organizes a national teaching system that is regulated by law.

5. Educators and Educational Personnel

The educators and educational personnel at MTs Muhammadiyah Purwokerto, as follows:

Table 4.1
Educators and Educational Personnel

No	Name	Assignment
1	Dra. Rasiwen	Principle and Bahasa's Teacher
2	Drs. Faiz	Vice Principle and Teacher of SKI and Fiqh
3	Wahab Isroni, S.Pd	Teacher of IPA and TIK
4	Ernawati Purworini	Teacher of IPS Terpadu
5	Harianto, S.Pd	Teacher of Sports, Javanese and TIK
6	Suhartini, S.Pd	Teacher of IPA Terpadu
7	Neny Martiningsih, M.Pd	Teacher of English
8	Titis Novitasari, SE	Teacher of Culture Art and Javanese

9	Sudarso, S.Pd	Teacher of English and Muhammadiyah
10	Fitroh Tohiroh, S.Ag	Teacher of Arabic and BTA
11	Wiko Sari, S.Pd	Teacher of Mathematics
12	Hera Septriana, M.Pd	Teacher of Indonesia
13	Dani Laksana, S.Pd	Teacher of PKn
14	Laelatul Maghfiroh, S.Pd.I	Teacher of Aqidah Akhlak, Fiqih, and BTA
15	Aida Nur Aini, S.Pd	Teacher of Aqidah Akhlak
16	Rifqi Subekti, S.Pd	Teacher of Mathematics and TIK
17	Puspita H, S.Psi	Teacher of BK
18	Ahmad Fauzan Ma'ruf	Teacher of Quran Hadis and Fiqih
19	Sekhun	Head of Education Staff
20	Wiji Satrianingrum	Staff
21	Yayuk Mujiati	Treasurer of Madrasa
22	Sulami	Security of Madrasa

6. Facilities and Infrastructure

As for supporting learning in MTs Muhammadiyah Purwokerto, supported by the implementation of facilities and infrastructure including of

Table 4.2
Facilities and Infrastructure

No	Facility	Information
1	Room of Principle	1 Room
2	Room of Teacher	1 Room
3	Room of Education Staff	1 Room
4	Room of Consulting	1 Room
5	Library	1 Room
6	Laboratory of Computer	1 Room
7	Laboratory of IPA	1 Room
8	Field	1 Field

9	Canteen	1Room
10	Hotspot Area	School Area
11	Classroom	10 Rooms

B. Presentation of Research Output

1. Implementation of Learning

   Quiz Team learning is a team technique. It can increase student responsibility for what they learn in a way that is fun and unthreatening or does not make students feel afraid.[46]

   Quiz Team learning as researcher using for Experiment class in this research, here are the steps of the learning :

   a) Choose a topic that can be delivered in three segments.

   b) Divide students into three groups, A, B, and C.

   c) Convey to students of the learning format that will be delivered, then begin the presentation. Limit the presentation to a maximum of 10 minutes.

   d) After the presentation, ask group A to prepare their questions that are related to the material just delivered. Groups B and C use this time to see their notes again.

   e) Ask group A to ask questions to group B. If group B cannot answer the question, throw the question to group C.Group A giving the questions to group C, if group C cannot answer, throw it to group B.

   f) If this question and answer has completed, continue the second session, and appoint group B become the question group. Do it like a process for group A.

   g) After group B has finished with the question, continue the third session, and then designate group C as the questioner.

   h) finishing the learning by concluding the question answer and explain if there is a wrong understanding of students in the class.

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[46] Melvin L. Silberman, *Active Learning …,* P. 175.

Mathematics learning in this research is about quadrangle material that applied for class VII A as Control class by Lecture method and class VII B as Experiment class by Quiz Team learning during two times or 4 hours learning. *Pretest* are given to both of the classes on Wednesday, 15th May 2019. *Post test* are given to Experiment class on Friday, 24th May 2019.

The details of learning process of students of class VII in MTs Muhammadiyah Purwokerto, these are :

Table 4.3
List of Details of Research Schedule

No	Day/Date	Time	Class	Treatment
1	Wednesday/15th May 2019	10:55 – 11:30	Experiment	*Pretest*
	Wednesday/15th May 2019	11:30 – 12:05	Control	*Pretest*
2	Thursday/16th May 2019	10:20 – 11:30	Experiment	Material
	Thursday/16th May 2019	11:30 – 12:40	Control	Material
3	Thursday/23th May 2019	10:20 – 11:30	Experiment	Material
	Monday/20th May 2019	10:55 – 12:05	Control	Material
4	Friday/24th May 2019	07:45 – 08:35	Experiment	*Post test*
	Friday/24th May 2019	08:35 – 09:25	Control	*Post test*

Beside of that, there are some supporting and inhibiting factors while applying Quiz Team learning strategy in MTs Muhammadiyah Purwokerto, those are :

a) Supporting Factor

1) Teacher's guidance for students in group discussion or individual.

2) Student's active participation that making learning of mathematics are easy and funny by Quiz Team Learning.

b) Inhibiting Factor

1) Limited time for applying the program.

2) Not enough facility.

3) Students sometimes feel lazy to study when students are tired to join many activities in school.

4) Group discussion rarely applying in mathematics learning in class.

2. Description of Research

The presentation of the data is used as an overview regarding the distribution of data obtained in the field. In this study, the data were *Pretest* and *Post test* on Mathematics subjects about quadrangle material in class VII MTs Muhammadiyah Purwokerto.

The researcher will distribute the results of the *Pretest* and *Post test* from the Control class (applying lecture method) and the Experiment class (applying Quiz Team learning).

The student activities in the process of Quiz Team learning quantitatively as follows:

a) Students can think and having active attitude to follow this learning well.

b) Student can be interacting with others in discussion time to build a good team.

c) Student can present their result of discussion in front of class by their integrity, ethic, and discipline.

Pretest and *Post test* score of Experiment class can be read in table 4.4.

Table 4.4
***Pretest* and *Post test* Scores of Experiment Class**

No	Nama	Nilai	
		Pretest	*Post test*
1	Akkira Agil Movic	17	92
2	Andri Gunarto	85	93
3	Annisa Kamarudin	61	73
4	Anwar Adnan Pratama	72	93
5	Aqila Novantri	49	88
6	Asti Fatimahtu Syahwa	48	71
7	Galang Tri Purnomo	47	68
8	Haritz Muzaki Farda Abdillah	39	97
9	Ika Prasetya	39	88
10	Julian Aditya Pratama	39	49
11	Latif Abdullah	37	76
12	Lulu Azzah Nurafiah	32	100
13	Nasarudin Muktar	30	71
14	Naufal Zakiatur Ramadhan	28	88
15	Noval Zaukiulhak	28	88
16	Sukmawati Rifka Nurlisa	27	84
17	Tutut Mayangsari	23	58
18	Vira Nur Valentin	21	73
19	Nur Faozan	17	70

Pretest and *Post test* score of Control class can be read in table 4.5.

Table 4.5
***Pretest* and *Post test* Scores of Control Class**

No	Nama	Nilai	
		Pretest	*Post test*
1	Agus Fri Hananta	30	57
2	Alfiah	41	58
3	Alif Romadhoni	30	77
4	Andre Alviandra Raka Putra	42	71
5	Azka Ibadil Aziz	33	75
6	Cecep Setiawan	54	72
7	Dandi Putra Satria	26	82
8	Dela Rona Saputri	34	44
9	Dhelia Mutiara Susanti	30	53
10	Ilham Faturrohman	21	97
11	Indra Gunardi	24	67
12	Jevanya Ernes Yokhanan	20	89
13	Lina Lestari	31	53
14	Marsa Livana Dewi	46	47
15	Novita Rahmadhani	37	57
16	Pandu Putra Leksono	21	81
17	Revandra Gigih Ardiansyah	18	46
18	Ruri Lafifa	39	68
19	Tegar Soleman	38	71
20	Thanvia Nur Amalia	34	87

a. Description of *Pretest* Data

The description of data that is presented below, consist of upper score, lower score, and average score. It can be read on this table 4.6. And the complete data can be read on appendix 12 and 13.

Table 4.6
Pretest **Data Description**

No	Size	Class	
		Experiment	**Control**
1	Upper Score	85	54
2	Lower Score	17	18
3	Average Score	38,89	32,45

Based on table 10, knowing that from Experiment class, upper score is 85, lower score is 17, average score is 38,89. Meanwhile, in Control class as we know above, upper score is 54, lower score is 18, and average score is 32,45.

b. Description of *Post test* Data

Description of *Post test* data that is presented include of upper score, lower score, and average score. Data description can be read on table 4.7, but the complete data can be read on appendix 14 and 15.

Table 4.7
Post test **Data Description**

No	Size	Class	
		Experiment	**Control**
1	Upper Score	100	97
2	Lower Score	49	44
3	Average Score	80	67,6

Based on the table, upper score is 100, lower score is 49, average score is 80. Meanwhile, in Control class as that we know above, upper score is 97, lower score is 44, average score is 67,6.

C. Analysis of Research Output

1. Contradiction Mean of of Experiment Class and Control Class

   Based on output of data presentation above, the next is contradiction mean of mathematics learning achievement of Experiment class and Control class, before and after giving treatment as research object, as follows :

Table 4.8
Contradiction of Average Value

Class	*Pretest*	*Post test*	Alteration
Experiment	38,89	80	41,11
Control	32,45	67,6	35,15

   From table contradiction above, giving information that there is output alteration of average value both of Experiment class and Control class. There is different effect between Experiment class and Control class from the treatment of Quiz Team learning is 41,11 and lecture method is 35,15. Average value of *Post test* after giving treatment in each class is higher than *Pretest* before. It means that, applying of active learning strategy specially Quiz Team learning type is more positive effect to increase student learning achievement.

2. Prerequisite Testing of Data Analysis

   a. *N-Gain* Score

      N-Gain score is used to know the raising grown of student learning achievement before giving treatment and after giving treatment. Raising of the average of student's learning achievement are quantifiable by Normal Gain formula.[47]

      $$N - Gain = \frac{S_{post} - S_{pre}}{S_{max} - S_{pre}}$$

      Explanation :

      $S_{post} = Postest$ score

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[47] Zaenurrohman, etc, *Efektifitas Model ...*, P. 157.

S_{pre} = *Pretest* score
S_{max} = Ideal maximum score

Table 4.9
Criteria of *N-Gain* Score

Interval	Category
$g > 0,7$	High
$0,3 < g \leq 0,7$	Moderate
$g \leq 0,3$	Low

Analyzing data from *Pretest* and *Post test* score can be read on table 4.10.

Table 4.10
N-Gain Score of Control Class

No	Control Class Score		N-Gain
	Pretest	*Post test*	
1	30	57	0.39
2	41	58	0.29
3	30	77	0.67
4	42	71	0.50
5	33	75	0.63
6	54	72	0.39
7	26	82	0.76
8	34	44	0.15
9	30	53	0.33
10	21	97	0.96
11	24	67	0.57
12	20	89	0.86
13	31	53	0.32
14	46	47	0.02
15	37	57	0.32
16	21	81	0.76
17	18	46	0.34
18	39	68	0.48
19	38	71	0.53
20	34	87	0.80
Average			0,50

The average of *N-Gain* score from the Control class (lecture method) is 0,50, in effective category. With a minimum *N-Gain* score of 0,02 and a maximum of 0,96.

Table 4.11
***N-Gain* Score of Experiment Class**

No	Experiment Class Score		*N-Gain*
	Pretest	*Post test*	
1	17	92	0.90
2	85	93	0.53
3	61	73	0.31
4	72	93	0.75
5	49	88	0.76
6	48	71	0.44
7	47	68	0.40
8	39	97	0.95
9	39	88	0.80
10	39	49	0.16
11	37	76	0.62
12	32	100	1.00
13	30	71	0.59
14	28	88	0.83
15	28	88	0.83
16	27	84	0.78
17	23	58	0.45
18	21	73	0.66
19	17	70	0.64
Average			0,65

Based on the results of calculation of *N-Gain* score in table 4.11, it shows that the average value of *N-Gain* score for the Experiment class (by applying Quiz Team learning model) is 0,65, the category is medium. The minimum score is 0,16 and maximum score is 1,00.

Thus, it can be concluded that the use of Quiz Team learning model or strategy is more effective than Lecture method to improve the student learning achievement in mathematics learning in 1st grade of MTs Muhammadiyah Purwokerto.

So that, teacher can modified their teaching strategies when giving the mathematics lesson in different material.

D. Discussion

This research was conducted as an effort to improve the learning achievement in Mathematics learning through the Quiz Team learning model in class VII of MTs Muhammadiyah Purwokerto. By using this strategy, students were not required to listen only to the explanation from the teacher, but students also take an active role in the learning process. Suyatno said that active learning is one of learning that involves students in doing things and thinking about what they are doing. Active learning was also intended to optimize the use of all potential possessed by students, where students were required to use their brain in thinking, so that all students could achieve the learning by their capabilities more excitedly.

The Quiz Team is an active learning model in which students are divided into three large groups and all members learn together and discuss the material, give directions to each other, ask questions and answers each other, after the material had been held on academic competition. Mutual cooperation could be created to get the best group predicate in the class.

There were four meetings were held in this research, two meetings about square and two meetings about rectangles, in the Control class and the Experiment class. The meeting of rectangular material was held on 16th May 2019, while the meeting on rectangular material was held on 20th and 23rd May 2019.

Researcher conducted a preliminary test to find out how far the student understanding of the material that would be delivered before taking action. By the analysis of the initial test results in the form of a *Pretest*, action was

needed to improve their learning achievement in mathematics lessons, especially in understanding of quadrangle material.

This research activity was divided into 3 main activities, namely introduction, core, and closing. In the preliminary activity, researcher conveyed the purpose of learning, provided apperception, and provided motivation to students about the fun learning of mathematics along with the application of quadrangle material in the environment surround them. The core activities, researcher begun to explore the models offered as creators of students enthusiasm and activeness to improve the student learning achievement of class VII in MTs Muhammadiyah Purwokerto. The whole series of learning activities that had been carried out by researcher, had received approval and coordination with homeroom teacher of class VII.

The following steps are conducted by researchers in applying the learning of Quiz Team learning, including:

1. Learning preparation

    a. Researcher prepared a Learning Implementation Plan (RPP) by using the Quiz Team learning model first.

    b. Researcher prepared the Quadrangle material, both of square and rectangular material that will be taught.

    c. Researcher prepared the data collection instruments, the form of researcher observation sheets, field notes and prepare documentation (camera).

    d. Researcher prepared the *Post Test* questions as an instrument to checked the level of student learning achievement.

    The initial test results of students that had been held on Wednesday, 15th May 2019. The results of the initial test scores would be used as basis to see the level of student achievement.

2. Presentation

    The next activity was presentation of the material about Quadrangle. At the first meeting, researcher explained the square material by applying *Quiz Team* learning. Students looked very enthusiastic about learning and

start actively, especially while students was answering teacher questions about the material. At the second meeting on the rectangular material, researcher gave reinforcement about the material and invited students to be more active in learning. Students responded the learning well.

3. Group Discussion

The next research activity was forming the class into 3 groups, groups A, B and C. With 2 groups of 7 students and one group of 6 students. The formation of groups based on the class agreement to count in turns from A to C. Students sat in groups according to their respective acquisition numbers, group A is a collection of students who get the alphabet 1, as well as group B and group C.

In this Quiz Team learning, researcher invited students and their groups to make quizzes of square and rectangular material intended for other groups that would be tested in academy match.

4. Checking of student quiz

Researcher examined the groups working before opening the academic competition. The examination was done by representing 2 students in the group presenting their group work in front of the class by carrying out a Team Quiz that is giving questions to other teams and giving them points if they answer correctly from questions = questions they have previously made alternately. In the first cycle, several students had dared to be active in answering quiz questions, even though there were only 2 teams that looked very active while one other team was still passive in fighting to answer questions. Researcher guided students to be actively involved in learning. All students were given the opportunity to answer the questions of their friends in front of the class. Researcher provided justification while students did a mistake of their working.

Students learned to convey the results of their group working while other students learned to give answers to the question that given by their friends in front of the class. Students would be active in learning to express their opinions as much as they can even though sometimes there

was something wrong. This is showed that students had been active in learning activities.

Based on the observation activities, the learning of Quiz Team learning activities could increase the total score of students in groups during the learning session.

Based on the acquisition of data analysis by used the *N-Gain* Score, the control class obtained a value of 0.50 and an experimental class was 0.65, which are included in the medium category. In this study, researcher enhanced the activeness of students in Quiz Team learning where students discussed in groups and participated in making questions and the solving. In the process of learning, students were more active than in the control class. In the classroom, researcher could create an atmosphere of competition in the academic competition at the end of learning.

CHAPTER V
CLOSING REMARKS

A. Conclusion

Based on the results and discussion of this research, it can be concluded that there is a positive influence on the use of active learning strategy of Quiz Team learning model to student learning achievement in class VII of MTs Muhammadiyah Purwokerto. This is indicated by the value of *N-Gain* score for the Experiment class which is higher than the Control class. The magnitude of the effect can be seen from the acquisition of *N-gain* score in the experiment class amounts 0.65 in the medium category and the control class is 0.50 in the medium category too.

There is an insignificant difference between the student learning achievement by using the Active Learning Strategy of Quiz Team learning model and Lecture method in class VII of MTs Muhammadiyah Purwokerto. This is because, there are students who were less interested in learning mathematics even though they have been given any motivation or ice breaking during the Quiz Team learning. Students of each gruops discussion have different difficulty level while making questions in academic competition in the last meeting. Furthermore, activities of quiz need to be modified in determining the group discussion.

B. Suggestions

Based on the result of the research, the researcher gives some advices to related parties, as follows :

1. Students
   e. Students could improve the quality of learning, from the family environment, association with peers, and within the community.
   f. Students have to optimize the time in mathematics learning efficiently.

2. Teacher

    a. Teacher could improve the quality of teaching learning process by Quiz Team learning, especially in effective implementation of learning strategies, and students could achieve the mathematics learning achievement optimally.

    b. Teacher could estabilish a good cooperation in the use of instructional media related to mathematics learning with school optimally.

3. Researcher

    a. Researcher could add the insight and knowledge about Quiz Team learning model to achieve the influence in the learning optimally.

    b. Researcher can increase the experience to apply the Quiz Team learning model in increasing the skill of teaching in class.

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