THE EFFECT OF COOPERATIVE LEARNING MODEL WITH STUDENT TEAM ACHIEVEMENT DIVISION TYPE AND MOTIVATION TOWARD PHYSICS STUDY RESULT

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ABSTRACT
The research aimed to describe the effect of cooperative learning model with Student Team Achievement Division type and motivation on study results in physics. This is a true-experimental design’s research with a 2 × 2 factorial design conducted at SMAN 2 Makassar. Independent variable is the model of learning; which they are cooperative learning model STAD (Student Team Achievement Division) and conventional learning model. Motivation as moderator variable was divided into two factors, namely high and low learning motivation. The dependent variable is the study result of learning physics. The instrument was a questionnaire of motivation to learn physics is used to measure the motivation of students, whereas physics achievement test used to measure the study results of physics in students. There are 36 students of class X in SMAN 2 Makassar taken using random sampling techniques as samples. The data analyzed using analysis of variance two-lane. The results showed (1) Study results of physic in students taught using cooperative learning model STAD (Student Team Achievement Division) higher than students taught using conventional learning models. (2) Students with high motivation to learn physic, the study results of studying physics taught using cooperative learning model STAD (Student Team Achievement Division) higher than students taught by conventional learning model; (3) Students with low motivation to learn physics, study results of physics taught using cooperative learning model STAD (Student Team Achievement Division) lower than students taught by conventional learning model, and (4) there was a significant interaction effect between learning model and motivation for study results in physics.

Keywords: model of learning, learning motivation, and study results of physics

INTRODUCTION
The problem of education is a problem that never stops to be discussed and studied more deeply. Various problems arise and involve several education experts in an effort to develop human quality, where the minimum benchmark that must be achieved is the growth of logical thinking skills and an attitude of independence in students.

The problem of the low quality of education still requires serious attention and handling so that it can be overcome and find the best solution. Efforts to improve the quality of education are the duties and responsibilities of various parties related to education, both the government, the community, and the educators themselves. The government is trying to improve the quality of education from elementary school to university level. One of them is the level of senior high school education. The solution to improve the quality of education is to activate and streamline the learning process in schools, including the use of appropriate learning models.
The difficulty of students to achieve high scores in certain subjects, especially physics subjects, can be caused by several factors including: teaching materials, educators (how to) and students’ self factors. From the results of initial observations of students in class X (ten) at SMA Negeri 2 Makassar, where the physics score on each daily test is an average of 60 percent of students’ scores far below the KKM standard before being in Remedial, even though there are quite a lot of supporting books for students, by all students, as well as interviews with several physics teachers at SMA Negeri 2 Makassar in general said that students paid less attention to physics subjects, students were more interested in extracurricular activities than studying physics. This is because in addition to the learning process which is still dominated by the teacher, so that students tend to memorize concepts without being accompanied by a good understanding, in turn students are less likely to learn independently, empower their logic to understand and express the physics concepts being studied. They only become loyal listeners, following examples of questions given without being involved in constructing questions, concepts and principles independently, which causes a lack of enthusiasm and is not active in following lessons.

In addition, the application of models, approaches, strategies, methods in the learning process still needs to be improved so that it can lead to reciprocal interactions between teachers and students in increasing their learning motivation and encouraging students to work in groups in order to cultivate reasoning power, logical thinking, systematic, creative, intelligent, open, and curious. Therefore, in learning activities, it is necessary to develop learning experiences through appropriate approaches and innovations in learning models, such as cooperative learning.

With this approach, students will learn how to make the right decisions and conclusions for the success of the group not solely for themselves so that interactions arise between the smart and the less intelligent, can interact in completing difficult tasks where each member brings out solutions to each other. effective problems in each group and even teach each other.

The cooperative learning model in this study uses the STAD (Student Team Achievement Division) model because this model can be applied to deal with heterogeneous student abilities. In addition, this learning model is also a group work learning model that is easy to apply, students are grouped into small groups with members who have heterogeneous academic abilities. This means that each group has high, medium and low academic abilities. So that members in the group learn from each other and positive interactions occur

Based on the description above, the author tries to examine the conditions of reality faced by students in learning physics. This problem was raised as research material with the title "The effect of the STAD (Student Team Achievement Division) type cooperative learning model and motivation on physics learning outcomes (Experimental Studies in class X (ten) SMA Negeri 2 Makassar Academic Years 2020-2021)".

RESEARCH METHOD

This research is a true-experimental design with a 2×2 factorial design. The population in this study were all students of class X (ten) at SMAN 2 Makassar, which consisted of 9 classes with a total of 288 students. The sampling technique was carried out using simple random sampling.

There are 3 types of variables in this study, namely as follows. a. The independent variable is the learning model, namely the learning model in the form of the STAD (Student Team Achievement Division) cooperative learning model and the conventional learning model. b. The dependent variable is the physics learning outcomes of class X students in the even semester of the 2020/2021 academic year. c. The moderator variable is learning
motivation with two levels, namely high learning motivation level and low learning motivation level.

Instrumen yang digunakan adalah kuesioner motivasi belajar fisika dan tes hasil belajar fisika. Adapun rincian instrumen penelitian yang digunakan untuk mengumpulkan data adalah sebagai berikut.

1. Questionnaire of motivation to study physics

This instrument is used to measure the level of students' learning motivation. This physics learning motivation questionnaire was given to students in both research classes at the beginning of the meeting. This physics learning motivation questionnaire consists of 36 items which were developed by the researcher themselves which were compiled based on indicators of motivation to learn physics. The physics learning motivation scale in this study was designed based on the Likert model scale which contains a number of statements stating the object to be revealed. To measure learning motivation, five answer options are provided, namely Strongly Agree (SS) = 5, Agree (S) = 4, Doubtful (R) = 3, Disagree (TS) = 2, and Strongly Disagree (STS) = 1.

This questionnaire was prepared based on indicators of students' motivation to learn physics. Before being used, the physics learning motivation questionnaire was first validated theoretically involving agreement by two expert methodologists and calculated using the Gregory formula then empirical testing was carried out to see the validity of the items and the reliability of the instrument so that this questionnaire was suitable to be used as a data collection tool. The results of the validity test were analyzed using the Product Moment correlation formula, while the reliability was calculated using Cronbach's Alpha.

2. Physics learning outcomes test

Physics learning outcomes test is a test that is used to measure the ability of students within a certain time after applying the STAD (Student Team Achievement Division) cooperative learning model and conventional learning models. The test of physics learning outcomes in this study was in the form of a multiple-choice objective test of 20 questions according to the material. This test was given at the end of the meeting after the treatment was applied to each research class.

Before being used, the test instrument for learning physics learning outcomes was first validated theoretically involving agreement by two expert methodologists and calculated using the Gregory formula then empirical testing was carried out to see the validity of the items and the reliability of the instrument so that the learning outcomes test was suitable to be used as a data collection tool. The results of the validity test were analyzed using the r bis point formula while the reliability was calculated by KR-20.

Data on students' physics learning outcomes were analyzed quantitatively with the aim of describing the characteristics of students' scores after the learning was implemented using the STAD (Student Team Achievement Division) cooperative learning model and conventional learning models. After the data is obtained, the next step is to analyze and process the data.

Instrument Trial

The instruments used in this study were physics learning outcomes test and a physics learning motivation questionnaire. Before the instrument was used, a trial was held outside the sample but still within the research population to determine the content validity and empirical validity of the instrument. This research instrument trial was carried out at SMA Negeri 2 Makassar which was not included in the sample of this study, namely grades X1, X2, X4, X5, X6, X7, X8.
Theoretical Validity Test

The data from the expert validation of the physics learning motivation questionnaire and the physics learning outcome test have the following objectives.

a. Observe carefully all items in the instrument to be validated
b. Correcting the interpretation of the items that have been made
c. Give considerations about the good / bad of the instrument and describe the scope to be measured.

The results of the consistency analysis between experts using Gregory's internal consistency. The framework used is to examine the concepts, dimensions and items, where each panelist/expert is asked to fill in the accuracy of the items with dimensions and their representation with existing theoretical constructs. The rating scale uses a range of 1 to 4. A score of 4 if very relevant (SR), a score of 3 if relevant (R), a score of 2 if less relevant (KR) and a score of 1 if not relevant (TR).

According to experts Lawshe and Martuza in (Ruslan, 2009) discussing statistical methods to determine content validity and internal consistency coefficients of a test through expert judgment. The relevance of the two experts as a whole is Gregory's internal consistency. The coefficient of internal consistency can be calculated using the match between two experts. The formula used is as follows.

\[
\text{internal consistency coefficient} = \frac{D}{(A+B+C+D)}
\]

The measuring device is declared consistent if the internal consistency coefficient is 75% (Ruslan, 2009: 19) In addition, in analyzing the research instrument, it also pays attention to the suggestions from the validator. These suggestions are used as guidelines in revising the research instrument.

Physics learning motivational instrument

The results of the calculation of all the questions on the motivation to learn physics using the Gregory formula obtained an internal consistency coefficient of 0.90. This shows that the questionnaire instrument of motivation to learn physics is consistent.

Physics learning result test instrument

The results of the calculation of all test items of learning outcomes of physics using the Gregory formula obtained an internal consistency coefficient of 1.0. This shows that the test instrument for physics learning outcomes is consistent.

Empirical Validity and Reliability Test

After obtaining a valid instrument through expert/expert opinion, a trial was conducted on equal respondents. In addition, the data on learning motivation is sorted from high motivation to learn physics and low motivation to learn physics. After being sorted, 27% of students who have high motivation to learn physics are taken and 27% of students who have low motivation to learn physics are taken. The data will be used for further analysis, namely to determine the effect of the STAD (Student Team Achievement Division) cooperative learning model and conventional learning model on students who have high motivation to learn physics and students who have low motivation to learn physics.

The test results were analyzed one by one statement with a Z distribution approach. Each statement was analyzed about the distribution of respondents’ answers. After weighting is done to determine whether each item is valid or not and the reliability of the physics learning motivation questionnaire, using the product moment correlation formula proposed by Pearson. The score is obtained in such a way by using the product moment correlation with the help of
the Microsoft Excel program. After getting the calculated r value, then it is compared with the r table value with a significance level of 5%. Validity is reached if \( r_{\text{count}} > r_{\text{table}} \).

**Data collection technique**

The data collected in this study is data on the test scores of learning outcomes of physics obtained by using the test instrument of learning outcomes of physics. Data on motivation to learn physics was obtained by using a questionnaire on motivation to learn physics.

**Data analysis technique**

The collected data were analyzed using inferential statistical analysis. Inferential statistical analysis is intended to test the research hypothesis in this case is a two-way analysis of variance (ANOVA).

Based on the results obtained specifically for the fourth hypothesis after analysis with Two Way Anova, if H0 is rejected (meaning if there is a difference) then a further test is carried out, namely the Tukey test to find out the difference. However, if the fourth hypothesis H0 is accepted (meaning there is no difference) then Tukey's further test cannot be carried out.

**RESULT AND DISCUSSION**

1. **Discussion of the First Hypothesis**

Based on the results of testing the first research hypothesis, it was stated that the hypothesis was decided to reject H_o which means that the overall physics learning outcomes of students who were taught using the STAD (Student Team Achievement Division) type of cooperative learning model were higher than those of students who were taught physics using conventional learning models.

If it is related to the previous findings, in the journal Citra filial education entitled The effect of the STAD type cooperative learning model and learning motivation on the mathematics learning outcomes of fifth graders of SD Gugus 2, Bajawa sub-district, Ngada Flores district, where the research results show that: following the STAD type cooperative learning model was higher than the mathematics learning outcomes of students who followed the conventional learning model (FA = 2.955, \( p < 0.05 \)). According to Slavin (2015:143) who is the creator of the STAD model whose essence says that the STAD type cooperative learning model consists of five main components, namely: class presentations, teams, quizzes, individual progress scores and team recognition. Together with this Team Work, which consists of 4-5 students who prioritize class heterogeneity (diversity) in academic achievement, gender/gender, race or ethnicity, which is a very important part in STAD because in a team or groups must create a collaboration between diverse students to achieve the expected academic abilities.

2. **Discussion of the Second Hypothesis**

Based on the results of testing the second research hypothesis, it was stated that the hypothesis was decided to reject H_o which means that for students who have high motivation to learn physics, the learning outcomes of physics taught by the STAD (Student Team Achievement Division) type of cooperative learning model are higher than the results learn physics students who are taught with conventional learning models. If it is related to the previous findings, Sri Pujiyati, AAIN Marhaeni, I Made Candiasa, Educational Research and Evaluation Study Program, Ganesha Singaraja University of Education, Indonesia entitled “The effect of the STAD type cooperative learning model and achievement motivation on the mathematics learning outcomes of sixth graders SD Gugus Dewi Sartika” concluded that in students who have high achievement motivation, there are differences in student mathematics learning outcomes between students who follow the STAD type cooperative learning model...
and students who follow the conventional learning model. In line with this, the results of research in the journal Pendidikan Gambar bakti are also added, namely for students who have high learning motivation, the mathematics learning outcomes of students who follow the STAD type cooperative model are higher than the mathematics learning outcomes of students who follow the conventional learning model \( (Q_{\text{count}} = 4.615 \text{ and } Q_{\text{table}} 5\% = 3.960, Q_{\text{count}} > Q_{\text{table}}) \). This is when viewed from the characteristics of the cooperative learning model, it is very different from other learning strategies, this can be seen from the learning process which emphasizes the process of working together in groups and the goal is not only academic ability in terms of mastery of subject matter alone, but there is also an element of cooperation for mastery of the material. This collaboration is the hallmark of cooperative learning.

3. Discussion of the Third Hypothesis

Based on the results of testing the third research hypothesis, it was stated that the hypothesis was decided to accept \( H_0 \) which means that for students with low motivation, the learning outcomes of physics taught by the STAD type cooperative learning model are lower than the physics learning outcomes of students who are taught by the learning model conventional.

Based on the results of the analysis for the third hypothesis, namely for low motivation, the learning outcomes of students who are included in the STAD group are lower than the conventional group, because in the low motivation group in general students prefer conventional learning than STAD type cooperative learning, because in STAD learning there is several kinds of perspectives including there is a motivational perspective, according to Sanjaya, (2006:242) in his book Rusman (2013:207) whose essence says cooperative learning can be explained from several perspectives, namely there is a motivational perspective, where a motivational perspective means that rewards given to groups will allows each member of the motivated group to help each other because the success for each individual is basically the success of the group, so that students for low motivation groups never get awards and prizes from the teacher, therefore it is suitable for conventional learning models, which is why the low motivation group learning outcomes score is superior to conventional learning models.

Meanwhile, students who are included in the high motivation group are very suitable for the STAD type cooperative learning model (Student Team Achievement Division) because their attention and enthusiasm/interest in participating in learning activities are very high, tenacious and able to face obstacles and difficulties and have high self-confidence. they are very satisfied and always get gifts and awards from the teacher, therefore students who are selected to be included in the high motivation group are very suitable for the STAD learning model. If it is related to the previous findings, which are listed in the journal Citra filial education entitled The effect of the STAD type cooperative learning model and learning motivation on the mathematics learning outcomes of fifth graders of SD Gugus 2, Bajawa sub-district, Ngada Flores district, one of the conclusions says that for students who have low learning motivation, the mathematics learning outcomes of students who follow the conventional learning model are higher than the mathematics learning outcomes of students who follow the STAD type cooperative learning model \( (Q_{\text{count}} = 5.768 \text{ and } Q_{\text{table}} 5\% = 3.960, Q_{\text{count}} > Q_{\text{table}}) \).

4. Discussion of the Fourth Hypothesis

Based on the results of testing the fourth research hypothesis, it was stated that the hypothesis was decided to reject \( H_0 \) which means that there is an interaction effect between learning models and motivation on physics learning outcomes. If it is related to the previous findings in the journal Pendidikan Gambar bakti that: the mathematics learning outcomes of...
students who follow the STAD type cooperative learning model are higher than the mathematics learning outcomes of students who follow the conventional learning model (FA = 2.955, p < 0.05); 2) there is an interaction between the learning model and learning motivation on mathematics learning outcomes (FAB = 3.132, p < 0.05); 3) For students who have high learning motivation, the mathematics learning outcomes of students who follow the STAD type cooperative model are higher than the mathematics learning outcomes of students who follow the conventional learning model (Qcount = 4.615 and Qtable 5% = 3.960, Qcount > Qtable). Furthermore, Sri Pujiyati, AAIN Marhaeni, I Made Candiasa, Education Research and Evaluation Study Program, Ganesha Education University Singaraja, Indonesia, with the research title "The effect of the STAD type cooperative learning model and achievement motivation on the mathematics learning outcomes of sixth grade students of SD Gugus Dewi Sartika" where the results of his research conclude that there is an interaction effect between learning models and achievement motivation on mathematics learning outcomes.

According to Slavin (Rusman, 2013:201) who said that cooperative learning encourages students to interact actively and positively in groups. In this fun activity, students feel more motivated to learn and think. Therefore, in this study, there was a significant interaction between the learning model and motivation on physics learning outcomes. The interaction occurred because of the category of students' motivation to learn physics in the two sample groups, namely: high motivation and low motivation. This interaction is the effect of giving a learning model to each category of students' learning motivation which has a different effect on physics learning outcomes. It means: (1) the provision of cooperative learning models can improve physics learning outcomes for students who have high physics learning motivation, but on the contrary it inhibits physics learning outcomes for students who have low physics learning motivations, and (2) with the provision of models Conventional learning can inhibit physics learning outcomes for students who have high motivation to learn physics but on the contrary can improve physics learning outcomes for students who have low motivation to learn physics. To more easily digest the interaction between the learning model and students' motivation to learn physics, it can be seen in the following picture, namely the interaction between the provision of learning models and motivation to learn physics at the following stages.
Findings in Research (Elements of Novelty)

The importance of learning outcomes can be seen from two aspects, namely teachers and students. To improve student learning outcomes is influenced by several factors, one of which is learning motivation, learning motivation is the impetus for students to carry out learning activities. Learning motivation is very important role for students in an effort to achieve maximum learning outcomes. Students who have high learning motivation, tend to show enthusiasm and enthusiasm in participating in learning, students usually seem to be more serious about learning and actively participate in learning activities. In relation to learning physics, during the initial observation, students tend to have no interest in learning it. This is inseparable from the lack of motivation given by the teacher in the learning process.

However, there are new things found in this study, namely comparing high motivation to learn physics and low motivation to learn physics, both given the STAD Cooperative learning model and those given the conventional learning model, the findings are as follows. 1. The collected data were analyzed using inferential statistical analysis. Inferential statistical analysis is intended to test the research hypothesis in this case is a two-way analysis of variance (ANOVA). 2. Based on the results obtained specifically for the fourth hypothesis after analysis with Two Way Anova, if H0 is rejected (meaning if there is a difference) then a further test is carried out, namely the Tukey test to find out the difference. However, if the fourth hypothesis H0 is accepted (meaning there is no difference) then Tukey's further test cannot be carried out.

The conclusion from the above findings is that for low motivation to learn physics, the average score of students' physics learning outcomes given the STAD (Student Team Achievement Division) type of cooperative learning model is lower than the average score of physics learning outcomes given the conventional learning model, because students who are in the STAD class category with low motivation do not fit the STAD type cooperative learning model, because the STAD type cooperative model is very strict with the rules during the learning process, namely those that start with the steps of the class presentation stage, at the beginning of learning the teacher delivers the material in class presentation, usually done by direct teaching or by lectures, teacher-led discussions. At the time of class presentation, students must really pay attention to and understand the material presented by the teacher, because it will help students work better during group work and during group work because the team’s work score will determine the group score, while the group of students those belonging to the low motivation category feel pressured by the class conditions that exist at that time, do not like the strict rules in the STAD model, especially when discussions and competing to complete assignments take place, they are not willing to be regulated by peers in the group, because the questions given in the group could not be mastered correctly with the correct answer until it was their turn to present the results of group work, most of them could not be answered correctly, therefore the group of students belonging to low motivation was not suitable to be taught with the STAD cooperative learning model. Student Team Achievement Division) and never received an award, therefore it fits perfectly with the conventional learning model because the conventional learning model is not as strict as the rules of the game in the STAD group, finally the score on the learning outcomes test for the low motivation category in the STAD class is lower than the scores of students in the conventional class.

Furthermore, the researchers also found the percentage of achievement of the variable of motivation to learn physics with the third indicator, namely curiosity and confidence in completing tasks, where the percentage results found were a meeting point between the results of the percentage of students who were given the learning model. Cooperative type STAD
(Student Team Achievement Division) with the results of the percentage of students who were given conventional learning models with a difference of 0.1%, for students taught by cooperative learning model STAD = 73.50%, while students taught using conventional learning models = 73.40%. Likewise, in the fourth indicator, there is only a 0.2% difference, namely the existence of satisfaction with work and awards, namely there are two lines that coincide, the score of the achievement of students' motivation to learn physics who are taught with the STAD type cooperative learning model = 77.70%, while the achievement score of students who are taught with conventional learning models = 77.50%.

It can be concluded that they tend to form the same pattern, however, the achievement score of students' motivation to learn physics taught by the STAD type cooperative learning model is higher than the score of students' motivational achievement who is taught by conventional learning models.

Furthermore, for the next finding is the comparison between the average score of learning outcomes in terms of students' motivation to learn physics, both high motivation and low motivation given conventional learning model treatment, the findings are as follows. 1) For the group with high motivation to learn physics in the group given the conventional learning model, the mean score of physics learning outcomes = 14.2222, variance = 5.4444, and standard deviation = 2.4381. 2) For the group with low motivation to learn physics in the group given the conventional learning model, the mean score of physics learning outcomes = 16.00, variance = 0.75, and standard deviation = 0.8660. These results indicate that specifically for the provision of conventional learning models, students classified as low motivation are higher than students classified as high motivation.

Thus, it can be concluded that the STAD (Student Team Achievement Division) Cooperative learning model is very suitable for students who are classified as high motivation, while for conventional learning models, it is very suitable for students who are classified as low motivation. However, the average score of students' overall physics learning outcomes after comparing between the two learning models, the average physics learning outcomes of students who were given the STAD (Student Team Achievement Division) type of cooperative learning model treatment was higher than the average score of students' physics learning outcomes given treatment of conventional learning models, the average score of physics learning outcomes in classes taught using the STAD learning model is 17.11 while the average scores of physics learning outcomes in classes taught using conventional learning models is 15.11. Thus, it can be concluded that the results of the achievement of learning motivation of students are indicators, it will appear that the pattern of distribution of the score of motivation to learn physics tends to form the same pattern. Then students who are taught with conventional learning models in the low motivation category do not need to be given too much motivation, while students who are taught with the STAD (Student Team Achievement Division) learning model for low motivation need to be given great motivation so that their learning scores can compete. healthy when in group work, when the teacher presents the material and students work in group teams, the teacher must ensure that all group members have mastered the material provided and will be given a test in the form of an individual quiz about the material, where the process should not help each other or work together during the test. Furthermore, the student's score is compared with the previous average score obtained by the students themselves and points are given based on how far the students match the past performance as well. The points of each member are added up to get the team score and the team that reaches certain criteria is given an award certificate. This is very pleasing to the students for the achievements they have got.
CONCLUSION
Based on the results of data analysis and discussion, some conclusions can be drawn as follows. 1. Overall, the physics learning outcomes of students who are taught using the STAD type cooperative learning model are higher than the physics learning outcomes of students who are taught using conventional learning models; 2. For students who have high motivation to learn physics, the learning outcomes of physics taught by the STAD type cooperative learning model are higher than the learning outcomes of students taught by conventional learning models; 3. Students who have low motivation to learn physics, learning outcomes of physics taught by the STAD type cooperative learning model are lower than the learning outcomes of students taught by conventional learning models; 4. There is an interaction effect between learning models and motivation on physics learning outcomes.

REFERENCES
Anas Sudijono, Drs.Prof,2007. Pengantar Evaluasi Pendidikan, Jakarta,Rineke Cipta
Asmawi Zainul, Dr dan Noeshi Nasoetion, MA 1997 Penilaian Hasil Belajar, Jakarta :Universitas terbuka.
Anderson, Lorin W dan Krathwohl, David R. 2010. Kerangka Landasan Untuk Pembelajara,
Pengajaran, Dan Asesmen (Revisi Taksonomi Pendidikan Bloom), Cetakan I, Yogyakarta: Pustaka Pelajar
Jakarta: PT. Bumi Aksara.
Hamka,B.Uno, MPD,DR,Prof, 2007 Model pembelajaran, ciptakan proses belajar mengajar yang kreatif dan efektif, Jakarta : Bumi Aksara.
Isjoni 2009 Cooperative Learning, Efektivitas pembelajaran kelompok
Khairuddin Spd, Mpd , 2009 Materi Perkuliyanah Kooperatif Learning; Tidak diterbitkan , Pps UNM.
Made Wena, 2009 Strategi Pembelajaran Inovatif Kontemperor Suatu Tinjauan Konseptual Operasional; Jakarta : Bumi Aksara.
Margaret.E.Bell Gredler, 1994 Belajar dan membelajarkan, Jakarta : Pustaka teknologi pendidikan, Raja grafindo persada UT.
Martinus Yamin,H. Drs, Mpd, 2007 Kiat membelajarkan siswa, Jakarta : Gaung persada press
Sappaile, Baso Intang. Pengkategorian Responden Berdasarkan Skor Total (online), (basointang.files.wordpress, Diakses 25 juli 2014).
Slameto. 2013. Belajar dan Faktor-Faktor yang mempengaruhinya. Jakarta: Rineka Cipta