The Implementation of Teams Games Tournament (TGT) Model on Increase Students’ Outcomes Learning at SMKN 2 Banda Aceh

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ABSTRACT

The purpose of this study was to determine the application of new theories regarding the application of the Teams Games Tournament (TGT) model in studying environmental concepts in the implementation of building construction whether or not it can increase the outcomes learning of students in class XI-TKGSP SMK Negeri 2 Banda Aceh or not. The subjects of this study were students of class XI TKGSP SMK Negeri 2 Banda Aceh, totaling 25 students consisting of 2 women and 23 men. The research procedure is planning, action, observation, and reflection. The results showed that the application of learning with the Teams Games Tournament (TGT) model can increase students' outcomes learning. This is indicated by the results in the first cycle of meeting 1 the average value of the cognitive aspect is 6.64, the psychomotor aspect is 6.48, and the affective aspect is C with a classically complete score obtained only 28%. In the second meeting, the average value of cognitive aspects was 6.96, psychomotor was 6.8, and affective aspects were C with a learning completeness score of 44%. Cycle II meeting 1 cognitive aspect 7.36, psychomotor aspect 7.12, and affective aspect B with a complete learning score of 64%. The second meeting of cognitive aspects 7.6, psychomotor aspects 7.28, and affective aspects B with a classically complete score obtained by 76%. Learning runs very interactively and can be used as a reference for teachers to be implemented in the classroom so that the learning atmosphere is more fun.

Keywords: Teams Games Tournament (TGT), Outcomes Learning

INTRODUCTION

This learning activity cannot be separated from a teacher's expertise in assembling learning techniques by establishing a learning approach, then determining learning models, and learning methods according to the needs of students in the classroom. Competence is knowledge, skills, and abilities that are mastered by someone who has become part of him so that he can perform cognitive, affective, and psychomotor behaviors as well as possible (Mulyasa, 2006). Based on this statement, the learning process always determines the value of knowledge, the value of learning attitudes, and the value of learning skills. This view has an impact on students' outcomes learning in studying the material that has been given by the teacher. The application of the cooperative learning model should show a change from learning creativity to student motivation in achieving learning scores. This is because cooperative learning makes students more interested in participating in the learning process so that their
creative ideas can be created because students interact directly (Harjono, A., & Sahidu, H., 2018).

**Problem of Research**

Answering the learning challenges for students in increasing outcomes learning, classroom action research based on the problems faced by students needs to be done. In essence, students have the habit of being lazy to read and lazy to find out about the science of building construction. In addition, students are often late so that the learning process is understanding the concept is not achieved. On the other hand, students have learning barriers because students have a very low ability to understand the lessons or concepts given by the teacher. Students are only used to taking notes and listening to what the teacher says, so students are not creative. This is due to the teaching and learning process that always uses the lecture method, not interspersed with other methods such as question and answer discussions. Conditions like this will affect the value of learning or student learning completeness. Another obstacle found is that students are not used to facing learning challenges. Students tend to be vacuumed by what is given by the teacher, especially in learning about the environment in the implementation of building construction. Learning creativity is not reflected in the learning process, students only take notes and reread them. This learning process will be meaningful if students practice in the field, namely the implementation of building construction. Students basically do not have extensive knowledge then students do not have a disciplined learning attitude and divide their time in learning. Students do not have skills in learning development. Therefore, solutions so that students do not have obstacles in learning must be obtained immediately. One alternative is to apply cooperative learning models where students are taught to be independent in the learning process. Students are used as agents of change in the classroom, students are fostered, and given the motivation to learn to get used to independent learning.

The solution to complete student learning scores begins with increasing student learning creativity. This classroom action research applies the Teams Games Tournament (TGT) learning model where this learning model is designed to stimulate students' learning desires, then this learning model is presented to build students' creativity. To make students responsible and disciplined, the author initially applied attendance discipline according to school regulations, then disciplined in using the Teams Games Tournament (TGT) learning model. After the implementation of this TGT model in learning, it is hoped that students' creativity in learning can increase and learning outcomes can also increase.

**Research Focus**

The focus of this research is to find out the application of new theories about the application of the TGT model in studying environmental concepts in the implementation of building construction on the outcomes learning of students in class XI-TKGSP SMK Negeri 2 Banda Aceh.
METHODOLOGY OF RESEARCH

General Background of Research
Classroom action research was carried out in class XI-TKGSP, SMK Negeri 2 Banda Aceh. This research took place for three months from July to September 2019.

Subject of Research
The subjects of this class action research were students of class XI-TKGSP SMK Negeri 2 Banda Aceh. There are 25 students consisting of 2 girls and 23 boys. Another subject is the teacher who teaches the class as a comparison of students' scores on the learning process.

Instrument and Procedures
The implementation of learning using the Teams Games Tournament (TGT) learning model is divided into 3 (three) learning stages, namely: 1) the learning process is carried out in study groups according to the indicators that have been set in learning; 2) students are directed to provide information to each other in turns to all groups so that all the material studied in groups is controlled by other groups; 3) students play games using TGT media (Munadir, 1999). Sources of data used are student learning outcomes about increasing student learning creativity, including:

a. The cognitive aspect of students is in the form of learning ability scores in each cycle of meetings with observers' observations.
b. Psychomotor aspects are student learning skills that are observed in each cycle.
c. The affective aspect is the observation of students' learning attitudes which are also observed by the authors and observers.

The research procedure consists of planning, implementing, observing, and reflecting with the details of the activities as follows:

1. Planning
   a. Planning social function materials stating and asking questions into the syllabus 4 times face-to-face which is one of the learning tools that must be carried out by every teacher.
   b. Make a lesson plan implementation of lesson plans for 4 meetings to be used for action
   c. Develop test instruments for research at the end of the lesson.
   d. Prepare observation sheets and choose teaching materials that are in accordance with the material to achieve complete learning.
   e. The learning steps are arranged and designed in such a way in the lesson plans.

2. Action Execution
   a. Preliminary activities
      1) The teacher greets
      2) Reading prayers
      3) Teacher absent students
      4) Do apperception
      5) Provide motivation
      6) Writing Basic Competencies and indicators
b. Core activities
   1) Exploration: the teacher informs the competencies to be achieved.
   2) Elaboration: the teacher provides a learning guide about the foundation
      a) The teacher explains the meaning and purpose of learning
      b) The teacher explains how to apply the TGT Model
      c) The teacher gives an example of learning rock foundation techniques
      d) The teacher asks the students to try to explain the stone

c. Closing Activities
   1) The teacher concludes the results of the discussion
   2) The teacher gives homework

3. Observation
   At the observation stage, observing learning actions in the form of student learning activities starting from the beginning of learning until the end of learning with the help of observers who pay attention to student activities in the learning process. Observations were made during teaching and learning activities by putting a checkmark (√) in accordance with the available column. The elements assessed in this study were student knowledge, student skills, and student attitudes in the learning process.

4. Reflection
   At the reflection stage, the author provides feedback objectively in the description of the learning outcomes in the form of success in learning and failure of learning that has taken place. The evaluation is carried out after each meeting, then it will be improved/improved in the next cycle.

Data Analysis
   The data from this research are divided into 3 aspects, namely: affective, cognitive, and psychomotor. The three aspects are averaged and the results are seen to measure student learning mastery. The range of values used in this study is from 0 to 10. If the average is above 7.5 then the student is declared complete and vice versa. In each cycle, students' learning mastery will be re-measured to see the impact of the application of this TGT model in learning. The measurement of mastery learning uses the following formula:

   \[ P = \frac{\text{number of students who completed}}{\text{total number of students}} \times 100\% \]

Where \( p \) is the percentage of complete learning.

RESULTS AND DISCUSSION
   The initial state of the results of this classroom action research student learning creativity is still very low, the value of student learning has not achieved classical completeness and students are still learning what is given by the teacher. The value of student learning outcomes has not been maximized and students do not build togetherness in learning. The results of the initial observations are as follows:
Table 1. The results of the initial observation of student scores

| No | Observation Aspects | Total Students |       |       |       |
|----|---------------------|----------------|-------|-------|-------|
|    |                     |                | Completed | Not Completed | Complete Percentage |
| 1  | Affective           | 5              | 20     |       | 20%   |
| 2  | Kognitif            | 5              | 20     |       | 20%   |
| 3  | Psychomotor         | 5              | 20     |       | 20%   |

The results of the author's initial observations where students' learning scores have not reached classical completeness 75% and are still very low. The results of this initial observation on affective aspects (attitudes) reach 20%, cognitive aspects (knowledge) 20%, and psychomotor (skills) 20%. The results of the observations of the authors and observers indicate that the increase in students' learning creativity refers to the value of student learning which includes affective, cognitive, and psychomotor aspects. This learning outcome gets changes for students, so the results of the action in the first cycle of the 1st meeting are as follows:

Table 2. Students’ Outcomes Learning Cycle I Meeting 1

| No | Gender (M/F) | Observation Aspects | Complete Percentage % |
|----|--------------|---------------------|-----------------------|
|    |              | Affective           | Kognitif              | Psychomotor           |
| 1  | M            | B                   | 8                     | 8                     | Completed |
| 2  | M            | B                   | 8                     | 7                     | Completed |
| 3  | M            | C                   | 6                     | 6                     | Not       |
| 4  | M            | C                   | 6                     | 6                     | Not       |
| 5  | M            | B                   | 8                     | 7                     | Completed |
| 6  | M            | B                   | 8                     | 7                     | Completed |
| 7  | M            | C                   | 6                     | 7                     | Not       |
| 8  | M            | C                   | 8                     | 6                     | Not       |
| 9  | M            | C                   | 6                     | 6                     | Not       |
| 10 | M            | C                   | 6                     | 6                     | Not       |
| 11 | M            | C                   | 6                     | 6                     | Not       |
| 12 | M            | C                   | 6                     | 6                     | Not       |
| 13 | F            | C                   | 6                     | 6                     | Not       |
| 14 | F            | C                   | 6                     | 6                     | Not       |
| 15 | M            | C                   | 6                     | 6                     | Not       |
| 16 | M            | C                   | 6                     | 6                     | Not       |
| 17 | M            | C                   | 6                     | 6                     | Not       |
| 18 | M            | C                   | 6                     | 6                     | Not       |
| 19 | M            | C                   | 6                     | 6                     | Not       |
| 20 | M            | C                   | 6                     | 6                     | Not       |
| 21 | M            | C                   | 6                     | 6                     | Not       |
| 22 | M            | C                   | 6                     | 6                     | Not       |
| 23 | M            | B                   | 8                     | 8                     | Not       |
| 24 | M            | B                   | 8                     | 8                     | Completed |
| 25 | M            | B                   | 8                     | 8                     | Completed |
The results of the observation in the first cycle of the 1st meeting the average value of the cognitive aspect was 6.64 and the psychomotor aspect were 6.48 and the affective aspect of C for the classically complete score obtained was only 28%. This value has not reached the classical completeness value. The value of this learning outcome cannot be stated that students are creative in learning. Students are still seen to be creative in learning. Students are still accustomed to learning to receive notes from the teacher. The activity in the first cycle of the 1st meeting, the observations of the observers showed that students were not accustomed to cooperative learning so that they became shackled, they felt ashamed, but there was a change in learning outcomes, meaning that students had started to learn by applying the cooperative model. To improve student learning creativity, the writer took action at the 2nd meeting by increasing learning motivation so that students better understand how to learn cooperatively.

Table 3. Students’ Outcomes Learning Cycle I Meeting 2

| No | Gender (M/F) | Observation Aspects | Complete Percentage % |
|----|-------------|---------------------|----------------------|
|    |             | Affective | Kognitif | Psychomotor |                      |
| 1  | M           | B         | 8        | 8          | Completed            |
| 2  | M           | B         | 8        | 7          | Completed            |
| 3  | M           | C         | 6        | 6          | Not                  |
| 4  | M           | C         | 6        | 6          | Not                  |
| 5  | M           | B         | 8        | 7          | Completed            |
| 6  | M           | B         | 8        | 7          | Completed            |
| 7  | M           | C         | 6        | 7          | Not                  |
| 8  | M           | C         | 8        | 6          | Not                  |
| 9  | M           | C         | 6        | 6          | Not                  |
| 10 | M           | C         | 6        | 6          | Not                  |
| 11 | M           | C         | 6        | 6          | Not                  |
| 12 | M           | C         | 6        | 6          | Not                  |
| 13 | F           | C         | 6        | 6          | Not                  |
| 14 | F           | C         | 6        | 6          | Not                  |
| 15 | M           | C         | 6        | 6          | Not                  |
| 16 | M           | B         | 8        | 8          | Completed            |
| 17 | M           | B         | 8        | 8          | Completed            |
| 18 | M           | B         | 8        | 8          | Completed            |
| 19 | M           | C         | 6        | 6          | Not                  |
| 20 | M           | C         | 6        | 6          | Not                  |
| 21 | M           | C         | 6        | 6          | Not                  |
| 22 | M           | B         | 8        | 8          | Completed            |
The results of observations at the second meeting of the class average value for 25 students in 3 aspects, namely the cognitive aspect of 6.96 and psychomotor 6.8 and the value of the affective aspect of C. The percentage value of classical learning completeness is 44%. The results of this 2nd action have changed for students who have started to prepare learning materials and students have started to enjoy using learning media then students are influenced by study friends who have mastered the learning material.

Observation of various student activities during the learning process took place in cycle I, found various weaknesses that would be reflected and corrected in cycle II, including:

a) Preparation of learning tools, namely the material in the lesson plan, learning methods, learning approaches, and learning models

b) Improving study groups to regulate TGT learning methods and students are expected to be disciplined in learning

c) Improve observations about the learning process, namely observing learning attitudes, learning skills, and learning knowledge

d) Reflection in cycle I is that the teacher must be able to maintain or improve the management of learning activities, the teacher must be able to motivate students to solve problems together with their groups or in discussions. Teachers must be able to encourage students to be active in discussions, teachers must observe students in writing the results of their investigations into an assessment book, and provide guidance if students have difficulties. Furthermore, the determination of the value of students in pairs of groups who answer the discussion questions is based on the lottery number of each group of pairs students, the teacher must motivate students more by giving awards to students or groups of pairs who can complete assignments and present their work properly and correctly.

The results of observations on the second cycle to the first meeting of this author still observed on student learning outcomes include cognitive, affective and psychomotor gives an overview on improving student learning outcomes. The results of observations in the second cycle of the 1st meeting are as follows:

| No | Gender (M/F) | Observation Aspects | Complete Percentage % |
|----|--------------|---------------------|----------------------|
|    |              | Affective Kognitif Psychomotor |                  |
| 23 | M            | B 8                 | 8 Completed          |
| 24 | M            | B 8                 | 8 Completed          |
| 25 | M            | B 8                 | 8 Completed          |
|    | Total        | 174 170             |                      |
|    | Average      | C 6,96              | 6,8                  |
|    | Complete Percentage % | 44%                  |
Table 4. Students’ Outcomes Learning Cycle 2 Meeting 1

| NO | Gender (M/F) | Observation Aspects | Complete Percentage % |
|----|--------------|---------------------|-----------------------|
|    |              | Affective | Kognitif | Psychomotor |                  |
| 1  | M            | B         | 8        | 8          | Completed        |
| 2  | M            | B         | 8        | 7          | Completed        |
| 3  | M            | B         | 8        | 8          | Completed        |
| 4  | M            | B         | 8        | 8          | Completed        |
| 5  | M            | B         | 8        | 7          | Completed        |
| 6  | M            | B         | 8        | 7          | Completed        |
| 7  | M            | C         | 6        | 7          | Not              |
| 8  | M            | C         | 8        | 6          | Not              |
| 9  | M            | B         | 8        | 8          | Completed        |
| 10 | M            | C         | 6        | 6          | Not              |
| 11 | M            | B         | 8        | 8          | Completed        |
| 12 | M            | C         | 6        | 6          | Not              |
| 13 | F            | B         | 8        | 8          | Completed        |
| 14 | F            | C         | 6        | 6          | Not              |
| 15 | M            | C         | 6        | 6          | Not              |
| 16 | M            | B         | 8        | 8          | Completed        |
| 17 | M            | B         | 8        | 8          | Completed        |
| 18 | M            | B         | 8        | 8          | Completed        |
| 19 | M            | C         | 6        | 6          | Not              |
| 20 | M            | C         | 6        | 6          | Not              |
| 21 | M            | C         | 6        | 6          | Not              |
| 22 | M            | B         | 8        | 8          | Completed        |
| 23 | M            | B         | 8        | 8          | Completed        |
| 24 | M            | B         | 8        | 8          | Completed        |
| 25 | M            | B         | 8        | 8          | Completed        |
| Total |          |          | 184 | 180     |
| Average |        |          | B   | 7.36 | 7.2 |
| Complete Percentage | % | 64%   |

The results of the observation of the second cycle of the 1st meeting have shown changes in learning shown by the average value of the cognitive aspect of 7.36; psychomotor aspects 7.12; and the affective aspect of B and the classically complete score obtained is 64%. The results of the action in the second cycle of the 1st meeting, student learning outcomes obtained from the results of tests on students’ attitudes, cognitive and psychomotor showed a good response in participating in learning. Students are getting used to the cooperative learning of the Teams Games Tournament TGT model, which shows that almost all students have done the assigned tasks well. The results of observations at the second meeting can be seen in the following table:
Table 5. Students’ Outcomes Learning Cycle 2 Meeting 2

| NO | Gender (M/F) | Observation Aspects | Complete Percentage % |
|----|--------------|----------------------|-----------------------|
|    |              | Affective | Kognitif | Psychomotor |
| 1  | M            | B         | 8        | 8          | Completed  |
| 2  | M            | B         | 8        | 7          | Completed  |
| 3  | M            | B         | 8        | 8          | Completed  |
| 4  | M            | B         | 8        | 8          | Completed  |
| 5  | M            | B         | 8        | 7          | Completed  |
| 6  | M            | B         | 8        | 7          | Completed  |
| 7  | M            | B         | 8        | 7          | Completed  |
| 8  | M            | C         | 8        | 6          | Not        |
| 9  | M            | B         | 8        | 8          | Completed  |
| 10 | M            | B         | 8        | 7          | Completed  |
| 11 | M            | B         | 8        | 8          | Completed  |
| 12 | M            | B         | 8        | 7          | Completed  |
| 13 | F            | B         | 8        | 8          | Completed  |
| 14 | F            | C         | 6        | 6          | Not        |
| 15 | M            | C         | 6        | 6          | Not        |
| 16 | M            | B         | 8        | 8          | Completed  |
| 17 | M            | B         | 8        | 8          | Completed  |
| 18 | M            | B         | 8        | 8          | Completed  |
| 19 | M            | C         | 6        | 6          | Not        |
| 20 | M            | C         | 6        | 6          | Not        |
| 21 | M            | C         | 6        | 6          | Not        |
| 22 | M            | B         | 8        | 8          | Completed  |
| 23 | M            | B         | 8        | 8          | Completed  |
| 24 | M            | B         | 8        | 8          | Completed  |
| 25 | M            | B         | 8        | 8          | Completed  |
|    | Total        | 190       | 182      |            |
|    | Average      | B         | 7.6      | 7.28       | 76%        |

The results of observations at the 2nd meeting showed the class average value for 25 students classically completed, which was 76%. The average value of cognitive aspects is 7.6; psychomotor aspect 7.28; and the value on the affective aspect B. This value has provided a major change in the learning process so that the author does not continue in the next cycle. The results of the observations in the second cycle of the second meeting of the observers’ observations showed that students were accustomed to cooperative learning and then students were able to understand the learning process by applying cooperative learning models. Student learning outcomes can be declared complete classically.

Cycle 1

The results of the observation of the first cycle of the 1st meeting the average value of the cognitive aspect was 6.64; psychomotor aspects 6.48; and on the affective aspect of C for
classically complete scores obtained only 28%. The second meeting the average value of the cognitive aspect is 6.96; psychomotor 6.8; and the value on the affective aspect of C classically obtained only 44%. This value becomes a tool for achieving completeness for researchers in considering classroom action research activities. This is caused by students who do not understand learning by using the Teams Games Tournament (TGT) learning model. At the beginning of the change in the learning method used, students are not used to it and there will be a process of adaptation to a new way of learning (Farhan, A., et al., 2021). At the second meeting, there was an idea that students were getting to know the Teams Games Tournament TGT learning model. Learning media is also more prepared than meeting 1 after an evaluation of the previous activity was carried out because the teacher was more mature in preparing all the needs for the next learning activity (Hamalik, Oemar., 2002). Teacher readiness in learning is one of the success factors of a learning process (Herliana, F., et al., 2020). The teacher's efforts in the learning process must be effective both in planning learning to using learning models for these activities in order to renew the learning process which can increase student learning motivation (Allen, M., et al., 2006; Sardiman, 2004) so that student learning scores can increase because motivation is very important. related to student learning outcomes (Susanna, et al., 2021; Herliana, F., et al., 2015).

**Cycle II**

Cycle II Meeting 1 the average value of cognitive aspects is 7.36; psychomotor aspects 7.12; and the affective aspect of B with a classically complete score obtained by 64%. The second meeting got a class average score for 25 students with a classically complete score of 76%. The average value of cognitive aspects is 7.6; psychomotor aspect 7.28; and affective aspects B. The increase in classical completion scores of each cycle in detail can be seen in the following table:

| Cycle | Meeting 1 | Meeting 2 | Initial Score | Meeting 1 | Meeting 2 |
|-------|-----------|-----------|---------------|-----------|-----------|
| Score | 20%       | 28%       | 44%           | 64%       | 76%       |

**Figure 1.** Graph of increasing completed learning per cycle

This increase in learning mastery results indicates a positive change in learning activities, namely the more diverse student activities as previously formulated. Visual activity is indicated by an increase in the Minimum Completeness Criteria (KKM) after the Teams Games Tournament (TGT) learning model is applied. With cooperative learning, students can be creative in conveying ideas or facts, and overcome misconceptions faced by students (Sitorus, E. N., & Surya, E., 2017). Sudjana (2005:22) states that the factors that influence learning
outcomes are the quality of teaching in the school itself, namely there are three elements, namely teacher competence, class characteristics, and school characteristics. The characteristics of the school are related to school discipline, the library in the school, the geographical location of the school, the school environment, aesthetics in the sense that the school provides a feeling of comfort and learning satisfaction, is clean, neat, and orderly (Reyes, M. R., et al., 2012). In relation to teacher competence, which is one of the elements that affect the quality of learning, in learning the teacher must be clever in choosing approaches and teaching methods that are in accordance with the content of the subject matter (Silins, H., & Mulford, B., 2002). The method serves as a medium for transforming lessons towards the objectives to be achieved so that the learning methods used must be truly effective and efficient. Likewise, readiness of teaching tools that support the learning method must be prepared in accordance with the skills possessed by the teacher in order to achieve effective and efficient learning outcomes (Syukri, M., et al., 2021).

CONCLUSIONS

Cooperative learning in its implementation is more effective if it first plans learning tools to determine learning strategies and more accurate assessment techniques. The application of the Teams Games Tournament (TGT) learning model provides learning changes for students and the creative impact of learning for students so that student learning outcomes increase. This learning model can increase students' learning motivation so that developments in the learning process provide learning readiness for students so that the learning process can be declared classically complete. This learning model can be used as a pattern for developing cooperative learning models by teachers and as an effort to increase self-development in carrying out their duties as educators. In addition, schools can also mobilize teachers to improve their knowledge and teaching skills by applying cooperative learning models such as the Teams Games Tournament model, one of which is the Teams Games Tournament.

References

Allen, M., Witt, P. L., & Wheeless, L. R. (2006). The role of teacher immediacy as a motivational factor in student learning: Using meta-analysis to test a causal model. *Communication education, 55*(1), 21-31.

Farhan, A., Herliana, F., Evendi, E., Devy, N. K., & Mauliza, F. (2021). The Implementation of “Guru Penggerak”(Organizer Teachers) Concept to Innovation of The Discussion Methods in Thermodynamics Course. *Jurnal Penelitian & Pengembangan Pendidikan Fisika, 7*(1), 1-12.

Hamalik, Oemar. (2002). *Pendidikan Guru Berdasarkan Pendekatan Kompetensi*. Bumi Aksara. Jakarta.
Harjono, A., & Sahidu, H. (2018, April). Improving students’ creativity using cooperative learning with virtual media on static fluida concept. In Journal of Physics: Conference Series (Vol. 1006, No. 1, p. 012016). IOP Publishing.

Herliana, F., Halim, A., Farhan, A., & Kasli, E. (2020). Identification of Lecturer Difficulties in Implementing of Blended Learning in the Covid-19 era. Asian Journal of Science Education, 2(2), 106-113.

Herliana, F., Supriyati, Y., & Astra, I. M. (2015, October). Pengaruh model pembelajaran berbasis blended learning dan motivasi belajar terhadap hasil belajar fisika siswa SMA. In Prosiding Seminar Nasional Fisika (E-Journal) (Vol. 4, pp. SNF2015-II).

Mulyasa, E. (2006). Manajemen Berbasis Sekolah. Bandung: Rosda Karya.

Munadir, (1999), Perencanaan Pembelajaran, Mengembangkan standar Kompetensi Guru. Bandung: PT. Remaja Rosdakarya.

Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. Journal of educational psychology, 104(3), 700.

Sardiman, (2004), Interaksi dan Motivasi Belajar Mengajar, Jakarta, Raja Grafindo.

Silins, H., & Mulford, B. (2002). Schools as learning organisations: The case for system, teacher and student learning. Journal of educational administration.

Sitorus, E. N., & Surya, E. (2017). The Influence Of Teams Games Tournament Cooperative Learning Model On Students’creativity Learning Mathematics. International Journal Of Sciences: Basic And Applied Research (Ijsbar), 34(01), 16-24.

Sudjana (2005) Dasar-dasar Proses Belajar Mengajar. Jakarta: Bina Aksara.

Susanna, F. H., Elisa, A. F., & S Rizal, M. (2021). The Effect of Self-regulation and Motivation to Outcomes Learning Using Blended Learning Approach. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(6), 4226-4233.

Syukri, M., Herliana, F., Soewarno, Rizal, S., & Halim, L. (2021, March). The skills of high school physics teachers in developing STEM-based learning in K13 curriculum. In AIP Conference Proceedings (Vol. 2320, No. 1, p. 020036). AIP Publishing LLC.