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# Analysis of the TGT Cooperative Learning Model in Physics Learning: in terms of the Implementation of Procedures and Principles

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**Abstract:** This study aims to analyze the implementation of procedures and principles in the TGT type cooperative learning model used by MAN 1 Jambi City teachers in learning Physics. This type of research is descriptive qualitative research. The subject of this research is the Physics teacher of MAN 1 Jambi City. The method used in collecting data is interview. The results showed that the implementation of the procedure was according to the syntax of the TGT type cooperative model in the *Good category* with an average value of *3* . The principles that the teacher most often uses in the TGT type cooperative learning model are group discussions in the *Fairly Good category* with a percentage *score of 38.4%*.

## INTRODUCTION

Physics as a science has an important role in shaping quality student. Physics is knowledge, ideas, and concepts about the natural environment that are obtained through observation and application through learning models that can build an understanding of these concepts. This is based on Vygotsky's theory that conceptual understanding can be interpreted by constructive learning theory, and is reflected in learning activities using cooperative models (Ulpiana et al., 2021). Physics is one of the branches of natural science that is closely related to human daily life and physics (Purwati et al., 2013). Learning physics so far tends to bind students to one discipline and sit quietly, listen, read formulas, and write them down. This encourages students to more passively participate in teaching and learning activities, so that learning physics in class becomes uninteresting and boring. Therefore, teachers need to create an interesting and pleasant learning atmosphere in the classroom, one of which is the use of models (Alimah et al., 2021).

Using a learning model that is appropriate to the subjects being taught makes it easier for students to understand the subjects and makes the learning process more meaningful. The learning model has basic elements (Ramli, 2017). The Learning Model is essentially a diagrammatic form of the Learning Process (Learning Syntax) which is

usually conveyed by the teacher in the learning process in class (Ningrym et al., 2015). According to Joyce and Weil (Handayani & Panjaitan, 2015). A social system is a situation or atmosphere that prevails in a learning model. The response principle is an activity pattern that describes how the teacher should interact with students (Misbah et al., 2022; Yusuf et al., 2022; Zakwandi et al., 2022). The support system contains all the equipment, materials and tools needed for the learning model. Teacher-centered learning (Teacher Center) results in students never making preparations before learning begins. This resulted in low student interest in learning (Khasani et al., 2019). This is emphasized, low interest in learning arises from learning that is less interesting, so that it can result in students being reluctant to learn (Herliandry et al., 2018).

Instructional impacts are learning outcomes achieved by students directly in order to achieve the expected goals, collateral impacts are other impacts that occur during the learning process as a result of creating a learning environment in which students directly experience learning outcomes(Nada et al., 2022; Wahyuni & Taqwa, 2022). There are several types of learning models, one of which is the cooperative learning model (Nufus, 2020). Cooperative learning model is a form of learning based on constructivist understanding. Cooperative learning is a learning strategy that involves many students as members of small groups ability different. To complete group assignments , students must be more active and able to work together (Samio et al., 2021). kooper learning model that deliberately develops educational communication between students to avoid misunderstandings that lead to offense and can lead to hostility (Maryam, 2018). Cooperative learning activities emphasize students' awareness of the need to think critically in problem solving and learn to classify knowledge, skills, and various concepts to students who need them and allow each student to feel happy to pass on their knowledge to their members in the TGT type cooperative learning model (Handayani & Panjaitan, 2015 ).

TGT type Cooperative Model that learning could enable students is the TGT learning model developed by Robert Slavin. In this lesson , students are divided into small groups. This learning technique utilizes skills team and can be used to reinforce the learning of facts, concepts, and skills. Learning in this model stimulates student activity because students need to be part of a group in order to compete (Ulpiana et al., 2021). One of them is the Team Games Tournament Model which is a type of cooperative learning model that is easy to apply because it does not see things differently, and involves the role of students as peer tutors and an element of play. The application of the TGT type of cooperative learning model allows students to take initiative and learn more calmly, and creates a sense of responsibility, cooperation, healthy competition between teams, and orderly learning, thereby increasing student learning outcomes. get a better turn (Samio et al., 2021).

Therefore, game learning activities created for the TGT type cooperative learning model allow students to learn more freely and can foster a sense of responsibility, confidence, respect for others, discipline, competitiveness, sportsmanship, cooperation and participation in learning for all (Ama & Dewa, 2020). According to Saadjad ( 2021) The TGT (Teams Games Tournament ) learning model is a cooperative learning model

consisting of students in study groups consisting of 5-6 students consisting of different abilities, genders, syllables or races.

The learning steps are the class presentation stage, learning in groups, game, competitions, and rewards as well as this type of TGT cooperative learning model has advantages. First, no making only intelligent students stand out more in learning, but students with lower academic abilities will be active and have an important role in a group. Second, foster a sense of togetherness and mutual respect with group members . Third, make students enthusiastic in participating in learning, because they have group awards. Fourth, make students happy in participating in the learning process because there are games and tournaments. TGT Model Syntax, according to Bahri & Rifai (2020) the syntax for TGT cooperative learning and the teacher's actions are: First, conveying goals and motivating students. That is , the teacher conveys all the lesson objectives to be achieved in the lesson and motivates students to learn. Second, convey information. Where the teacher conveys information to students by demonstration or through reading material. Third, Organizing students into study groups . The teacher divides students into groups of 5-6 people based on academic performance (according to the TGT cooperative learning model). Fourth, Guiding work and study groups. The teacher guides the study groups when they work on the tasks to be contested. The fifth is Evaluation. The teacher evaluates the results of the problem-solving ability test on the material that has been studied or each group presents their work.

Advantages of TGT Model. According to Taniredja (2011: 72) the TGT type of cooperative learning model has the same strengths and weaknesses as other cooperative learning models. The advantages of cooperative learning type TGT are In TGT learning students have the freedom to interact and use their opinions, The self-confidence of students becomes higher, Disruptive behavior towards other students becomes smaller, student learning motivation increases, deeper understanding of the subject matter, increases kindness, sensitivity, and tolerance both among students and between students and teachers, and students can develop all the potential that exists within them, besides that with work will make learning interactions in class lively and not boring.

Disadvantages of the TGT model, According to Agustina (2020) Disadvantages of using the Cooperative Type TGT model in learning, namely, it often happens that in learning activities not all students participate in contributing their opinions. lack of time for the learning process. there is a possibility of chaos if the teacher cannot manage the class. Based on the background above, researchers have a great interest in conducting this research at MAN 1 Jambi City. This research is different from previous research, this research focuses on the implementation of procedures and principles of the TGT type cooperative model in physics learning . As for the purpose of this study is as a means of assessing the teacher , and knowing the implementation procedures and principles in the TGT type cooperative learning model.

## THEORETICAL SUPPORT

Cooperative learning model is an educational model where students learn in small groups with different abilities. In completing group assignments, each member is to help

understand a learning material. Cooperative learning is a blend of teaching techniques and teaching philosophy that develops collaboration among students to maximize their own learning and learning from their peers (Ekawan et al., 2015). This shows that cooperative learning is a learning model in small groups that work together and are guided by a teacher to achieve the expected learning outcomes.

The Team Game Tournament (TGT) learning model is easy to implement, includes all student activities without differences in status, incorporates the role of students as peer tutors , incorporates elements of play and reinforcement . The TGT learning model encourages students to play and compete with other students so that learning becomes more interesting (Ekawan et al., 2015) . Game -based learning activities developed in the Team Games Tournament (TGT) co-learning model allow students to learn in a more relaxed manner and foster a sense of responsibility, integrity, cooperation, healthy competition and involvement in learning.

## METHOD

The type of research used is descriptive qualitative. The aim is to find out the understanding of physics teachers in the TGT type cooperative learning model . Descriptive qualitative research is a research method that uses qualitative data and describes it descriptively. Sub j ek This research is a physics teacher at MAN 1 Jambi City in the 2022 academic year, because the teacher is already good at implementing procedures and principles of the TGT cooperative model.

With data collection instruments to obtain information in the form of interview results and observation results to see directly the object to be studied. We modified this instrument from (Mardatila et al., 2021) **.** The modifications we made to the instrument were the movement of words in sentences and the number of questions and the form of the questions.Data collection techniques based on interview questions that have been given. Data collection techniques are divided into two, namely the implementation of procedures and the principles of the TGT cooperative model. The number of questions given on the implementation of the procedure totaled 4 questions, while on the implementation of the principles 3 questions. The data analysis technique used is by analyzing the two interview questionnaires that have been given. The first is a questionnaire about the implementation of cooperative procedures of the TGT type, the second is a questionnaire about the principles of the TGT type of cooperative model. The scores for the teacher's ability in implementing the TGT type of cooperative learning procedure can be seen in the following table:

**Table 1.** Scores for the implementation of the Cooperative model of the TGT type

| Score | Category |
|---|---|
| 4 | Very Good(SB) |
| 3 | OK(B) |
| 2 | Enough(C) |
| 1 | Less(K) |

As a reference to calculate the average value using the following formula:

$$\frac{\text{jumlah skor}}{\text{jumlah pertanyaan}} = \text{nilai rata} - \text{rata}$$

Taking the value of the principles of the TGT type cooperative learning model, the percentage is carried out directly in the percentage value column.

## RESULTS AND DISCUSSION

The interview was conducted with the physics teacher at M AN 1, Jambi City. The results of observing the implementation of the TGT cooperative learning model procedures can be seen in table 2.

**Table 2** Implementation of TGT Cooperative Model Procedures

| No | Question | Answer | Score | | | |
|---|---|---|---|---|---|---|
| | | | SB | B | C | K |
| 1. | are you have use group models social media such as TGT type cooperative learning in learning ? | Once, I happened to apply it last year in the even semester. I haven't implemented the TGT cooperative learning model for this new school year , but for last year I did. | | ✓ | | |
| 2. | How syntax the steps you take to apply learning TGT type cooperative ? | As far as I know the syntax is the first to form groups, in one group the students are randomized, then , I explain what material will be discussed today, then the students hold discussions, followed by doing these games, the games are compiling physics formulas and derivation the formula too, after that it will determine which group the winner will be. | | ✓ | | |
| 3. | During the Covid-19 pandemic, did you also apply TGT cooperative learning? | During the covid period students studied online, so during the covid I did not apply the TGT type Cooperative learning. Because this is a group discussion if it is done online, it is not suitable for implementation. | | ✓ | | |
| 4. | What social system do you use for guide and motivating student the so that the class atmosphere becomes more active in activity model learning TGT type cooperative ? | teacher interaction with one student with another student. In this interaction students must be embraced who were less interested, yes, we embrace it as we as teachers must embrace and provide motivation so that these students are excited and active in learning physics | | ✓ | | |

The results of observations of the principles of implementing the TGT cooperative model can be seen in table 3.

**Table 3** Principles of the TGT Cooperative Model

| No | Question | Answer | Value Percentage |
|---|---|---|---|
| 1. | How effect teaching on student learning outcomes in order to achieve that goal expected during process learning with use model learning TGT type cooperative ? | As usual, the students were less active in learning or felt bored. With this learning, the impact is that what was previously a boring situation finally becomes more fun and enthusiastic . This method is incipient with a new atmosphere and also makes students inspired, so in the study students can easily | 40% |

| | | | |
|---|---|---|---|
| | | understand it. | |
| 2. | What is the impact on students after apply the TGT cooperative learning model? | The impact is clear, because the concept of games makes students like it when it comes to learning Conventional learning may seem monotonous and make students bored. Because the concept of TGT games, students look fun and enthusiastic, they always feel happy, because the learning method is different from usual. | 35% |
| 3. | By applying the principles response, how response mother to each student during the learning process done with models learning ko opera tif? | I think that students must respond by discussing it, because the concept is games, before doing games, the students and I discuss it first and my response depends on the syntax. After discussing with me, the students will discuss with their groups, if there are problems or have difficulty understanding the learning material, then discuss with me again. | 40% |

In the interview, it was explained that the TGT cooperative learning model had been applied by the resource persons, and applied the syntax . In this model there are games , tournaments , and group discussions . The learning module used is cooperative learning by means of students learning in heterogeneous small groups regardless of ethnicity, race and culture and collaborating with their groups. The TGT or *Teams Games Tournament learning model* uses tournaments consisting of 5 or 6 people in a team.

Based on the results of the interviews in *Table 2* , with the physics teacher at MAN 1 Jambi City. Teachers have implemented the TGT cooperative learning model in 2021 . During the odd semester of 2022 cooperative learning of the TGT type has not been implemented . The teacher has already implemented the TGT type of cooperative learning in the even semester of 2021, with that of course the teacher already understands what material is suitable for use in the TGT type cooperative model in order to improve the quality of learning. In this case, the researcher can give a *Good value.*

Improving the quality of the learning process can be done by applying constructivism learning theory, namely a theory that emphasizes student activity in the learning process so that students are able to construct their own knowledge that is being studied. In applying constructivism learning theory, it is required to use a learning model that applies this theory. One learning model that uses constructivism theory is the Teams Games Tournaments (TGT) cooperative learning model (Sakdiah & Sasmita, 2018) .

**Figure 1.** Interview with the implementation of cooperative procedures of the TGT type

As for the syntax for the steps taken when implementing the TGT cooperative learning model, first form groups containing randomized students, then the teacher explains the material to be discussed in this case on Newton's law material, then students will hold discussions, then followed by games, as for the games in the form of compiling formulas and deriving the formula as well, finally determining which group the winner is.Where this has been explained by (Bahri & Rifai, 2020) , namely, communicate student goals and motivation , in other words, the teacher conveys all the lesson objectives to be achieved in the lesson and motivates students to learn. Then provide information. When a teacher conveys information to students through presentations or readings. After that, organize students into study groups. The teacher divides students into several groups consisting of 5-6 people according to academic success (according to TGT cooperative learning). So the syntax carried out by the teacher is included in the implementation of the procedure, the researcher can give a *Good rating*, because of that the researcher saw that the teacher was good at applying syntax to the stages carried out when applying the TGT type cooperative learning model. The TGT type cooperative learning model has a syntax, namely the stages of class presentation (class presentation), learning in groups (teams), games (games), matches (tournaments), and group appreciation (team recognition). (Slavin, 2005:166-167) quoted in (Listyarini et al., 2017) .

Improving the quality of the learning process This can be done by applying the principle of learning to discuss , which is a model that emphasizes student activity in the learning process (Sakdiah & Sasmita, 2018) . This method is only felt by students which creates a new atmosphere, makes students inspired and so students easily understand the material. Instructional influence is the learning outcomes that are directly achieved by students, and the relationship between expected learning outcomes , and influence guide other learning outcomes generated from the learning process teach (Ekawan et al., 2015). The social system that is implemented to direct and encourage these students so that the class atmosphere is more active in teaching activities that use the TGT type cooperative learning model. Learning models based on learning theory include social interaction models, information processing models, personal models and behavior modification learning models. In this case the teacher has also carried out the procedure for the TGT cooperative model, which the researcher can give a *good score*.

One of the learning models that includes students' social interaction is the cooperative learning model (Maryam, 2018). Of course, there must be student-to-student interaction. In this interaction students must be embraced who were less interested in embracing us as a teacher must embrace so that these students are interested and active in learning physics.

Support systems for students to be fun and active are also necessary, such as worksheets, books, as well as animations or learning videos. So students who were initially lazy became enthusiastic and able to think critically, and students who usually did not express their opinions , became often to put forward his opinion.

During the Covid period, students studied with an online system /from home using gadgets. Because of this, it is difficult for teachers to apply or even cannot implement TGT cooperative learning. In this case, cooperative learning of the TGT type, which includes group discussions, is more suitable for face-to-face learning than online learning for group discussions . The teacher's statement in the learning process during the Covid-19 pandemic, the teacher already understood which learning models could be applied during the Covid-19 period, in this case the researcher gave a *Good value* .

Based on the discussion above, the teacher has used the TGT type cooperative learning model in accordance with the implementation of existing procedures, in the *Good category* with an average value of *3.* As for the results of the interviews in *Table 3* , it can be seen that some of the impacts that occurred on students after implementing the learning model TGT-type cooperatives are clearly visible. Because the concept is in the form of games, students are happier, more active, because there is good teamwork, and also because this learning method is different from usual.

In the interview the teacher explained that the cooperative model can improve the learning process between students and students. Where the principle of discussion is very clearly applied with a percentage value of *40%.* As usual, the students were less active in learning or felt bored. With this learning , the impact is felt that before the situation was bored, it finally became more fun and enthusiastic . This method is incipient with a new atmosphere and also makes students inspired, so in the study students can easily understand it.

Learning physics with TGT is proven to improve conceptual understanding and active involvement of students, so it is very well used to modify learning (Wijayanti, 2016). To have the same understanding and get the best grades , team members or students who understand the concepts presented first will automatically become students who understand the concepts and help their teammates understand the concepts being studied. The impact is clear, because the concept of games makes students like it when it comes to learning Conventional learning may seem monotonous and make students bored. Because the concept of TGT games students look fun and enthusiastic, continue to feel happy, because the learning methods are different from usual "from the interview answers, it can be seen that with the TGT type cooperative learning model students become more active in the learning process on the principle of discussion and tournament games with a percentage of value *35%.* The impact is clear, because the concept of games makes students like it when it comes to learning Conventional learning may seem

monotonous and make students bored. Because the concept of TGT games students look fun and enthusiastic, continue to feel happy, because the learning method is different from usual. The impact that occurs on student learning outcomes can achieve the expected goals during the learning process using the TGT type cooperative learning model (Mustamin, 2021). The trick is that students who were previously less active in learning or feel bored with learning, the impact is felt, before that the situation was bored, finally it became fun and enthusiastic.

There is student motivation in learning which includes effort, persistence, and achievement, where the indicators of effort and persistence include never giving up, conscientiousness, responsibility, asking and working together can be manifested in motor and cognitive forms through psychomotor and cognitive process assessments (Alimah et al., 2021). The TGT concept requires teachers to apply the response principle according to the syntax, one One of them is by inviting students to discuss with them before doing games. After discussing with the teacher, the students discussed with their group, the teacher's response after that was to invite the students to discuss again if there were obstacles or difficulties in understanding the learning material . (Mardatila et al., 2021).

In TGT type syntax, the teacher must respond to students by discussing, if there are students who do not understand the material, students who understand the material better explain the material first. If you still don't understand, then the teacher will discuss with students who don't understand the material. Researchers saw that the teacher was quite good at implementing the principles of the TGT cooperative model with a percentage score of *40%.*

**Figure 2.** Interview implementation of the TGT cooperative model principles

Because the concept is games, before doing the games I and the students discuss it first and my response depends on the syntax. After discussing with me, the students will discuss with their groups, if there are problems or have difficulty understanding the learning material, then discuss with me again.

Here the researchers can see from the results of interviews with the MAN 1 teacher in Jambi City, that the teacher has had good experience in implementing the TGT cooperative learning model which has been implemented in 2022. The percentage value is obtained based on observations. And the teacher is good at applying the principles of

the TGT type cooperative learning model by emphasizing the principle of group discussion or fellow students, in the *Fairly Good category* with a percentage score of *38.4%.*

## CONCLUSION

From the results of the discussion above, the researcher wants to conclude a lot about the discussion. But it can be seen clearly, that in terms of analyzing the implementation of the procedure, it shows that it is in accordance with the syntax of the TGT type cooperative model itself, it can be categorized in a *Good sense* with an average value of *3.* While the principles that are most often carried out are discussions, such as group discussions or fellow students with a percentage score of *38.4%* in the *Fairly Good category.*

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