

# Analysis of Interests and Written Scientific Communication Skills Using the TGT Type Cooperative Learning Model Assisted by Spinnerwheel.com

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## ABSTRACT

Choosing a good learning model can increase students' interest and communication skills in physics learning. The use of technology can create interactive and fun learning. The purpose of the study was to describe the learning interests of students and students' written scientific communication skills using a cooperative learning model of team games tournament (TGT) type assisted by spinnerwheel.com. This research was conducted at SMA Negeri 2 Bantan using a quantitative approach with a descriptive method. This research instrument is a study interest questionnaire and written communication skills test questions. The results of this study obtained the overall interest in learning of students is 71% in the strong category. While the overall written communication skills test processing results are 72% in the Good category. This means, students' learning interests and communication skills are good.

**Keywords:** *Cooperative learning model type TGT, Spinnerwheel.com, Interests, Written scientific communication skills.*

## 1 Introduction

The 21st century skills that students must have are collaboration, communication, critical and creative thinking skills (Bahtiar, 2023; Ramadhani et al., 2019). Communication is one of the most important abilities in life because communication is a way of sharing and can clarify an understanding (Batubara, Saragih, Simamora, Napitupulu & Sari 2022). Communication is the process of sending and receiving messages between two or more people so that the message concerned can be understood (Batubara, Nur, Lubis & Arianto, 2021).

Effective communication in the learning process is needed in order to be able to solve problems and overcome egocentric attitudes (Renn, 2020). Science learning should pay more attention to the ability to develop various abilities and skills, especially skills used as scientific processes and principles, as well as scientific approaches as a form of application of scientific methods (Musliman & Fitri, 2023). Research activities are one of the best tools to improve the development of research skills in science including communication skills. (Vázquez-Villegas et al., 2023).

Communication skills are the ability to inform the results of observations, predictions or experimental results to others. Scientific communication is a skill to communicate scientific knowledge of their findings and studies to various target groups for various purposes (Samatowa in Aini, 2022).

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Communication skills will be good, when students are accustomed to conveying learning results in the form of presentations, writings, discussions or accustomed to changing the form of data in the form of tables, graphs or diagrams (Saleh et al., 2020). Student communication skills can be trained in several ways, including carrying out the teaching and learning process with a student-oriented learning model, conducting learning with active discussions, providing interesting learning facilities and media, and carrying out learning activities with practicum or student worksheets (Zulfa & Zuhriyatur (2020).

Teachers play a vital role in learning, because teachers are expected to be able to create interactive and quality learning (Rosarian & Dirgantoro, 2020). The selection of learning models is very necessary to attract and trigger students' attention to actively participate in teaching and learning activities. The application of learning models, strategies, and approaches is used properly and as much as possible so that it will have a good impact on students (Kahar et al., 2020).

The Team Games Tournament (TGT) type cooperative learning model is one of the cooperative learning models that can be used as an alternative choice. TGT type cooperative is a collaborative learning model that includes academic tournaments and quiz questions around a specified lesson topic, so that students compete on behalf of the team with other team representatives with comparable previous academic performance, so that interaction in learning runs optimally and effectively (Slavin, 2010).

Technology-based media is an important and reliable means for teachers (Yahya & Bakri, 2019). Learning using creative media makes the learning process interesting, more interactive, more effective so that it can increase student interest in learning (Amroellah, 2020). Spinnerwheel.com is a technology in the form of a rotary wheel maker website to help decide on random choices. Spinnerwheel.com can be used as a medium in learning. The rotary wheel created in spinnerwheel.com can be edited by selecting emoji, music and sound effects (Spinnerwheel.com). So based on the description above, the purpose of this study is that researchers want to find out how much interest and communication skills of grade X Science 3 students at SMAN 2 Bantan after learning using a TGT type cooperative model assisted by spinnerwheel.com. In this study, the communication skills studied were written scientific communication skills in learning Physics.

## **2 Research Methodology**

This research was conducted at SMA Negeri 2 Bantan using a quantitative approach. Arikunto (2013) stated that the quantitative approach is an approach using numbers, starting from data collection, data interpretation and the appearance of the results. This study used a quantitative approach with a descriptive method. Descriptive research according to Sudjana and Ibrahim (2004) is research that seeks to describe a symptom, event, event that occurs at the present moment

In this study there are two variables, namely independent variables and dependent variables. The independent variable is a team games tournament (TGT) type cooperative learning model assisted by spinnerwheel.com and the dependent variable is interest and written communication skills. The relationship between the two variables is not disclosed so it is classified as an independent variable. The subjects in this study were students of grade X Science 3 SMA Negeri 2 Bantan for the 2022/2023 academic year consisting of 24 people. The type of data in this study is quantitative research in the form of numbers in the form of primary data obtained directly from the research subject (Sugiyono, 2018).

This research instrument used questionnaires to obtain data on students' learning interests with 24 questionnaire statements. While the test instrument is used to measure the communication skills of students with 8 description questions.

Learning interest data was obtained through questionnaires. The questionnaire was given to students of grade X Science 3 SMA Negeri 2 Bantan. After the questionnaire is collected, it will be processed according to data analysis techniques. Data on written communication skills were obtained from a written test in the form of 8 validated description questions. The test was given to research subjects, namely students of grade X Science 3 SMA Negeri 2 Bantan. The research subject's answer paper was corrected and processed according to data analysis techniques.

Data analysis on interest questionnaires was obtained using Likert scale with criteria in Table 1.

**Table 1.** Likert Scale Table

Positive statements	Score	Negative statements	Score
Strongly Agree (SS)	4	Strongly Agree (SS)	1
Agree (S)	3	Agree (S)	2
Disagree (KS)	2	Disagree (KS)	3
Disagree (TS)	1	Disagree (TS)	4

The score of the questionnaire is processed into a percentage with the formula:

$$persentase\ minat = \frac{skor\ perolehan}{skor\ maksimum} \times 100\% \tag{1}$$

Furthermore, the values are classified by criteria according to table 2.

**Table 2.** Criteria for the Percentage of Interest in Learning Physics Students

No.	Interest Score Percentage (%)	Category
1.	80 < Interest Score ≤ 100	Very Powerful
2.	60 < Interest Score ≤ 80	Strong
3.	40 < Interest Score ≤ 60	Enough
4.	20 < Interest Score ≤ 40	Weak

(adaptation of Riduwan & Sunarto, 2013)

Data analysis on the communication skills test uses the following calculations:

$$keterampilan\ komunikasi = \frac{jumlah\ skor\ siswa}{skor\ maksimal} \times 100\% \tag{2}$$

Furthermore, the scores obtained are categorized as results of students' communication skills into the following Table 3:

**Table 3.** Scientific Communication Skills Criteria

No.	Communication Skill Level (%)	Category
1.	85 < Score ≤ 100	Excellent
2.	70 < Score ≤ 85	Good
4.	55 < Score ≤ 70	Enough
5.	0 < Score ≤ 55	Not Good

(adaptation of Ika, 2018)

### 3 Results and Discussion

#### 3.1 Learning Interest

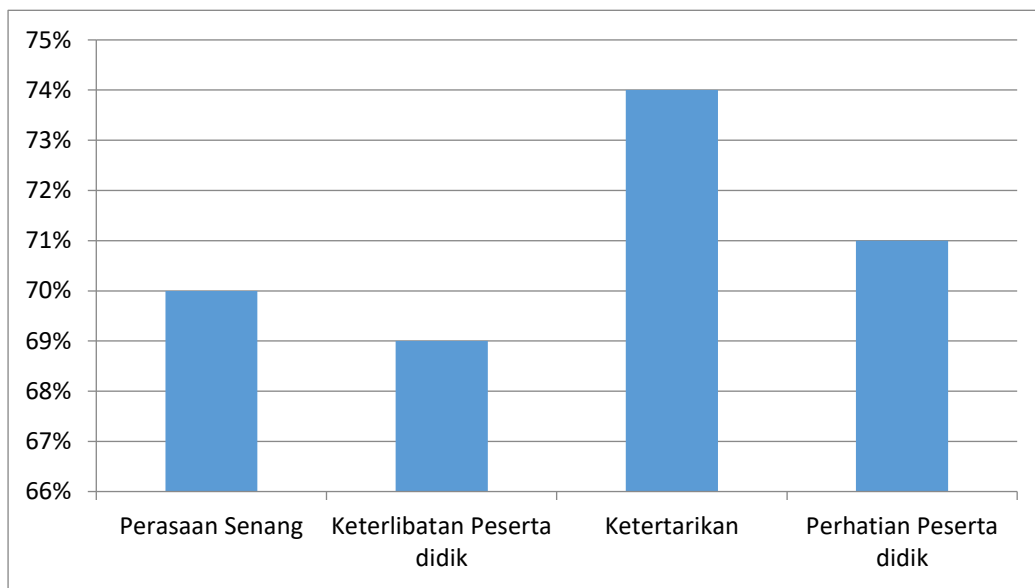
Slameto (2015) states interest is a sense of preference and a sense of interest in something or activity without anyone telling you to. Interest affects teaching and learning activities, interest is an acceptance of a relationship between something inside and something outside oneself. Individuals who have an interest in a subject tend to continue to pay attention and pay close attention to the subject. It can also be interpreted that interest in learning is the interest of students in following the learning process (Idamayanti et al., 2021).

Interest in learning physics consists of 4 indicators, namely feelings of pleasure, student involvement, interest, and attention of students (Safari, 2003). The interest questionnaire consists of 24 statements. Analysis of the questionnaire of learning interest of grade X science 3 students after learning physics using the TGT type cooperative learning model assisted spinnerwheel.com obtained questionnaire data calculated using the percentage formula in Table 4.

**Table 4.** Percentage of Interest in Learning Physics Students of grade X Science 3

No	Category	Multiple Learners	Percentage
1	Very Powerful	6	25%
2	Strong	11	46%
3	Enough	7	29%
4	Weak	0	0%

Table 4 shows students' interest in learning physics towards the use of TGT type cooperative learning models assisted spinnerwheel.com are generally in the strong interest category. A total of 6 students or 25% were in the very strong category, 11 students were in the strong category and 7 students were in the sufficient category. These results show that students in grade X Science 3 are in the category of strong interest in learning physics with a TGT type cooperative model assisted by spinnerwheel.com. furthermore, the percentage of learners' learning interest for each indicator is presented in Figure 1.



**Picture 1 :** Learning Interests of Class X Science 3 Students

Figure 1 shows that the percentage for the first indicator (feeling of pleasure) is 70%, the second indicator (student engagement) is 69%, the third indicator (interest) is 74% and the fourth indicator (student attention) is 71%. Of the four indicators of interest in learning, it can be seen that the indicator of interest has the highest percentage value. This shows that almost all students in grade X Science 3 have an interest in learning physics which is taught using the TGT type cooperative learning model assisted by spinnerwheel.com.

Analysis of the interest of grade X Science 3 students after learning physics using the TGT type cooperative learning model assisted spinnerwheel.com obtained a total average percentage of 71% in the strong category. This research is in accordance with Wahyana's research (2019) stating that the steps of the TGT type cooperative learning model through play techniques increase interest. Thus, the results of interest in learning physics show a positive influence on the use of the TGT type cooperative learning model assisted by spinnerwheel.com on interest in learning physics. This is expected to be able to support the physics learning outcomes of students because the interest is able to support physics learning outcomes (Nawahdi et al., 2022).

### 3.2 Student Skills

Scientific communication in physics learning is a process in observation, investigation and decision making (Aeni in Amelia, 2022). Based on Permendikbud No. 81A of 2013 concerning communication skills states that "Communication activities in learning activities are activities to convey the results of observations, conclusions based on the results of analysis orally, in writing or other media. The competencies developed are

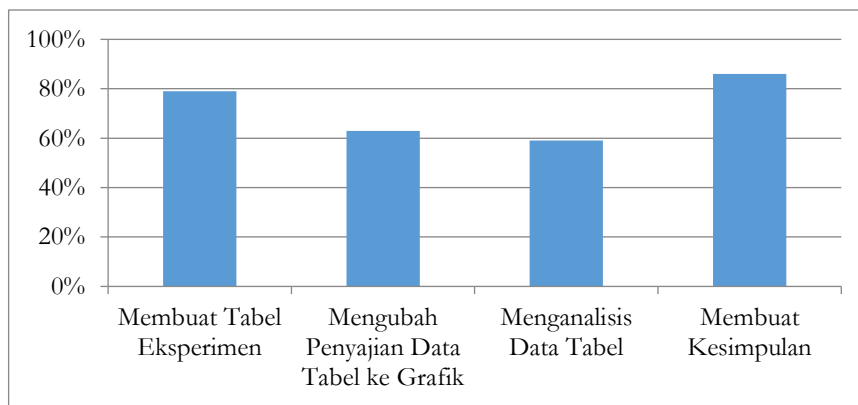
honest, conscientious, tolerant, systematic thinking skills, expressing opinions briefly, clearly and developing good and correct language skills." (Princess, 2020)

Scientific communication skills consist of 3 indicators, namely making experimental result tables, analyzing experimental / observation result table data, and making conclusions (Pratiwi, 2020). The indicators in this study are making experimental result tables, changing the form of data presentation, analyzing experimental / observation result table data, and making conclusions. The written communication skills test consists of 8 essay questions. Analysis of the written communication skills test of grade X science 3 students after learning physics using the TGT type cooperative learning model assisted spinnerwheel.com obtained questionnaire data calculated using the percentage formula in Table 5.

**Table 5.** Percentage of written communication skills of Grade X Science 3 Learners

No	Category	Multiple Learners	Percentage
1	Excellent	5	21%
2	Good	7	29%
3	Enough	10	42%
4	Not Good	2	8%%

Table 5 shows learners' written communication skills after using the TGT type cooperative learning model spinnerwheel.com are generally in the Good category. A total of 5 students or 25% were in the very good category, 7 students were in the good category, 10 students were in the sufficient category and 2 students were in the poor category. Furthermore, the percentage of learners' learning interest for each indicator is presented in Figure 2.



**Picture 2 :** Learners' written Scientific Communication Skills X Science 3

Figure 2 shows that the percentage for the first indicator (creating a table) is 79%, the second indicator (changing the presentation of table data to a graph) is 63%, the third indicator (analyzing table data) is 59% and the fourth indicator (making inferences) is 86%. Of the four indicators of written communication skills, it can be seen that the indicator of making conclusions has the highest percentage value. This shows that almost all students in grade X of Science 3 have the ability to make conclusions after learning physics which is taught using the TGT type cooperative learning model assisted by spinnerwheel.com.

Analysis of written communication skills of grade X science 3 students after learning physics using the TGT type cooperative learning model assisted spinnerwheel.com obtained a total average percentage of 72% in the Good category. This means that the TGT type cooperative learning model is assisted spinnerwheel.com cause students to have communication skills that are in the good category. This research is in accordance with another study conducted by Yusro L (2021), entitled "Application of Tgt Type Cooperative Learning Through 'Prada' Cards to Cooperation and Communication Skills" Research by Nasriani (2020), entitled "The Effect of the Tgt (Team Games Tournament) Type Cooperative Model on the Communication Skills of Class V Students of SDN 201 Tammu-Tammu" and Toifur & Kurniawan's (2022) research entitled "The Effectiveness of Teams Games Tournaments Learning Methods (TGT) "Against Student Communication

Skills" stated that the application of the 'TGT' model learning model has the potential to be effective in providing a major positive influence in improving the communication skills of vocational students. This means the TGT type cooperative learning model can improve communication skills including scientific communication skills.

Communication skills are very necessary so that the report and delivery are maximized. Communication skills in Physics learning can be used to convey practicum results in the form of graphs, tables, figures, and diagrams (Saldo & Walag, 2020). Communication in learning is a tool used to measure the level of student understanding, because when students are able to communicate their learning outcomes, students understand the material delivered (Wulandari et al., 2019).

#### 4 Conclusion

This study can be concluded that the interest in learning physics of grade X Science 3 students at SMAN 2 Bantan after learning to use the TGT type cooperative learning model assisted spinnerwheel.com is in the strong category with a percentage of 71%. Of the 24 students who participated in filling out the questionnaire, there were 7 students in the sufficient interest category, 11 students in the strong interest category and 6 students in the very strong interest category. While written scientific communication skills are in the good category with a percentage of 72%. Of the 24 students who took the written test, there were 2 students in the poor category, 10 students in the sufficient category, 7 students in the good category and 5 students in the very good category. This shows that students' interest in learning and communication skills are good.

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