

Use Application Quiz in Model Tgt Learning (Team Games Tournament) to Improve Elementary School Multiplication Counting Skills

Sri Hartini¹, Iis Nurasih², Irna Khaleda Nurmeta³.

Program Studi Pendidikan Guru Sekolah Dasar, Universitas Muhammadiyah Sukabumi

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Abstract

This research aims to describe the use of the quizizz application in the TGT (Team Games Tournament) learning model to improve elementary school multiplication numeracy skills in class III of SDN Sindangsari, Sukabumi Regency with a total of 28 students. The research method used was classroom action research (PTK) Kemmis and Mc Taggart model research design which was carried out in two cycles. Each cycle consists of planning, implementation, action and observation, and reflection. Data collection techniques use tests in the form of pretests and posttests, and non-tests in the form of observations, interviews, field notes and documentation. The data analysis technique used is descriptive qualitative. From the pre-cycle learning completion cycle, only 29% or 8 students completed because they still used a formal learning model consisting of lectures, exercises and questions and answers. After implementing the Quizizz application in the TGT learning model in cycle I, it has been proven that there has been an improvement, although it is not yet visible significantly, completion was only 64% or 18 students who completed. Then, from the evaluation results of the previous cycle, the research continued with cycle II by adding improvements, the completion of learning results in increasing multiplication ability increased by 89% or 25 students. Therefore, the research was stopped classically because it had reached or exceeded the 85% achievement indicator. By combining the TGT Model with the use of the Quizizz application in mathematics learning, teachers can create a learning environment that is stimulative, collaborative and interesting for students. This can help improve students' math skills through a team-based learning approach and using digital technology as an effective learning tool.

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Corresponding Author:

Sri Hartini

Muhammadiyah University Sukabumi

Email: Sriadjeng@gmail.com

1. INTRODUCTION

Mathematics in Elementary School (SD) is a subject that includes understanding and implementation concepts based on mathematics. The goal is to form a base mathematical understanding Which strong and prepares students to study further mathematics at a higher level. Mathematics learning is directed on implementing concepts of mathematics in context life everyday (N. Ardina Rizal, Faisal, M. Janah, 2023: 157).

Students are encouraged to understand how mathematics can be used in real situations. Students are introduced to basic concepts such as addition, subtraction, multiplication, division, simple geometry, measurement, fractions, and others. The main goal is to ensure that students have a solid foundation of understanding. Through learning mathematics in elementary school, it is hoped that students will not only understand concepts mathematics in a way theoretical, but Also can apply it in life daily And become student Which skilled in solve problem (Aprilia, D., Lyesmaya, D & Nurochima, A. 2022 : 163)

There are a number of obstacles to learning mathematics in School Base (SD) which can be identified as some students may be less interested or motivated in Study mathematics, which can influence them to understand concepts of mathematics. Lack of material learning Which interesting and relevant with life daily can make students lose interest in learning mathematics. Use of teaching methods that do not match your style Study student can become an obstacle. Lack variation in learning approach Also can make student lost interest (Setianingsih et al., 2021:24) Results interview Which done to guardian class III elementary school Sindang Sari Sukabumi Regency on January 3, 2024 explains that completeness Mathematics lesson results experienced several obstacles which resulted in not all student complete in learning mathematics with KKM 70 depicted on data Which used as data beginning or pre cycle following This :



Picture 1. Presentation Completeness Pre-Cycle

Based on the data above, it shows that the completeness of the learning outcomes taken from daily test scores shows that the data on students who completed the KKM (70) learning outcomes in mathematics was 29% or 8 students. Meanwhile, students who did not complete as many as 71% or 20 students. This is because students have difficulties in understanding problem mathematics Which serve in form, say, and they have difficulty determining the steps needed to solve the problem because some of the problems presented are considered still abstract.

Overcome barriers to mathematics learning that can be done with teacher creativity in modifying learning models and media to suit students. Besides That, important very For Teacher Paying attention to the development of elementary school age children is related to their learning readiness at school because it involves several phases that cover various aspects of development, such as physical, cognitive, social and emotional which are related to students' learning patterns (Aisyah et al., 2024: 1404). It should be noted that each child develops in a unique way, but generally, there are some common characteristics on every phase development age school base specifically in class 3 age range from eight to nine years, children at this age begin to understand draft abstract and develop ability think logical Which more complex, children may show improvements in problem-solving abilities and face more difficult academic tasks. In addition, social interactions become more complex, and children tend to form friendships Which sturdier. They start to understand the importance of social norms and rules for interacting with peers (Suardin et al., 2023:).

From this statement, highly interactive models and media are needed in mathematics learning in accordance with students' development phases. One of them is the Team Games Tournament (TGT) Model which is an approach in learning cooperative in class Which developed by David W. Johnson and Roger T. Johnson, two experts in the field of cooperative education (Nurhidayah, 2018:226). Model This aims to push inter collaboration students and increase their motivation towards learning. The advantages of this model encourage students to work together in groups, share knowledge, and help each other. Apart from that, through discussions and competitions, students have the opportunity to strengthen their understanding of the material (Rachma Thalita et al., 2019:)

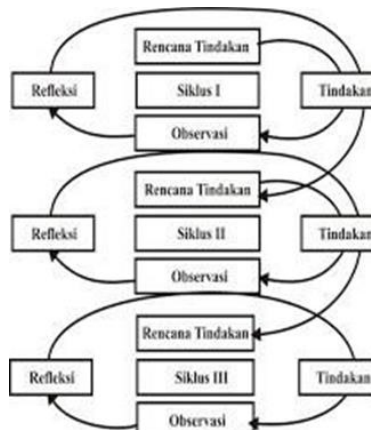
Model Team Games Tournaments (TGT) can be modified with the use of digital technology media which can make a significant contribution in improving the mathematics learning process in elementary schools. Applications and devices of soft mathematics interactive can make learning more interesting and participate. Students can interact with mathematical content through games, simulations and online activities, improving their understanding (Anggraeni & Wasitohadi, 2018:).

Based on the explanation above, researchers are interested in conducting classroom action research (PTK) to provide solutions to these obstacles with the title "Use of Applications quizizz in Model Learning TGT (Team Games Tournaments) To increase Ability Counting Multiplication School Base". Study Which will be carried out reinforced by the success of previous preliminary research conducted by Rohaman (2023) entitled Using the Quiziz Application In the TGT (*Team Games Tournament*) Learning Model to Improve Elementary School Multiplication Counting Skills. This research shows that the application of the TGT model assisted by Quizzizz can have

an effect on increasing students' understanding of mathematical concepts and reasoning. The similarities of this research were carried out in school base, And eye learning Which The same. Difference from study It focuses on the lower grades and uses classroom action research (PTK).

2. RESEARCH METHOD

This research uses the Classroom Action Research (PTK) method. PTK is a research method carried out by teachers in their own classes to improve the learning process and student learning outcomes. PTK carried out a cycle of planning, implementation, observation and reflection (Avia et al., 2024). The main goal is to improve teaching and learning practices, as well as student learning outcomes through concrete actions taken by teachers based on data analysis and reflection on their teaching experiences. This method is very important in the professional development of teachers and improving the quality of education Arikunto (in (Fauziyah et al., 2019: 196) The research design uses the design from Kemmis and McTaggart as follows:



Picture 2. Design Model Research Kemmis and Mc Taggart
Source : Fauziyah et al., 2019

This research was carried out in the even semester of the 2023/2024 academic year from February to April 2024 in class III of SDN Sindangsari, Sukabumi Regency with a total of 28 students. This research is related to a learning model to improve students' multiplication skills, and the model chosen by the researcher is the innovative Team Games Tournament (TGT) learning model with the interactive Quizizz application.

The technique used to collect data in this research is the observation method, in the form of a teacher observation sheet and a written test in the form of multiplication questions. This instrument was created with the aim of knowing the completeness of students' learning outcomes with the Quizizz application in the form of games in the TGT (Team Games Tournament) learning model. This test consists of 30 multiple choice questions with an emphasis on multiplication up to 100.

The data analysis technique used to calculate the researchers used quantitative analysis techniques to calculate the percentage and average value that reached the KKM. This research is considered successful if it shows complete classical learning as many as 85% of students have achieved a KKM of 70.

The syntax of TGT type cooperative learning according to (Amanah, 2017: 123) consists of 5 stages, namely: class presentation stage, learning in groups (teams), games, competitions (tournaments), and group awards (team recognition).

3. RESULTS RESEARCH AND DISCUSSION

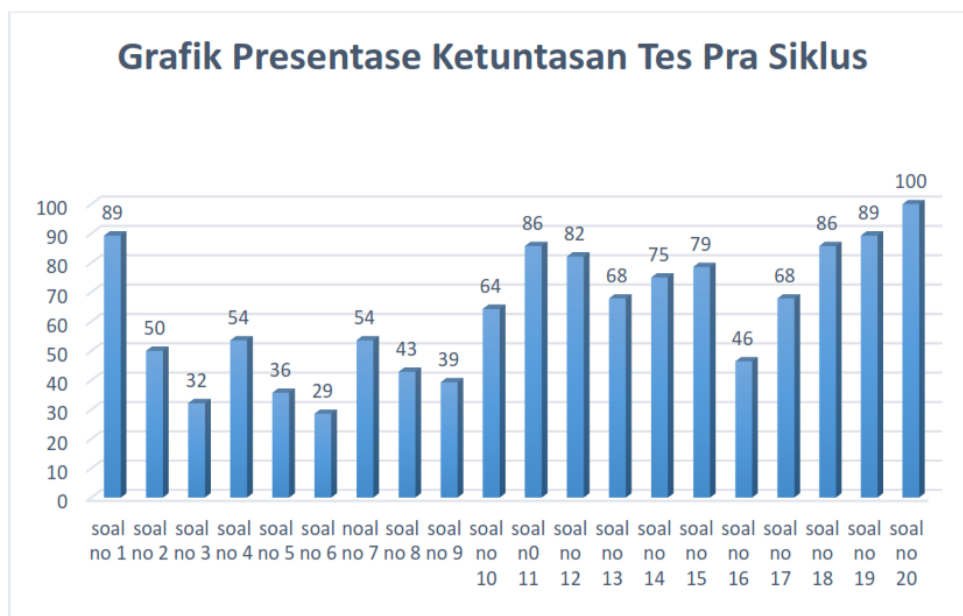
The results of this study are based on the results of the pre-cycle to the mid-semester test (UTS) of the 2023/2024 academic year. Judging from the results of the Pre-cycle to the odd midterm test (UTS) of the 2023/2024 academic year. Data on the results of the pre-cycle daily test scores of No me l using the TGT and No media learning models can be seen in the table below:

Table 1. Results Completeness Test Study Pre Cycle

| No | Information | Results |
|----|--|---------|
| 1 | Mark Maximum | 100 |
| 2 | Lowest Mark | 45 |
| 3 | Highest Mark | 80 |
| 4 | Average To weld | 63 |
| 5 | Educate participants meet the KKM (70) | 8 |
| 6 | Educate participants who have not met KKM (70) | 20 |

Based on the data presented in Table 1, it can be seen that the average pre-cycle score of students is 48. The highest score achieved is 85 and the lowest score is 30. The number of students who reached the KKM reached 29% or 8 out of 28 students, while students who reached scores below the KKM (70) reached 71% or 20 students. From the results of the implementation of the learning process in an effort to improve the ability to count pre-cycle multiplication has not run optimally and must be given a learning solution.

Learning outcomes that are not optimal can be influenced by various factors, one of which is the learning model used. Every student has a different learning style. If the learning model applied does not suit students' learning styles, then their understanding and learning outcomes can be hampered. In addition, learning models that are less interactive or do not involve students actively can cause students to feel bored and less motivated to learn, resulting in their learning outcomes not optimal (Setianingsih et al., 2021:24). The following is a graph of personal test completion which is depicted as follows:



Picture 1. Chart Presentation Test Pre cycle

The graph above shows that the percentage of personal test completeness is still not optimal. This happens because of several reasons, one of which is that class management has not used a variety of learning models and media that directly construct students' knowledge, in line with the

explanation from (Allung M, 2023: 727) revealed that learning models and media are strategies and tools that can help the teaching and learning process so that the meaning of the message conveyed becomes clearer and the direction of learning is more organized, thereby increasing students' enthusiasm for learning. So, with these findings, learning models and learning media in the learning process are something that is really taken into account based on the needs and characteristics of students in the class.

Then after implementing cycle I by using the quizizz application in the TGT learning model, the data on classical completion results for cycle I has increased, although not yet significantly according to the success indicators. can see on bellow:

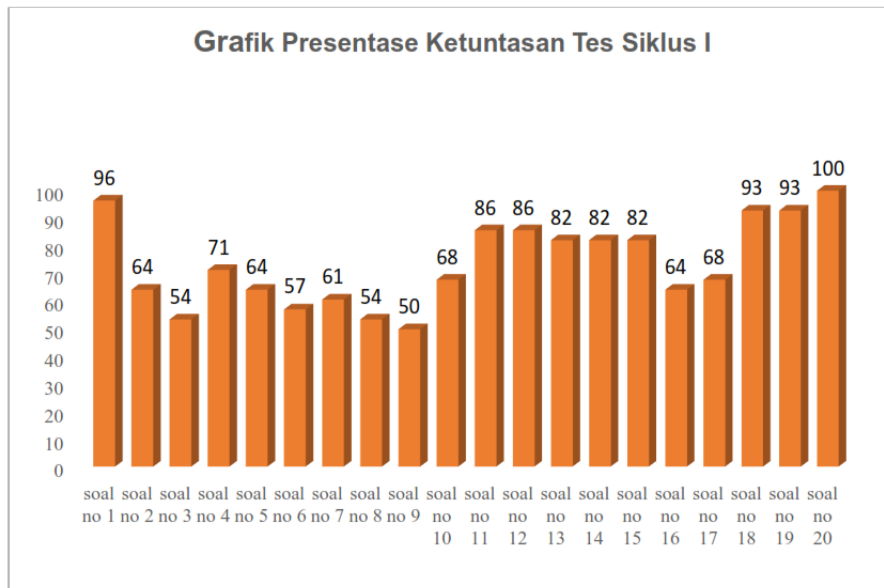
Table 2. Results Test Completeness Study Cycle I

| No | Information | Results |
|----|--|---------|
| 1 | Mark Maximum | 100 |
| 2 | Lowest Mark | 50 |
| 3 | Highest Mark | 100 |
| 4 | Average To weld | 75 |
| 5 | Educate participants meet the KKM (70) | 18 |
| 6 | Educate participants who have not met KKM (70) | 10 |

Based on the data presented in Table 2, it shows that the average achievement of the first cycle class was 75. The highest score was 100 and the lowest score was 50. The number of students who achieved the KKM was 64% or 18 out of 28 students, while students who achieved the minimum score were below KKM (70) reaches 36% or

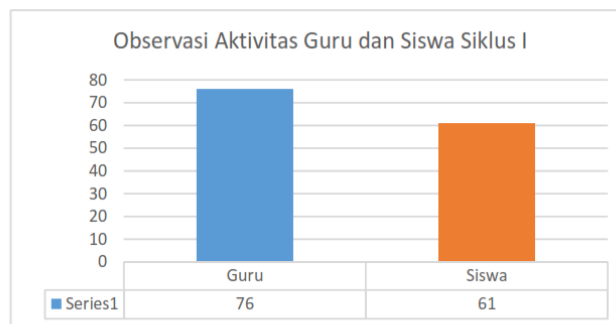
10 students. The results of observations of student activities in an effort to improve multiplication skills use the syntax of the TGT model with the quizizz application used in the form of Quiziz.

Completion of cycle one is said to have not been optimal and has not reached the predetermined indicators of research success, this is because students may experience difficulties in understanding the basic concepts of multiplication, such as understanding the meaning of multiplication, its relationship to repeated addition, or the concept of distributiveness. This is in accordance with the statement from (Zoraida et al., 2023:) after understanding basic concepts and memorizing multiplication facts, some students may experience difficulty in applying multiplication operations in the context of more complex mathematical problems. The following is an analysis of the percentage of personal completeness as follows:



Picture 2. Chart Presentation Test Pre cycle

From the chart on the show that happens to increase results test However not yet optimal. In accordance with the explanation from (Aisyah et al., 2024: 1410) it is revealed that interest and results for students will not occur immediately but gradually according to the students' abilities. The following are the results of observing teacher and student activities using the TGT model syntax in collaboration with the quizizz application as follows:



Gambar 3. Grafik Hasil Observasi Aktivitas Siklus I

The description of the implementation of learning in an effort to improve my multiplication skills using the quiz application in TGT learning is quite good but not yet significant. The teacher's activity score is 76 and the student's score is 61. The weakness in cycle I is that students are not used to learning using quiz applications. In the TGT model, students have difficulty seeing the relevance or usefulness of multiplication in everyday life, which can reduce students' motivation to learn and understand concepts. In accordance with the explanation from (Nurhidayah, 2018:226), even after understanding basic concepts and memorizing multiplication facts, some students may experience difficulty in applying multiplication operations in the context of more complex mathematical problems. Students have carried out cycle II using the Quizizz model in TGT type cooperative learning and improved student learning completeness better than cycle I which was more optimal. The following is the completeness of learning cycle II, namely:

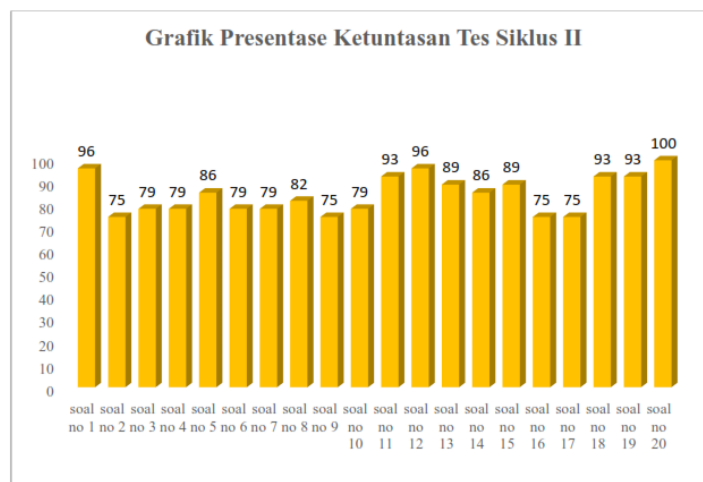
Table 3. Results Test Completeness Study Cycle II

| No | Information | Results |
|----|---|---------|
| 1 | Mark Maximum | 100 |
| 2 | Mark T e r e n d e l | 65 |
| 3 | Mark T e r t i high | 100 |
| 4 | Average To .weld | 85 |
| 5 | P e s and rta educate Me . me KKM covers (70) | 25 |
| 6 | P e s and rta educate B e . yet <u> M e me nuhi KKM</u> <u>(70)</u> | 3 |

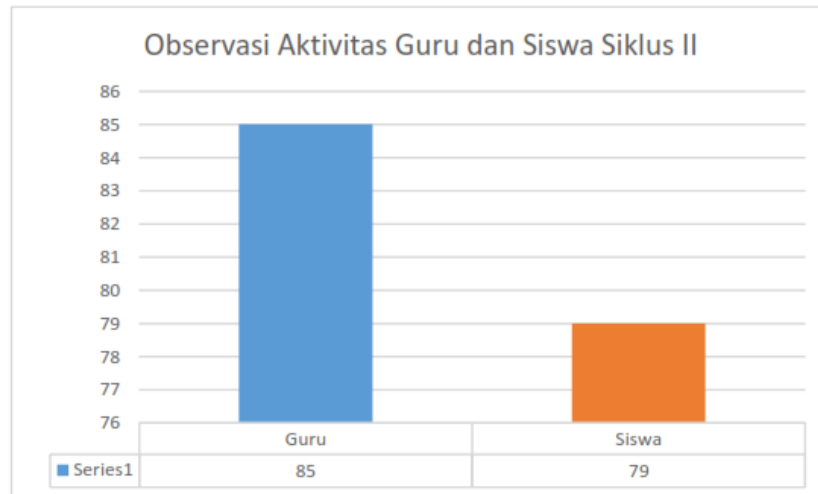
Based on the data presented in Table 3, it shows that the average score for the second cycle class was 85. The highest score was 100 and the lowest score was 65. The number of students who achieved the KKM was 89% or 25 out of 28 students, while students who achieved the minimum score were below KKM (70) reaches 11% or

3 students. The results of observations of student activities in an effort to improve multiplication skills use the syntax of the TGT model with the quizzz application used in the form of Word Wall.

The completion of the second cycle is said to be quite good, achieving the research success indicators that have been classically determined as 85% completeness. This is because students in the activities in cycle II were able to work in teams well and with full planning. Apart from that, students are able to understand the basic concepts of multiplication, including its relationship to repeated addition, understanding the meaning of multiplication, and the concept of distributive. In line with the opinion of (Fauziyah et al., 2019: 196) Students have the ability to calculate quickly in multiplication, which allows them to complete calculations efficiently. The following are the results of the analysis of the personal test percentage as follows:



The graph above shows that the percentage or test score per question is above 75 so that this cycle can be said to be in line with the target of completion. This is in line with the statement from (Suardin et al., 2023: 437) that the learning process in the classroom will be of high quality if teachers can choose the right learning model according to the conditions, objectives and characteristics of the material. The results of observations of teacher and student learning activities in cycle II are as follows:

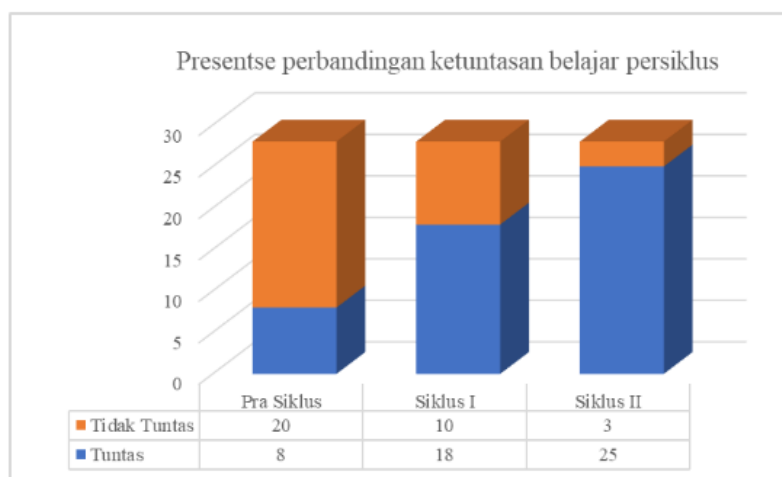


Picture 3. Chart Results Observation Activity Cycle II

The description of the implementation of learning in an effort to improve multiplication skills through observation using the Quizizz application in the TGT learning model is quite good and there has been a significant increase. The teacher activity score is 85 and the student score is 79. The success of the second cycle activities is that in learning activities students are trained to use fast math counting techniques in groups, then each group develops a tournament strategy that they do by being given the opportunity to be told the characteristics of the problems they will solve.

Apart from that, students are able to apply multiplication operations in various contexts of different mathematical problems, including in real everyday situations. In line with research from (Setianingsih et al., 2021:26) Success in multiplication skills in elementary school can also be reflected in the results of evaluations carried out by teachers periodically as well as students' ability to answer multiplication questions well in various contexts. It is important to remember that success in learning multiplication does not only include academic results, but also understanding the concept and its application in everyday life.

The following is comparative data from the presentation of the completeness of learning multiplication skills as follows:



Picture 4. Chart Comparison Presentation Completeness Study

Based on the presentation and graph of the cell growth rate for each cycle above, the researchers compared the results from the pre-cycle, cycle I and cycle II. The results obtained from the implementation of cycle I were stated to be quite good with the completeness of mathematical multiplication abilities, namely with an average score of 85% in the classical way, so this research

will be continued. From the pre-cycle, learning completion only reached 29% because it still used a formal learning model including lectures, exercises and questions and answers.

After implementing the Quizizz application in the TGT learning process in cycle I, it was proven that there was an improvement, although it was not yet significant, the completion was only 64%, then from the evaluation results of the previous cycle, the research was continued in cycle II by adding improvements, the completion of the learning results increased in multiplication ability increased by 89% . So, in accordance with the previously determined criteria for increasing multiplication ability by applying the Quizizz application in the TGT learning model, it has been developed and is considered successful for application in elementary school mathematics learning, especially in the lower grades and focuses on multiplication ability. The comparison graph for teacher and student activities for each cycle is as follows:

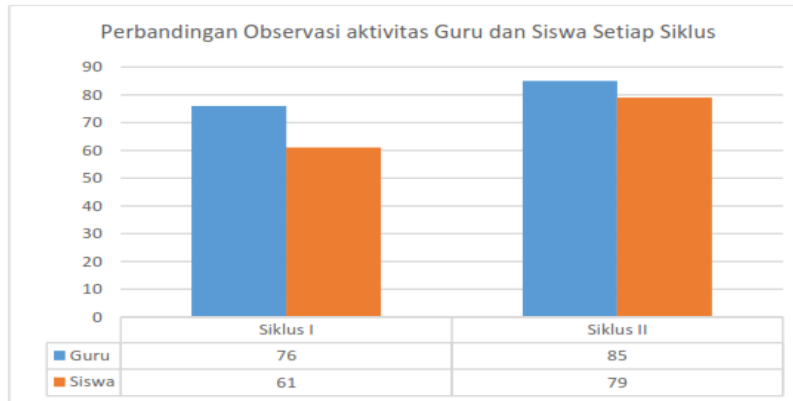


Figure 5. Comparison graph of teacher and student activity percentages

The picture above shows that the learning activities of teachers and students experience a significant increase in each cycle. This success is in line with the support of opinion. According to (Allung M, 2023:727) the TGT model encourages collaboration between students. They work in teams to achieve common goals, which can increase engagement and cooperation among them. Apart from modifying the model, success was also increased due to the use of the Quizizz application used in this research, such as Quiz, Wordwall, which was packaged in the form of games and animated videos. In line with the opinion of (Susanti, 2020) Mathematics often involves abstract concepts that are difficult to understand only with verbal or written explanations. Interactive media, such as simulations, animations, or dynamic graphics, can help students visualize these concepts more clearly and concretely.

The quizizz application can be used to facilitate collaboration between team members in the TGT Model. Students can use digital platforms to communicate, share ideas, and work together to solve math problems. This will help students in developing teamwork skills and learning from each other. In line with the opinion of (Anwar, 2019:210) the quizizz application allows students to access various mathematics learning resources online, including learning videos, interactive simulations, and mathematics exercises. This expands access to students to the material mathematics learning and gives them more opportunities to deepen their understanding about concepts of mathematics. Matter aligned with explanation from (Anggraini, 2020:8) Several quizizz applications equipped with an immediate feedback feature, which allows students to see the results of their actions or answers directly. It can help students to track their progress, identify errors, and improve their understanding of math concepts. By combining the TGT Model with application use quizizz in learning mathematics, teachers can create a learning environment Which stimulative, collaborative, And interesting for students. This can help improve students' mathematics skills through a team-based learning approach and utilizing digital technology as an effective learning tool.

4. CONCLUSION

Based on the results of research that has been carried out in class III of SDN Sindangsari, Sukabumi Regency, the 2023/2024 academic year in Semester is even with a total of 28 students. The learning results of students after implementing the Quizizz application in the Team Games Tournament (TGT) learning model show satisfactory results in accordance with the success indicators from research which is classically determined as 85% learning completion through class action research (PTK). The syntax of the Quizizz application in the TGT model consists of 5 stages, namely: class presentation stage, learning in groups, games, tournaments and team recognition.

From the pre-cycle of learning completion, only 29% or 8 students completed it because they still used the collaborative learning model including lectures, exercises and questions and answers. After implementing the Quizizz application in the TGT learning model in cycle I, it has been proven that there has been an improvement, although it has not yet been seen as significant, completion was only 64% or 18 students completed. Then, from the results of the evaluation of the previous cycle of research, it was continued with cycle II by adding improvements, the completion of learning results in increasing multiplication ability increased by 89% or 25 students. Therefore, the research was stopped classically because it had reached or exceeded the 85 % achievement indicator.

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