

Implementation of the Cooperative Model of the Teams Games Tournament Type Assisted by Jellyfish Hunting Media to Improve Mathematics Learning Outcomes of Class III SDN 22/II Pematang Panjang

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Abstrak

This Classroom Action Research was carried out with third-grade students at SDN 22/II Pematang Panjang, motivated by the low learning process and outcomes. This was evident from the learning activities that did not yet align with the demands of the Merdeka Curriculum and the average daily test scores that were still below the school's KKTP standard of 70. To address this issue, a cooperative learning model of the Teams Games Tournament (TGT) type supported by the "jellyfish hunting" media was implemented. The purpose of this study was to improve students' cognitive processes and learning outcomes in decimal number material. The method used was Classroom Action Research (CAR), conducted in two cycles, each consisting of planning, implementation, observation, and reflection. The research subjects were 23 students. Data collection techniques included observation and tests, with instruments in the form of observation sheets and test sheets. Observation data were analyzed descriptively, while test data were analyzed using a one-sample t-test with the Statistical Package for the Social Sciences (SPSS). The results showed that the implementation of the cooperative TGT model supported by the jellyfish hunting media in geometry material was categorized as very good. Teacher assessment process from cycle I to cycle II increased by 17%, reaching 97%. Student process performance increased by 30%, with a final percentage of 87%, exceeding the process success indicator of 75%. Students' learning outcomes in the initial observation were only 39%. After applying the TGT model, mastery increased to 61% with an average score of 71 in cycle I. In cycle II, mastery reached 83% with an average score of 82. It can be concluded that the application of the cooperative TGT model supported by the jellyfish hunting media improved the learning process and student outcomes by 44% from the initial condition

Keywords:

Learning Process and Outcomes; Teams Games Tournament; Jellyfish Hunting Media

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1 Introduction

The Independent Curriculum represents the concrete implications of the independent learning policy. Independent learning is a new policy program developed by the Ministry of

Education and Culture of the Republic of Indonesia (Kemendikbud RI) under the leadership of Nadiem Anwar Makarim. According to Yuda (2023), independent learning is the freedom to think and act in learning activities. This curriculum implements student-centered learning in schools. With this independent curriculum, it is hoped that each school's learning plan will be interactive, inspiring, enjoyable, challenging, and motivating for active student participation. Furthermore, it provides sufficient space for initiative, creativity, and independence, in accordance with students' talents, interests, and physical and psychological abilities.(Fathurrahman & Mumtangana, 2023).

One of the subjects implementing independent learning is mathematics. The objective of mathematics, relevant to the Merdeka Curriculum and Merdeka Belajar, is to develop students' independence, critical thinking skills, and creativity. According to Sahrnun et al. (2023), mathematics plays a crucial role and has significant benefits in various aspects of society. This subject is taught from elementary school to university, with the aim of supporting the achievement of national education and developing a productive, innovative, and creative generation of Indonesians.(Miftahul Jannah & Miftahul Hayati, 2024) Learning mathematics trains students' logical thinking and reasoning skills, enabling them to understand facts, concepts, and principles, and solve various mathematical problems. Not mastering mathematics can have negative impacts, including poor conceptual understanding, difficulty applying knowledge in real life, decreased academic achievement, and limited career opportunities in fields requiring mathematical skills.(Apriani & Sudiansyah, 2024).

Based on the results of a pre-survey at Pematang Panjang State Elementary School 22/II on October 14 and 18, 2024, regarding Mathematics learning in grade III, student learning outcomes were still below the KKTP. This can be seen from the results of three consecutive daily tests, where the percentage of those who failed was greater than the percentage who passed the Learning Objective Achievement Criteria (KKTP). In fact, the percentage of students who passed the KKTP was still below 50%. For more details, see Figures 1 and 2 below.

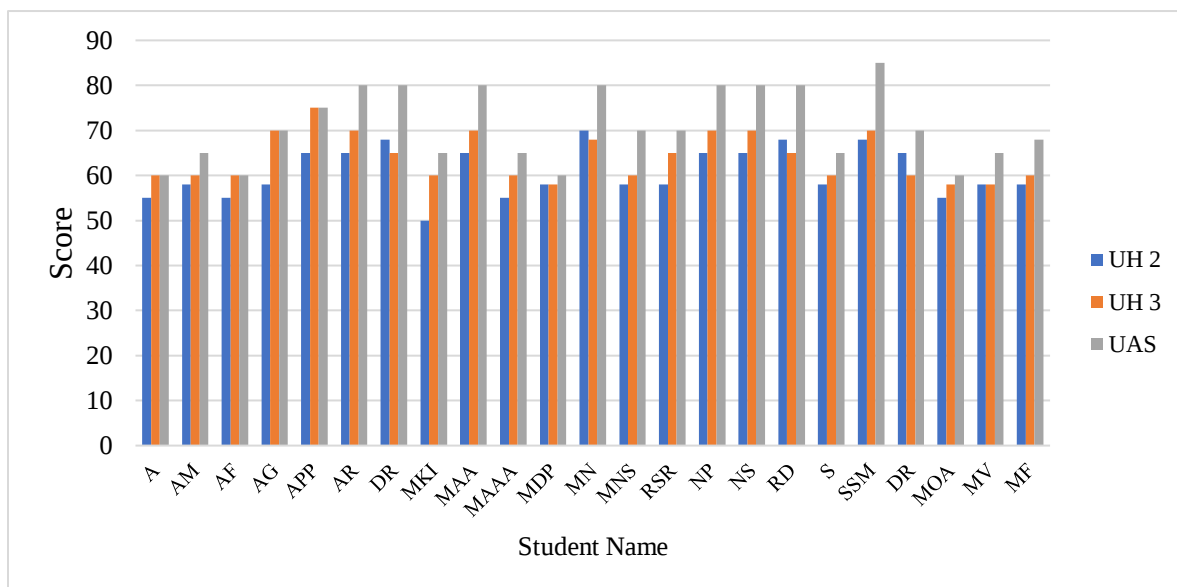


Figure 1.Daily and Average Test Scores for Class III

Based on Figure 1, it shows that only a portion of students achieved the KKTP. This can be

seen from the small number of students who passed the KKTP line, namely 70. From the graph displayed, this shows that the majority of students have not been able to meet the learning outcome standards, and the scores obtained are still relatively low even though there are several students who have met the success criteria.

Based on Figure 2, in the second daily test, the passing percentage only reached 35%, then in the third daily test, the passing percentage only reached 39%, and in the final semester exam, the passing percentage only reached 43%. This shows that students' mastery in learning Mathematics has not experienced a significant increase.

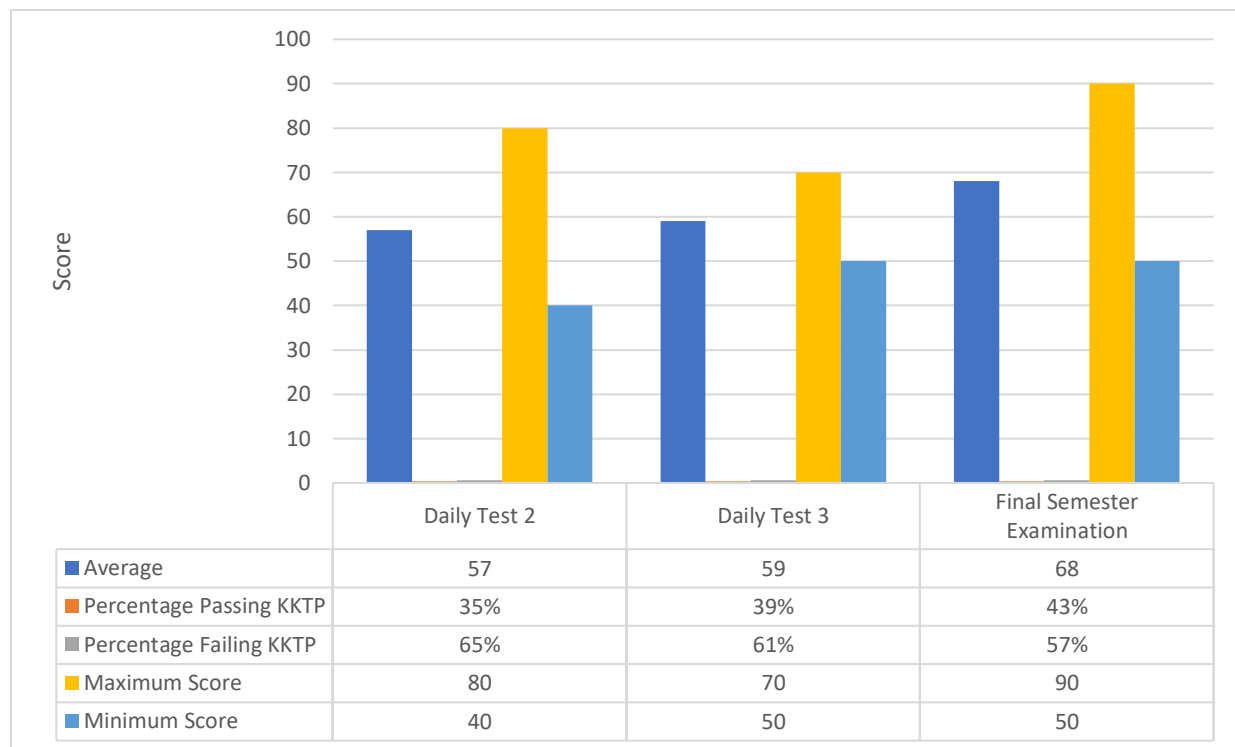


Figure 2.Percentage of Passing and Failing KKTP

Observations of the learning process in grade III of SDN 22/II Pematang Panjang indicate that learning does not align with the demands of the Independent Curriculum, which emphasizes Student-Centered Learning. Teachers still play a dominant role as information sources, using lecture methods, writing materials, and providing practice questions without actively involving students. The learning process tends to be teacher-centered, without group discussions or collaborative reflection, leaving students passive recipients of information. This results in a lack of opportunities for students to construct knowledge independently, think critically, or collaborate with peers. According to Indarta et al.,(2022)In the Independent Curriculum, students are taught how to collaborate with both their peers and teachers. Therefore, students need to possess the 4C skills: creative thinking, critical thinking and problem-solving, communication, and collaboration. These 4C skills are essential in the 21st century and can be developed through specific learning models. Through this approach, students are encouraged to think critically in solving problems, innovate in finding solutions, work collaboratively, and hone communication skills in conveying ideas. Furthermore, collaborative learning models can also strengthen these 4C

skills.(Aliftika et al., 2019).

The low mathematics learning outcomes of third-grade students at SDN 22/II Pematang Panjang are influenced by a lack of varied learning models. With 23 students, teachers should employ learning models that emphasize collaborative skills. Collaborative skills include the ability to work together, complement each other's weaknesses, adapt to roles, and respect differences. Through collaboration, students can solve problems together in a collaborative atmosphere. Cooperative learning strategies are an effective approach to fostering collaborative skills, as students learn in small groups, helping each other understand the subject matter.(Vedriati & Wardani, 2023).

In addition, cooperative learning also contains moral values such as individual and group responsibility, appreciation for shared success, and a pleasant learning atmosphere.(Triana Putri et al., 2024)One relevant type is the Team Games Tournament (TGT) cooperative learning model. This model emphasizes group work, active student participation, and the use of games to increase motivation and reduce boredom while learning mathematics. Several studies have shown that implementing the TGT model can improve students' mathematics learning outcomes.(Surya, 2018; Putri, 2022; Mahayasa, 2023)

In addition to varying learning models, the use of instructional media is also crucial for improving student learning outcomes. In the Independent Curriculum, teachers are encouraged to utilize innovative, student-centered learning media that encourage critical thinking skills. The right media not only helps students better understand concepts but also directly impacts their learning outcomes. One example of innovative media is the jellyfish hunt, a tool made of colorful paper containing questions in the shape of jellyfish tentacles that students must solve.(Irmaningrum et al., 2023).

Jellyfish hunting media has various advantages, such as increasing students' curiosity, cultivating discipline while waiting their turn, assessing understanding of the material, and developing critical thinking skills. This approach also creates a fun learning environment, increases student motivation, and encourages active engagement in learning. Therefore, the use of innovative media such as jellyfish can help students understand concepts more comprehensively while increasing their motivation to learn.(Lutfiah et al., 2024).

Based on the discussion that has been presented, the author conducted research activities with the title: Cooperative Learning Model of Teams Games Tournament Type Assisted by Jellyfish Hunting Media: An Innovative Solution to Improve Mathematics Learning Outcomes in Elementary Schools.The objectives of this study are: (1) To improve the effectiveness of mathematics learning through the application of the Teams Games Tournament type cooperative learning model assisted by jellyfish hunting media in class III of SDN 22/II Pematang Panjang. (2) To improve students' mathematics learning outcomes through the application of the Teams Games Tournament type cooperative learning model assisted by jellyfish hunting media in class III of SDN 22/II Pematang Panjang.

2 Method

This type of research is classroom action research (CAR). Classroom action research is a teacher's activity in assessing student learning, evaluating the school curriculum, or learning methods and techniques, and assessing student learning outcomes and academic development at school.(Utomo et al., 2024)The CAR stages implemented in this study are the CAR stages according

to Aprizan et al. (2022), which consist of four stages in classroom action research: planning, implementation, observation, and reflection. The research was conducted in two cycles and four meetings. Classroom action research is research involving actions carried out by educators with the aim of improving and enhancing the quality of classroom learning.

This research was conducted at SDN 22/II Pematang Panjang and took place from May 27 to June 4, 2025. The individuals who were the focus of the research included all 23 students in grade III in this study. The focus of this study focused on the use of the Cooperative Teams Games Tournament model integrated with the help of card-based media, which aims to optimize learning activities and student achievement. The data collection process was carried out using observation guides and test tools as instruments. The data processing approach used in this research activity was descriptive data processing and one-sample t-test processed with the help of the SPSS application.

3 Results and Discussion

3.1 Results

The subject matter being taught is Decimal Numbers. To observe the learning process, the researcher prepared an observation instrument format to be completed by the observer and colleagues. Data from the researcher's observations of the teacher's learning process is presented in the following table:

Table 1. Comparison Table of Teacher Observations in Cycles I and II

Cycle I		Cycle II	
Meeting 2	Meeting 2	Meeting 1	Meeting 2
Presentation	Presentation	Presentation	Presentation
79%	85%	98%	97%
Increase from Cycle I P1 to Cycle II P2 18%			

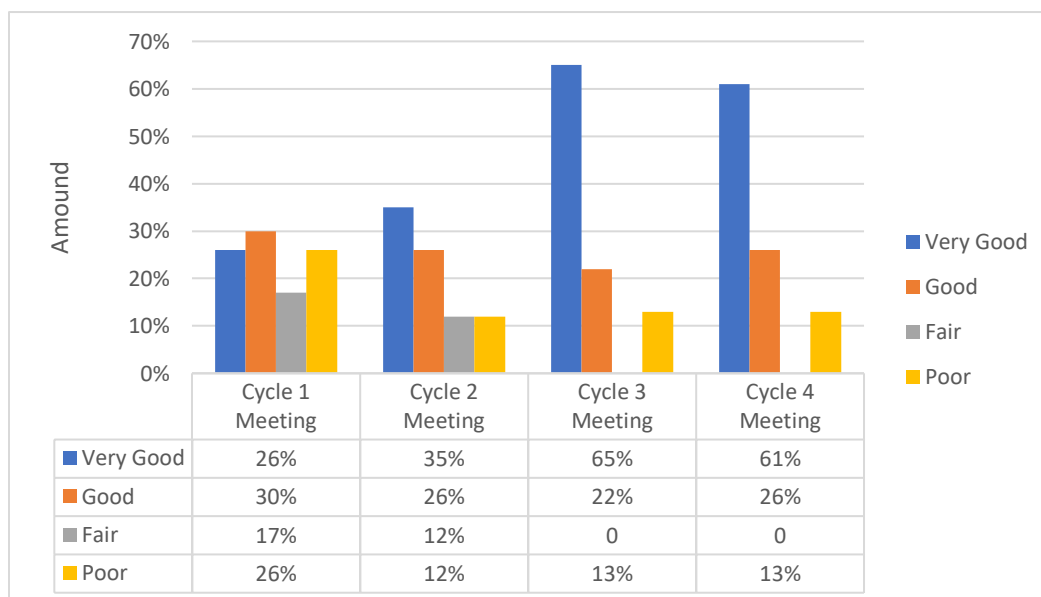


Figure 3. Recapitulation of Student Observation Data from Cycles I and II

Based on the information gathered in Table 1, there are indications of improvement occurring from the first cycle to the second cycle. During the first meeting of cycle I, the percentage of teacher observations increased from 79% to 85% during the second meeting. Furthermore, in cycle II, meeting 1, the percentage of teacher observations increased again to 98%, with a percentage increase of 19%. Furthermore, in the second meeting of cycle II, the percentage of teacher observations still showed an increase but decreased by 1% to 97%. Thus, overall, the teaching process from cycle I, from the initial meeting to the second meeting when entering cycle II, teacher performance increased quite significantly with a percentage increase of 18%. The summary of the results of student observations is presented in the following graph (Figure 3).

There is an increase from cycle 1 meeting 1 to meeting 2 and to Cycle II Meeting 1. In Cycle I meeting 1 the percentage of very good was only 26% and increased to 35% at meeting 2, so there was an increase of 9%. Then, in Cycle II Meeting 1 the percentage of very good increased to 65% so there was an increase of 30% but decreased at meeting 2 to 61% so there was a decrease of 4%. Furthermore, the good category at meeting I the percentage obtained was 30% decreased to 26% at meeting 2, so the percentage decreased by 4%. Then, in Cycle II Meeting 1 the percentage of good was 22% so there was a decrease of 4% but there was an increase at meeting 2 by 4% to 26%.

Referring to the recapitulation based on the previous description, it can be concluded that the number of students who meet the success indicators has decreased significantly from the initial meeting to the second meeting in cycle II. This decrease is seen in the very good and good categories in the first meeting of cycle II which shows a percentage of 87% and can be maintained in the second meeting with a constant percentage of 87%. Globally, it can be concluded that it shows significant development starting from the beginning of the implementation of cycle I to the final stage of cycle II, namely from a percentage of 57% to 87%, so that the percentage increase is 30%.

The results of the test results in Cycle II indicate that 12 students successfully achieved the minimum completion criteria (KKTP) with a percentage of 80%. The following is a table comparing one sample of student learning test results:

Table 2. One-Sample Statistics Cycle I and II

One-Sample Statistics				
	N	Mean	Standard Deviation	Std. Error Mean
Cycle_1	23	71.3043	32.93304	6.86701
Cycle_2	23	83.6957	34.38477	7.16972

Table 3. One-Sample Test Cycle I and II

One-Sample Test						
	Test Value = 70					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Cycle_1	.190	22	.851	1.30435	-12.9370	15.5457
Cycle_2	1.910	22	.069	13.69565	-1.1734	28.5647

Interpretation of output readings for the single sample comparison test process can be followed by the following steps:

- a. Hypothesis form of one sample comparative test
 $H_0: \mu \geq 70$ (The average score of the student learning outcome test is the same as the KKTP 70)
 $H_1: \mu < 70$ (The average score of the student learning outcome test is not the same as the KKTP 70)
 Formulate an analysis plan. Determine a two-tailed test. The error rate is 0.05.
- b. Analysis of Results: In the output of the test value of cycle 1, it is seen that $\text{sig}=0.851=85.1\%$ = 5% means accepting H_0 and rejecting H_1 . So the sample mean represents the population mean of 70, which is justified. While in the output of the test value of cycle 2, it is seen that $\text{sig}=0.069\%$ = 5% means accepting H_0 and rejecting H_1 . So the sample mean represents the population mean of 70, which is justified.
- c. Interpretation of Results In the output of the test score of cycle 1, namely accepting H_0 , it means that the average student achieved a KKTP score of 70, which is justified. This can be seen in the empirical average output of 71 and in a momentary view is greater than 70. The output of the test score of cycle 1, namely accepting H_0 , means that the average student achieved a KKTP score of 70, which is justified. This can be seen in the empirical average output of 82 and in a momentary view is greater than 70. It can be concluded that in cycle 2, the success indicator has been achieved, so that the PTK activity stops or is completed in cycle 2.

3.2 Discussion

3.2.1 Improving the Mathematics Learning Process Using the Cooperative Teams Games Tournament Model Assisted by Jellyfish Hunting Media

Based on the findings of the research conducted in two cycles, learning using the Cooperative Teams Games Tournament model assisted by Jellyfish Hunting Media has resulted in a significant improvement in student learning. Student engagement in learning also showed a clear improvement from the first cycle to the second cycle with a percentage increase of 30%. This research has also been experienced by several previous researchers, namely Based on the results of research (Surya,(2018);Putri & Wati,(2020); and Almighty,(2023)) that the application of the Team Games Tournament type cooperative learning model can improve the Mathematics learning process.

This research has improved because the model used is very appropriate for the material being taught, as seen from the students' enthusiasm when playing jellyfish hunting and their activeness during the learning process. This is in line with the learning theory according to Junaaidi Ifan (2019), which states that the teaching and learning process is an interaction between learning components to create a learning situation that allows for the achievement of objectives. These components include strategies, approaches, methods, models, and learning techniques. The learning process also improved because students actively construct their own knowledge through group work using jellyfish hunting as a medium. Constructivism theory supports this, where knowledge is a cognitive construction through individual activities, thus relating to the concept of independent learning because students are free to construct ideas according to their abilities.(Ardila et al., 2024).

The Teams Games Tournament model can enhance the learning process because it adopts team learning principles that emphasize collaboration and interaction among team members. This collaboration helps develop communication, metacognitive thinking, and problem-solving skills.(S. Lu & Smiles, 2022)The effectiveness of Team Games Tournaments is also influenced by the role of leadership and the quality of interpersonal interactions that encourage the exchange of ideas and shared understanding (Pacheco, 2018). Furthermore, team-based learning creates positive interdependence, increases learning autonomy,

and strengthens active engagement in both face-to-face and distance learning (Yasunaga, 2023). Educational games that are part of Team Games Tournaments play a crucial role in enhancing student learning. Learning using educational games has been shown to increase material retention and student engagement. (Rojab et al., 2025) The game component also makes students enjoy the learning process more, creating a fun, participatory, and stimulating classroom atmosphere. The implementation of learning tournaments in Teams Games Tournaments effectively enhances the learning process by creating a healthy competitive atmosphere, which motivates students to be active and contribute to learning. (Rahayu et al., 2022). In addition to cognitive and social aspects, this study also emphasizes the importance of students' motoric activities through jellyfish hunting. The tearing and sticking activities align with Motor Learning Theory, which explains that motor learning is the process of adapting movements through external stimuli and changes in the nervous system (Lukman & Neviyarni, 2021). Learning media in the form of physical games provides students with the opportunity to practice specific movements through experience (Widiatmika, 2015). The jellyfish hunting game also aligns with Bruner's stages of representation: enactive, iconic, and symbolic, thus helping students gradually understand the material. (Huda & Susdarwono, 2023) However, this study also identified several implementation challenges. Some students lacked focus during the lesson, teachers were not optimal in closing activities such as drawing conclusions, and time management was suboptimal due to limited class hours. Student attendance also presented a challenge, with some students absent from the lesson without permission. This indicates that despite significant progress, the learning process remains suboptimal.

This study found that the use of a cooperative Team Games Tournament model supported by jellyfish hunting media improved student learning by 30%. Unlike previous research that only focused on improving learning outcomes, this study demonstrated a more significant improvement in both learning processes and outcomes, which is believed to be influenced by the use of learning media.

3.2.2 Improving Mathematical Cognitive Learning Outcomes Using the Cooperative Teams Games Tournament Model Assisted by Jellyfish Hunting Media

The learning process implemented through two research cycles demonstrated a positive impact on student learning outcomes. The use of the Teams Games Tournament cooperative learning model, supported by jellyfish hunting media, was proven to significantly improve cognitive learning outcomes. From the initial observation to cycle II, students' cognitive learning outcomes increased by 44%, and the average student pass rate reached 83%, higher than previous research which only reached 75%. These results also align with previous research findings that prove the TGT model is effective in improving mathematics learning outcomes (Surya, 2018; Putri, 2022; Mahayasa, 2023).

Improved student learning outcomes were evident in their ability to answer questions and attach answers in the jellyfish hunting game, reflecting understanding of the material. This supports the theory that learning outcomes are an indicator of educational achievement, both in terms of grades and their application in everyday life. (Ediyanto et al., 2020). In addition, the model Team Games Tournament which is based on group discussions, educational games, and tournaments encourages students to actively construct their own knowledge through collaboration and exploration of concepts, in accordance with the principles of constructivism. (Azizah Siti Lathifah et al., 2024). From the cognitive perspective of Bloom's

Taxonomy, the jellyfish hunting game can train students from basic to complex skills, from remembering (C1), understanding (C2), applying (C3), analyzing (C4), to evaluating (C5). Group discussion activities in the TGT model further strengthen the development of students' critical thinking skills.(Listiani & Rachmawati, 2022).

The compatibility of the Teams Games Tournament model with the material taught also contributes to improved student learning outcomes. The fun and competitive tournament process makes students more focused, active, and motivated in understanding the concepts taught.(Azhary et al., 2023). The support of jellyfish hunting media is also in line with Bruner's theory which emphasizes three stages of representation, namely enactive, iconic, and symbolic, so that students can understand the material gradually and systematically.(Hatip & Setiawan, 2021). Thus, the main difference between this study and previous research lies in the use of jellyfish hunting media to support the Teams Games Tournament model. The use of this media has been proven to have a significant impact on improving student learning outcomes from cycle I to cycle II. This is thought to occur due to the media's power in creating a fun, interactive learning experience that is in line with the characteristics of the material being taught.

4 Conclusions

The research that has been conducted reveals that regarding the improvement of the process and success rate of mathematics learning by utilizing a specific learning model Teams Games Tournament in grade III students of SDN 22/II Pematang Panjang, it can be concluded that there has been a significant development during the learning process. This is evident based on observation data collected in cycles I and II. In the first cycle stage, observations of teachers showed a good category with a percentage of 79% in the first meeting, which then increased to 85% in the second meeting. Furthermore, in cycle II, the first meeting recorded an increase of up to 98% with a very good category, however, it decreased in the second meeting by 1% to 97%. Meanwhile, the level of student learning activity monitored using observation sheets also showed a positive trend. In the first cycle meeting, the percentage of achievement was 57%, then increased to 61% with a good category in the second meeting. In cycle II, the first meeting recorded 87% with a very good category and was able to be maintained in the second meeting. Thus, it can be concluded that the integration of the Teams Games Tournament model which is supported by jellyfish hunting media during the implementation of learning on decimal number material in class III shows an increase in activity from both teachers and students from cycle I to cycle II.

The students' learning achievement on the material also experienced a significant increase from the initial observation to cycle II. At the beginning of the observation, the percentage of students' completion in the daily test 3 only reached 39% and was classified as less. Then it increased in cycle I to 61% with a good category, and then rose again to 83% in cycle II which was classified as very good. Referring to these data, the implementation of learning decimal number material using the Teams Games Tournament model assisted by jellyfish hunting media in class III of SDN 22/II Pematang Panjang proved effective in encouraging an increase in student learning achievement from the initial stage to implementation in cycle II, so it can be concluded that this study succeeded in achieving its success indicators.

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