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Gamifying Cooperative Learning: The Impact of Team Games Tournament and Wordwall Media on Student Engagement in Elementary Science Education

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ABSTRACT

This study addresses the critical pedagogical challenge of low student engagement in learning the Natural and Social Sciences (NSS) topic, particularly manifested through passive participation and limited focus during collaborative activities. Employing a classroom action research framework across two iterative cycles – each comprising planning, implementation, observation, and reflective evaluation phases – the investigation examines the efficacy of combining the Team Games Tournament (TGT) cooperative learning model with interactive Wordwall media in revitalizing student participation. The research cohort consisted of 25 fourth-grade students at SD Negeri Pucangan 03, with data triangulated through systematic observation, semi-structured interviews, and documentary analysis. Initial baseline assessments revealed only 50% student engagement levels, highlighting the urgency for pedagogical intervention. Implementation of the TGT-Wordwall integration yielded substantial improvements, with engagement metrics rising to 74% in Cycle 1 and further escalating to 84% in Cycle 2, demonstrating consistent positive trajectory. The findings substantiate that gamified cooperative learning strategies effectively transform passive learners into active participants by leveraging competitive team dynamics coupled with digital interactivity. This pedagogical synergy not only enhanced immediate lesson engagement but also fostered sustained interest in the NSS curriculum. The study contributes to contemporary educational discourse by providing empirical evidence for technology-enhanced cooperative learning models in elementary STEM education, while offering a replicable framework for addressing engagement deficits in comparable contexts. Practical implications suggest the potential for broader application of integrated TGT-digital approaches across subject domains requiring high conceptual engagement and collaborative problem-solving competencies.

Keywords: learning activeness, teams-game-tournament model, wordwall, natural and social science

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INTRODUCTION

Natural and Social Sciences (NSS) is a field of study that integrates basic concepts from Natural Sciences and Social Sciences to enable students to explore the physical and social aspects of their environment (Viqri et al., 2024). By understanding NSS, students can export the knowledge they learn to their surrounding environment and give them the freedom to manage their own environment

(Meylovia & Alfin Julianto, 2023). In addition, NSS learning also aims to foster students' curiosity, improve their ability to understand and comprehend the phenomena around them (Susanto, 2018).

NSS learning is very important to learn as early as possible because it can provide a foundation of knowledge to students (Viqri et al., 2024). This subject is an important component of the independent curriculum and is an innovation in learning in elementary schools (Latifah et al., 2024). In Indonesia itself, NSS is officially one of the subjects studied in elementary schools in the independent curriculum, which previously NSS subjects were a merger of science and social studies subjects. The merger is based on the Decree of the Head of BKSAP number 033/H/KR/2022 on the Learning Outcomes of NSS Subjects. The purpose of NSS learning in elementary schools is to increase students' understanding of the world and the surrounding environment and provide useful knowledge for everyday life. (Suhelayanti et al., 2023).

One aspect that determines the success of NSS learning is student learning activeness (Sulthon, 2017). Learning activeness refers to the direct involvement of students during the learning process. (Widiastuti, 2017). This aspect is crucial to education as it has a direct effect on academic outcomes and understanding of material. Learning engagement becomes even more important at the primary school level, when students are in a critical phase of cognitive development (Magdalena et al., 2023). This is especially true for complex subjects such as Natural and Social Sciences (NSS), where active student participation is essential to understanding social and environmental dynamics (Anggraini & Hardini, 2024). Based on these perspectives, active student participation in learning the NSS topic is essential, as it aids students in understanding the material.

The characteristics of active students in learning are students who are continuously involved physically, psychologically, intellectually, and emotionally in learning (Murni, 2021). The forms of activeness can be seen from several indicators such as (1) Excited when carrying out the learning process; (2) Dare to ask questions during the learning process; (3) Dare to answer questions given during the learning process; (4) Dare to present the results of their understanding in front of the class during the learning process; (5) Participate in carrying out their duties in learning; (6) Conduct group discussions in accordance with teacher instructions (A. S. P. Sari et al., 2022a). Student learning activity can also be assessed through various indicators, including: (1) engaging in group discussions, (2) diligently completing assigned tasks, (3) asking the teacher questions about the material, and (4) expressing opinions and paying attention to the teacher's explanations (Hariandi & Cahyani, 2018). These indicators can be used as a benchmark for gauging student learning activeness during lessons.

Student learning activeness remains a challenge in NSS subjects, as highlighted in research that found low levels of student participation and engagement are still common issues in this area (Ulum et al., 2024). The lack of student activeness in learning can be caused by several factors, such as uninteresting learning media and educational approaches that can cause students not to engage in

learning (Busa, 2023). In addition, the learning process remains teacher-centered, and the absence of innovative teaching methods also results in students being less engaged during lessons (Ibrahim, 2020). In line with this opinion, teachers are still dominant in using the lecture method. Less in utilizing learning media can cause students to be less active in learning. (A. D. Prasetyo & Abduh, 2021).

Based on observations conducted in the fourth grade of SD Negeri Pucangan 03, problems were found regarding learning activeness in learning NSS topics. These problems are (1) Lack of active students in learning activities, (2) The teacher still relies heavily on the lecture method in delivering lessons, (3) The learning process is still teacher-centered, (4) The learning model being used does not align with the students' characteristics, (5) Learning activities that are carried out are less varied and still refer to the LKS book, and (6) Students who are more academic dominate group work. These problems must be anticipated by using appropriate learning strategies. The learning strategy expected by the researchers is the use of models that encourage student engagement and media that make learning less monotonous (Rosyida et al., 2025; Wahyuning et al., 2025).

On the other hand, developments in educational technology have opened new opportunities in designing more engaging and interactive learning experiences. One tool that is gaining popularity among educators is Wordwall (Fakhriyah et al., 2025; Otis et al., 2025). Wordwall is a digital platform that allows teachers to create various interactive learning activities and educational games that can be adapted to the curriculum (Putri et al., 2024). By using Wordwall, teachers can create quizzes, puzzles, and other games that can increase students' motivation and enthusiasm in learning (Lubis & Nuriadin, 2022). In the analysis conducted by (Rahmasari et al., 2024), Wordwall media has been found to positively influence student activeness in learning by fostering enthusiasm and promoting active participation, such as asking and answering questions as well as presenting discussion outcomes.

The effectiveness of Wordwall media can be further enhanced when it is combined with appropriate learning models. The Team Games Tournament (TGT) model is one instructional approach that is highly compatible with the use of Wordwall, which supports interactive and engaging classroom activities. Integrating Wordwall with relevant instructional strategies like TGT fosters greater student involvement and makes learning experiences more dynamic and participatory (Febriyani et al., 2025; Ulya et al., 2025). The TGT model is a cooperative learning approach that includes competition and games in the learning process (Slavin, 2015). The existence of games and tournaments makes students enthusiastic in participating in learning because they are encouraged to excel from others. This learning model emphasizes collaboration between students through competitive team games (Rusyanto, 2021). In the context of Natural Science (NSS) learning, the TGT model can help students to engage more with the material through group discussions, simple experiments, and game-based challenges. Research done by Anggraeni & Supriyono (2024) the results showed that using the TGT learning model increased student learning activeness, rising from 50.81% to 74.87%. Similarly, research done by Sutaryo et al.

(2023) Students' learning activeness increased from 61.67% to 87.98% after the implementation of the TGT model.

The results of previous studies show the use of the TGT model integrated with wordwall media as in research Zahro et al. (2024) and Putri et al. (2024). Both studies used the TGT model with Wordwall media to improve mathematics learning outcomes, while this study focuses on increasing student learning activeness. Previously there had also been research intended to increase student learning activeness in NSS subjects such as in research conducted by Tania & Wardani (2024) and Hastiwi et al., (2023). However, both studies used other learning models. There has been no prior research on the integration of the TGT learning model and Wordwall media to boost student engagement in learning the NSS topic. For this reason, in this study the researcher intends to use the integration of the TGT learning model and Wordwall media to increase student learning activity in learning NSS topics in grade 4 of SD N Pucangan 03. Thus, this study can support the development of educational theory and help teachers create a more active and enjoyable learning environment for NSS.

METHOD

Research Design

This study used a Classroom Action Research (CAR) design. According to Agus (2024) Classroom action research is research conducted by teachers in the classroom to improve and develop learning systems, which can be done independently or collaboratively, through a cycle of activities. Meanwhile, according to (Ramadhan & Ahmas, 2022). Classroom Action Research (CAR) is a form of action research carried out by teachers or researchers, either individually or collaboratively, within their classrooms. It involves designing, implementing, and reflecting on specific actions in a cyclical process, with the goal of enhancing the quality of the learning process through targeted interventions. Therefore, it can be concluded that the purpose of CAR is to improve the quality of classroom learning by having teachers act as researchers who design, implement, and reflect on actions in a cycle, either alone or with others, to enhance their professional performance in managing the learning process.

This research uses a Classroom Action Research (CAR) approach with a cyclical model proposed by Kurt Lewin in Mulyatiningsih (2014), which consists of four stages: planning, action implementation, observation, and reflection. The study was carried out in two cycles, each involving a sequence of activities designed to enhance student engagement and improve learning results in the classroom. The choice of two cycles was based on the need to evaluate whether there was an increase in learner activity after the initial intervention and whether the changes could be sustained in the next cycle. In addition, the selection of two cycles is because it is the minimum cycle limit to determine the results of the intervention. This iterative process allows for continuous reflection and adjustment of learning strategies. The procedure in each cycle is continuous as shown in Figure 1.

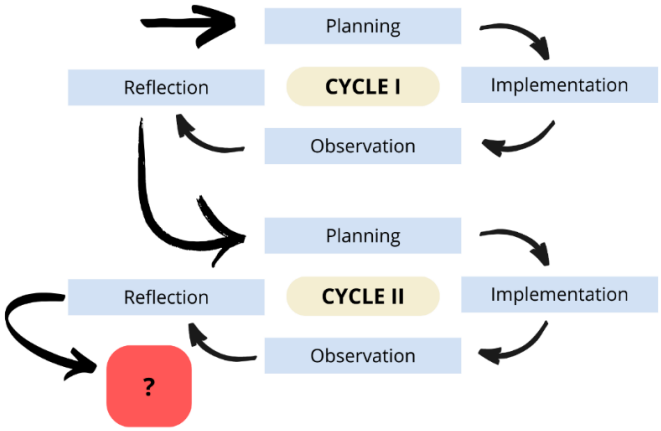

Figure 1. The stages of implementing classroom action research (CAR) Kurt Lewin Model

Research Setting

The subject of this research was Class IV of SD Negeri Pucangan 03 in total 25 students. The reason for choosing this class is because during the initial observations and interviews it was found that the class had low activeness. Based on an analysis of the observation data, it was found that there were 18 students who were passive in learning activities and 7 students who were active in learning activities. According to interviews with the class teachers, it was found that class IV had the lowest activeness in NSS subjects. Some students also said that NSS is a difficult subject because it requires a lot of memorizations. As a result, the focus of this research is to examine the improvement in learning activeness among fourth-grade students studying the NSS subject.

The sampling technique used was purposive sampling, based on the role of the researcher as the class teacher of the students concerned (Amiruddin et al., 2023). This technique was chosen because the learners under study showed a relatively low level of participation in science learning, as identified through initial observations. The inclusion criteria in this study were learners who were present during the research implementation period. There were no exclusion criteria as the study aimed to involve all learners to obtain a comprehensive picture of the classroom dynamics.

However, it is important to realize the potential for bias due to the researcher's dual role as a teacher and researcher. To minimize this, a collaborator was involved in the observation and reflection stages to maintain objectivity and reduce researcher bias (Ramadhani & Bakri, 2024). The research was conducted in November 2024 for 4 weeks at SD Negeri Pucangan 03, Kartasura District. The research was conducted with two cycles. Each cycle carried out one learning meeting with a duration of 2 X 35 minutes (70 minutes).

Data Collection Technique and Tools

The initial data collection technique used observation, interviews, documentation and tests.

1. Observation

   Learning activities in the classroom were observed directly with a focus on learner engagement, interaction and participation. Observations were made in both cycles and recorded systematically. Observations provided direct data on the impact of the intervention on learner engagement. The observation sheet was developed based on learner activity indicators such as enthusiasm, participation in discussion, and courage in answering questions (Sari et al., 2022).

2. Interviews

   Informal interviews were conducted with learners after each cycle to obtain feedback on their experiences during the learning activities. These interviews helped the researcher understand learners' perceptions of the intervention and the challenges they faced. The data from the interviews were used in the reflection stage to adjust the learning strategies in the next cycle.

3. Documentation

   Documentary data collected includes the Learning Implementation Plan (RPP), students' work, and photos of learning activities. This document serves as evidence of the implementation of learning strategies and a record of the development of learner learning outcomes. Documents were reviewed after each cycle to evaluate the effectiveness of the intervention.

4. Test

   Tests were given at the end of each cycle to evaluate students' learning outcomes, particularly their understanding of science concepts. The test results are used as a basis for assessing the effectiveness of the learning strategies applied.

Initial data collection aims to find out the problems and areas that need to be improved in the classroom according to the needs of students. Then data collection in cycle I and cycle II was carried out using observation, interview, documentation and test techniques to obtain data on student learning activeness.

The student learning activeness scoring system used in this assessment rubric is that each 1 indicator item gets a maximum score of 3 points. The total maximum score of the rubric is 18 points per cycle. Indicators of learning activeness that are observed include: (1) Excited when carrying out the learning process, (2) Dare to ask questions during the learning process, (3) Dare to answer questions given during the learning process, (4) Dare to present the results of their understanding in front of the class during the learning process, (5) Participate in carrying out their duties in learning, (6) Conduct group discussions in accordance with teacher instructions (A. R. Sari et al., 2022).

Table 1: Research Achievement Indicators for Student Activeness

Accomplishments	Criteria
75% - 100%	High
51% - 74%	Medium
25% - 50%	Low
0% - 24%	Very Low

Source: (Arikunto at (B. Prasetyo et al., 2021))

Indicators of success in the implementation of this study are considered successful if they have met the success of the action, namely the implementation of learning based on the team games tournament (TGT) model integrated with Wordwall to increase the learning activeness of class IV students at SD Negeri Pucangan 03 on the topic of NSS with a percentage reaching 75-100% (high criteria) of 25 students. The indicators of the learning process in this study will be evaluated through the success rate of actions, determined by the percentage calculated from student observation scores. To calculate the observation of students' activities, researchers used the following percentage formula:

$$\text{Percentage of action success} = \frac{\Sigma \text{ number of scores obtained}}{\Sigma \text{ maximum score}} \times 100\%$$

Source: (Djamarah at (B. Prasetyo et al., 2021))

Data Analysis Technique

The data analysis technique used is comparative descriptive analysis followed by reflection. Descriptive data analysis is a method of analyzing data by summarizing or presenting it as it is, without the intent to draw broader conclusions or generalize (Marhamah et al., 2016). In this case, the researcher intends to compare the initial data on student activeness with the data obtained in cycle I and cycle II. After that followed by the reflection stage.

Validity and Reliability

To ensure the validity of the findings, data from various sources (observation, interviews, documentation, and test results) were analyzed by triangulation. The use of various data collection techniques enabled cross-checking and verification of data consistency. Reliability was maintained through an inter-rater reliability approach, which involved collaborators in the observation and reflection stages. Collaborators made independent observations of learning activities, and the results of their

observations were compared with the researcher. Differences that arose were discussed to reach an understanding in the interpretation of the data.

To maintain internal validity, this study focused on the direct relationship between the intervention (Teams Games Tournament model based on Wordwall media) and increased learner participation. External variables were controlled by keeping the learning environment and learning approach consistent over the two cycles.

Research Ethics

Ethical approval for the research was obtained from the school principal, class teacher, parents or guardians of the learners and the learners themselves. Prior to the study, written informed consent was obtained from parents and learners after explaining the purpose, procedures, and voluntary nature of participation in the study. Learners' identities were kept confidential, and no personal data that could identify learners was included in the report. All data was stored securely and used for research purposes only.

Research Procedure

The first step is to determine the research method to be used, which in this study is the Classroom Action Research (CAR) method. The research was carried out in a collaborative and participatory manner, with the researcher collaborating with the class teacher and receiving support from peers. This research intends to provide information on how to increase students' activeness in learning the topic of NSS by using the team games tournament (TGT) model integrated with wordwall media. Therefore, this research is focused on actions as an effort to increase the activeness of students in learning the topic of NSS.

The second step is to determine the research action which is divided into two cycles. The action in this study uses a game method because the learning model used is team games tournament (TGT) by integrating wordwall media into it. Learners will be divided into several groups which later with the group will participate in the game. The game played in learning using wordwall media. The third step is to conduct observations in each learning implementation in each cycle. Then the last is to reflect on the observations that have been obtained.

RESULTS & DISCUSSION

Results

Research conducted through observations of teaching and learning activities on teachers found that when the teacher asked questions only 3 to 5 students classically responded and asked questions positively. With this, the researcher gave a student learning activeness questionnaire at the pre-cycle

stage, which was conducted on Monday, October 21, 2024, to find out the results of student learning activeness. These results are shown in the following table.

Table 2. Student learning activeness score using the Wordwall integrated TGT learning model at Pre-Cycle

Indicators of Student Learning Activity	Pre-Cycle Results	
	Skor	**Percentage**
Excited when carrying out the learning process	52	69%
Dare to ask questions during the learning process	29	39%
Dare to answer questions given during the learning process	28	37%
Dare to present the results of their understanding in front of the class during the learning process	31	41%
Participate in carrying out their duties in learning	43	57%
Engage in group discussions as directed by the teacher	42	5%
Total Score and Percentage	**225**	**50%**

Based on the data above, the researcher conducted cycle 1 research on Thursday, October 24, 2024, and Thursday, October 31, 2024, to improve student learning activity by using the team games tournament (TGT) learning model with the integration of Wordwall media. In the planning stage, the researcher created a teaching module with the material on style in daily life, learning media in the form of PPT and educational videos from YouTube, prepared Student Work Sheets (LKS), student learning activity questionnaires, and evaluation questions. At the implementation stage, the teaching module was implemented using the team games tournament (TGT) learning model by integrating Wordwall media. At the observation stage, the researcher conducted observations and filled out a student learning activity questionnaire to obtain observation results. During the learning process, it was found that some students were inactive, lacked concentration, did not contribute ideas and thoughts during project work, and caused problems for their group mates. At the reflection stage, the researcher and the class teacher evaluate and reflect on the learning process that has been carried out. The researcher and the class teacher discussed ways to improve the learning activities, establishing stricter rules for the benefit of the students. After the implementation of cycle 1, there was an increase in the average learning activity scores of the students compared to the pre-cycle stage. The results are shown in the following table.

Table 3. Student learning activity scores using the TGT integrated Wordwall learning model in Cycle I

Indicators of Student Learning Activity	Cycle I Results	
	Score	**Percentage**
Excited when carrying out the learning process	70	93%
Dare to ask questions during the learning process	51	68%
Dare to answer questions given during the learning process	51	68%
Dare to present the results of their understanding in front of the class during the learning process	48	64%
Participate in carrying out their duties in learning	55	73%
Engage in group discussions as directed by the teacher	56	75%
Total Score and Percentage	**331**	**74%**

Table 4. Student learning activity scores using the TGT integrated Wordwall learning model in Cycle II

Indicators of Student Learning Activity	Cycle II Results	
	Score	Percentage
Excited when carrying out the learning process	70	93%
Dare to ask questions during the learning process	61	81%
Dare to answer questions given during the learning process	60	80%
Dare to present the results of their understanding in front of the class during the learning process	57	76%
Participate in carrying out their duties in learning	63	84%
Engage in group discussions as directed by the teacher	65	87%
Total Score and Percentage	**376**	**84%**

Based on the data results, the researcher proceeded to cycle 2, which was conducted on Friday, November 15, 2024, and Thursday, November 21, 2024.In the planning stage, the researcher designed teaching modules, learning media, student worksheets, questionnaires, and evaluation questions to be consulted with the classroom teacher. In the implementation stage, the researcher implemented the teaching module using the team games tournament (TGT) learning model by integrating Wordwall media. During the implementation process, it was carried out well, and students were seen actively asking questions and providing ideas during the learning activities. At the observation stage, the researcher filled out a student learning activity questionnaire to determine the results. The researcher found that students, in general, have made good progress in the learning process. At the reflection stage, all learning has been successfully carried out according to the designed learning module. The results are presented in the table below.

Based on the research that has been conducted, the data obtained for the average class value of the results of measuring the student learning activity variable are as follows:

Table 5. The average score of students' learning activity using the TGT integrated Wordwall learning model in the Pre-Cycle, Cycle I and Cycle II.

No	Percentage		
	Pre-Cycle	Cycle I	Cycle II
1	50%	74%	84%

Based on the data in the table above, it can be seen that the average learning activity score of the students, when looking at the pre-cycle score, was 50% (Low). In cycle 1, the average learning activity score of the students was 74% (Moderate), which increased by 10% to 84% (High) by the end of cycle 2. Therefore, the research has been deemed successful according to the predetermined target.

Discussion

The implementation of the Team Games Tournament (TGT) learning model integrated with Wordwall media on the NSS topic in the fourth-grade class at Pucangan 03 Elementary School aims to increase student learning activity. This goal is based on initial findings that most students tend to be passive in learning, especially in the subject of NSS. The research results show that after two cycles of implementation, there was a significant increase in student activity. These results are in line with the theory proposed by Murni (2021) and A. S. P. Sari et al. (2022), which states that student learning activity is very important in education, especially during the cognitive development phase of elementary school students, and can be realized through physical, psychological, intellectual, and emotional involvement. The TGT model, which is based on games and group work, has been proven to increase students' enthusiasm and active participation in learning. The integration of Wordwall media further strengthens this, as interactive digital media can create an enjoyable and challenging learning atmosphere, thereby motivating students to engage more in the learning process (Zahro et al., 2024).

Figure 2. Student representatives from each group play the game in cycle 1

Figure 3. Students play the game in their group at cycle 2

This research offers an advantage compared to earlier studies by integrating the Team Games Tournament (TGT) learning model with Wordwall media. The integration of the Team Games Tournament (TGT) learning model with Wordwall media fosters a learning environment that is collaborative, competitive, and enjoyable, motivating students to participate actively at every stage of the lesson. This approach leverages interactive games and group activities, which not only increase student engagement and enthusiasm but also help students become more independent and motivated in their learning. The teacher's role as a motivator and facilitator is also crucial, as they guide and encourage all students-including those who are initially passive or shy-to take part and confidently express their ideas.

The following presents a comparison of the results of observing student learning activity in the pre-cycle, which has not yet implemented the TGT learning model integrated with Wordwall (Pre-Cycle), Cycle I which has implemented the TGT learning model integrated with Wordwall, and Cycle II which has implemented the TGT learning model integrated with Wordwall, as shown in the Table 6.

Tabel 6. The percentage comparison of student learning activity in pre-cycle, cycle I and cycle II using the integrated Team Games Tournament (TGT) learning model Wordwall.

No.	Student Learning Activity Category	Pre-Cycle		Cycle I		Cycle II	
		F	%	F	%	F	%
1.	High	2	8,00%	5	20,00%	14	56,00%
2.	Medium	5	20,00%	16	64,00%	8	32,00%
3.	Low	18	72,00%	4	16,00%	3	12,00%
4.	Very Low	0	0,00%	0	0,00%	0	0,00%

Based on the table above, the percentage comparison of the results of observing student learning activity using the TGT model integrated with Wordwall shows a significant increase. This is evidenced by the pre-cycle results, where out of 25 students, only 2 students (8%) fell into the "High" activity category, while 6 students (24%) were in the "Medium" category. In the "Low" category, there were 17 students (68%), and in the "Very Low" category, there were 0 students with a percentage of 0%.After the implementation of cycle I, the number of students with "High" activity increased to 5 students (20%), then in the "Medium" category it increased to 16 students (64%), while in the "Low" category it decreased to 4 students (16%), and in the "Very Low" category there were 0 students with a percentage of 0%.In cycle II, the results showed further improvement, with the "High" category increasing to 14 students (56%), while the "Medium" category decreased to 8 students (32%), the "Low" category decreased to 3 students (12%), and for the "Very Low" category, there were 0 students with a percentage of 0%.

According to the table above, the observation results of student learning activity during the pre-cycle reached 50%, categorized as low activity. In Cycle I, there was an increase to 74%, falling into the moderate category. However, these results do not yet meet the established achievement indicators. This happened because there are still obstacles in cycle I, such as the lack of courage among students to ask questions, the lack of courage among students to answer questions, as well as students' doubts in presenting their understanding during the learning process, and the lack of communication in group discussions according to the teacher's instructions. To address these obstacles and enhance student learning activity in line with the desired success outcomes, improvements were made in the second cycle.

Tabel 7. Student learning activity scores using the TGT integrated Wordwall learning model in Pre Cycle, Cycle I and Cycle II.

Indicators of Student Learning Activity	Pre-Cycle		Cycle I		Cycle II	
	Score	Percentage	Score	Percentage	Score	Percentage
Excited when carrying out the learning process	52	69%	70	93%	70	93%
Dare to ask questions during the learning process	29	39%	51	68%	61	81%
Dare to answer questions given during the learning process	28	37%	51	68%	60	80%
Dare to present the results of their understanding in front of the class during the learning process	31	41%	48	64%	57	76%
Participate in carrying out their duties in learning	43	57%	55	73%	63	84%
Engage in group discussions as directed by the teacher	42	5%	56	75%	65	87%
Total Score and Percentage	**225**	**50%**	**331**	**74%**	**376**	**84%**

After improvements were made in cycle II, there was an increase in student learning activity from 74% in cycle I to 84% in cycle II, categorized as high student learning activity. The students' activity increased because the use of the cooperative learning model Team Games Tournament (TGT) integrated with the Wordwall learning media made the students enthusiastic. Additionally, during the completion of the Student Worksheet (LKPD), students appeared active in communicating during group discussions, and then students were brave enough to ask questions. In addition, the students were also brave and confident in answering questions. The students' confidence was also evident when they were asked to present the results of the group discussion in turn.

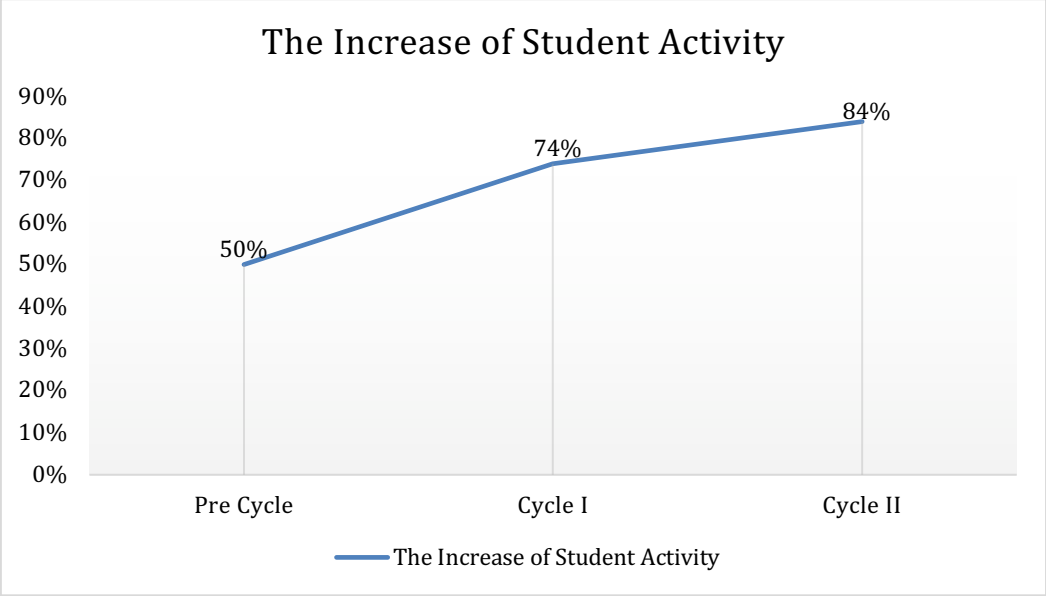

Figure 2. Graphic of The Increase Student Activity

The results showed a significant increase in student learning activeness from pre-cycle, cycle I, to cycle II in IPAS learning in class IV SD Negeri Pucangan 03. In the pre-cycle, student learning activeness was in the low category with a percentage of 50%. After the application of the Team Games Tournament (TGT) model integrated with Wordwall in cycle I, learning activeness increased to 74% (medium category), and in cycle II it increased again to 84% (high category). This increase is also reflected in the shift in the number of students in the high, medium, and low activeness categories. In the pre-cycle only 2 students (8%) were in the high category, increasing to 5 students (20%) in cycle I, and 14 students (56%) in cycle II. Conversely, the number of students with low activeness decreased from 17 students (68%) in the pre-cycle to only 3 students (12%) in cycle II. This increase in activeness occurs because the TGT model integrated with Wordwall encourages students to compete healthily and collaborate in groups. A fun, interactive, and game-based learning atmosphere makes students more enthusiastic, dare to ask questions, answer questions, present discussion results, and be active in group assignments and discussions according to learning activeness indicators (A. R. Sari et al., 2022).

This research provides important benefits, both for teachers, students, and future researchers. For teachers, the results of this study can be an alternative in designing learning that is more active, varied, and fun, especially in IPAS subjects. Teachers can develop skills in managing classes, guiding small groups, and utilizing digital media effectively. For students, learning becomes more meaningful and fun, thus increasing motivation, activeness, and understanding of the material. For other researchers, these findings can be the basis for developing innovative technology-based and collaborative learning models in the future.

The findings of this study are in line with previous research conducted by Zahro et al. (2024), which showed that the integration of TGT model with Wordwall media can increase students' enthusiasm and activeness in learning. In addition, this result also supports the research of A. R. Sari et al. (2022) and Hariandi & Cahyani (2018) which emphasize the importance of student activeness through cooperative learning models and the use of interactive media. This research strengthens the evidence that collaborative learning models supported by digital technology can increase learning activeness, especially in IPAS learning in elementary schools.

This study has several limitations. First, the application of the TGT model integrated with Wordwall is still limited to the topic of IPAS in grade IV SD, so the results may not necessarily be generalized to other topics or different grade levels. Second, the use of Wordwall media requires digital devices and internet access, so schools with limited infrastructure may experience obstacles in its application. Third, this study was only conducted in two cycles and the subject was limited to one class, so it could not record the group dynamics in depth. Fourth, the data analysis used was still descriptive-comparative, so it could not reveal the cause-and-effect relationship more deeply. Fifth, the measurement of student activeness was only done through observation without complementing it with other instruments such as questionnaires or structured interviews.

For future research, it is recommended that it be carried out by increasing the number of cycles, expanding the research subjects to several classes or schools, using inferential statistical analysis, and completing data collection instruments such as interviews and questionnaires. Thus, the findings obtained can be more comprehensive and can be applied more widely in learning practices in elementary schools.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the application of the Team Games Tournament (TGT) learning model integrated with Wordwall media is proven to increase student learning activeness in learning the topic of IPAS in class IV SD Negeri Pucangan 03. Student learning activeness, which was originally in the low category, after the implementation of the action increased to the medium category in the first cycle, and finally reached the high category in the second cycle. This shows that the use of the Wordwall-based TGT model is not only able to encourage students to be more active and involved in the learning process, but also create a collaborative, competitive, and fun learning atmosphere. The increase in the activeness category means that students become more enthusiastic, confident, and dare to participate in various learning activities, such as asking questions, answering, discussing, and presenting the results of their understanding. Thus, the Wordwall integrated TGT learning model can be used as an alternative learning strategy to increase student learning activeness in IPAS subjects in elementary schools.

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