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Influence of Learning Model Team Games Tournament on Learning Results IPAS Materials on Changes in the Form of Objects in grade IV students of SDN 4 Karang Anyar

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Abstract: The aim of this study was to identify the effect of the Team Games Tournament learning model on the learning outcomes of IPAS material on Changes in the Form of Objects in grade IV students of SD Negeri 4 Karang Anyar. This type of quantitative research was used in this study with a one group pre-test and posttest pre-experiment approach. The population was 30 students and a sample of 30 students or a saturated sample. Data collection techniques with multiple choice tests totaling 20 questions. The author conducted a validity test, then a reliability test, then a difficulty test, then a differentiation test and an error analysis test before the instrument was given to students. The method for analyzing data uses homogeneity, normality and hypothesis tests with paired t-tests. This study indicates that the Team Games Tournament learning model has an influence on IPAS learning outcomes, with an average pretest of 59.33 and posttest of 79.16. The results of the hypothesis test T_{hitung} *17.448 >* T_{tabel}*, 1.699 with a Sig. (2-tailed) value of 0.000 < 0.05 then* H_a *is accepted and* H_o *is rejected. Based on that, it means that there is an influence of the Team Games Tournament (TGT) Learning Model on the Learning Outcomes of IPAS Material Changes in the Form of Objects of Fourth Grade Students of SD Negeri 4 Karang Anyar.*

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Introduction

In order to ensure the growth and progress of the country in the long term, optimizing the capacity of Human Resources (HR) through education is very important. Martin & Simanjorang (2022) said that in education, the curriculum plays a very crucial role as a guide to lead to further educational goals so that it can run more optimally. According to Sholekah (2020), there are many modifications made to the Indonesian curriculum because the applicable curriculum must be in accordance with the characteristics of students along with the rapid development of the times. Currently, the 2013 curriculum and the independent curriculum are applicable in Indonesia, especially for grades 1 and 4. According to Sherly et al., (2021) the purpose of an independent curriculum is to give freedom to educators, schools, and students to be more free to make updates, learn independently or not depend on others and use freedom to create, with the teacher as the main pioneer.

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Based on the above information, the researcher chose SD Negeri 4 Karang Anyar as the research location because the school has implemented the independent curriculum, especially for grade IV students. The lack of research on new subjects, namely IPAS, which combines science and social studies subjects in the independent curriculum, makes the author interested in conducting research in this discipline. According to Masrifa et al., (2023) IPAS is a subject that belongs to the independent curriculum system. This discipline is a new subject that has just appeared in the independent curriculum to combine science and social studies. Then Afifah et al., (2023) stated that IPAS stands for Natural and Social Sciences (IPAS). Indarta et al., (2022) stated that the independent curriculum was enacted in response to the intense global competition for human resources in the era of society 5.0 in the 21st century. The freedom to choose a learning system that suits what students, teachers and schools need is one of the advantages of an independent curriculum that is flexible and student-centered.

After knowing the phenomena that occurred during the pre-observation at SD Negeri 4 Karang Anyar in September, the author concluded that the ideal conditions did not seem to have been realized at the school. Teachers have not realized that the independent curriculum emphasizes more on the process, therefore if the teacher cannot communicate the material effectively, the students will not learn optimally. One of the reasons students become bored is that teachers only rely on lecture techniques and never use learning models that encourage students to play an active role in order to improve their knowledge, attitudes and skills. Another factor that causes students to be bored with the material taught by the teacher is the absence of games when learning takes place. The result of an unconducive and uninteresting classroom environment in IPAS learning is that student learning outcomes in the subject are still low. Rahman (2022) argues that learning outcomes are the results that have been achieved by students after they have participated in learning activities. The percentage of students who reached 63% or 19 students scored below the KKM of 65 shows the low learning outcomes of grade IV students, especially in IPAS subjects. In contrast, only 37% of students or 11 students scored above the KKM. Innovative learning models must be used to improve IPAS learning outcomes in grade IV to address the quality of learning outcomes. Efforts to improve student learning outcomes that teachers can do are by trying to combine ordinary learning that tends to make students bored with learning programs that promote cooperation, activity, and a positive learning environment.

One of the learning models that can be used to overcome these problems is the Team Games Tournament learning model. According to Tampubolon (2014), a learning model based on games is the definition of TGT. This condition is in harmony with the age characteristics of elementary school students who still consider games as an important experience. According to Hapudin (2021) learning will bring good results if it adapts to the stage of cognitive development of students. Rusman (2014) says TGT is a collaborative learning approach that gathers students into study groups of 5-6 students with different abilities, genders, and racial or cultural backgrounds. Slavin Robert E (2015) suggests that the phases of the TGT learning model include class presentation, group learning, games and competition and group awards. Komalasari (2014) describes if the average points are 45 or more called "Super Team", "Great Team" when scoring 40-45, and "Good Team" if scoring 30-40.

Based on previous research by Oka Eftia (2022) entitled "The Effect of Team Games Tournament Type Cooperative Model on Science Learning on Learning Outcomes of Class IV Students of SD Negeri 74 Bengkulu City", the author chose the TGT learning model as a solution to the previously mentioned problems because it is able to increase the sense of cooperation, healthy competition, learning involvement, and trying to be responsible. Students

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will certainly enjoy the games and tournaments that are part of the TGT learning model because they can foster competition between students in a friendly atmosphere to see who can achieve the highest score. So that students will feel more encouraged to show their best abilities to win the game, as shown by the significant results of the "t" test obtained tcount = 6.11 and ttable with df 28 at a significant level of 5% which is 0.374. Therefore, this research working hypothesis (H_a) is considered accepted because $T_{hitung} > T_{tabel}$ (6.11 > 0.374).

In the science learning outcomes of fourth grade students of SD Negeri 74 Bengkulu City, it can be seen if there are differences between those who utilize the TGT learning model and those who do not utilize the learning model. The disciplines and curricula studied by Oka Eftia (2022) and the author differ in their research, if the author examines independent curriculum IPAS subjects, Oka Eftia (2022) examines 2013 curriculum science subjects. The research design used is also different, the author uses a one-group pretest-posttest pre-experimental design, while Oka Eftia (2022) uses a Quasi Experimental Design nonequivalent control group. In addition, the research location chosen was also different, if the author conducted research at SD Negeri 4 Karang Anyar, while Oka Eftia (2022) conducted research at SD Negeri 74 Bengkulu City.

The research conducted by the author is different from previous researchers because the author applies the Team Games Tournament learning model to a new discipline in the independent curriculum, namely IPAS, which is still rarely discussed by other researchers. Student learning outcomes are the criteria that will be measured in this study. This research is important to do in order to improve educational standards and improve student learning outcomes, especially in the IPAS discipline. In this study, what will be analyzed is the learning outcomes of IPAS Material Changes in the Form of Objects in relation to the TGT learning model for fourth grade students of SD Negeri 4 Karang Anyar. The author hopes that this research can help further writers in the future regarding information about learning models that can be used in order to optimize the learning outcomes of IPAS grade IV elementary school students.

Research Methods

The research is quantitative with a pre-experiment design because there are no control variables and the sample is selected non-randomly. The author decided to use One Group pretest-posttest because there was a pretest conducted before learning with the TGT model and a posttest given after learning using the TGT model. Based on what has been mentioned, the author can compare the situation before and after learning with the TGT model, so the results will be more accurate. According to Sugiyono (2019) Sampling techniques are known as sampling techniques. The sampling technique used in this study is Nonprobability Sampling or a sampling technique when each member of the population is not given the same opportunity or opportunity. The author chose the saturated sampling technique because he used all the population to be sampled. Sugiyono (2019) suggests that population is a general area consisting of items or subjects that have certain characteristics that the author decides to study and then draw conclusions. All fourth grade students of SD Negeri 4 Karang Anyar or a total of 30 students became the population in this study. Sugiyono (2019) also explained that the sample is also a member of the number and characteristics of the population. In this study, the entire population including 30 students of SD Negeri 4 Karang Anyar was used.

The author uses a multi-choice test of 20 pretest and posttest questions to determine how well students understand the Material Changes in the Form of Objects. Before using the

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instrument, the author first validated the questions with 2 expert lecturers followed by conducting a trial on a sample that was not an original sample of the population to be used or tested at another school to validate the pretest and posttest question instruments. Data analysis in this study used IBM SPSS 25 for windows. Furthermore, the author conducted a validity test, then a reliability test, then a level of difficulty test and a differentiation test and an error analysis test. Data analysis techniques when the normality test uses Saphiro Wilk because the sample studied is not more than 50 people. Furthermore, the homogeneity test uses a test of homogeneity of variance and the hypothesis test uses a paired sample t test to determine the conclusion of the research conducted.

Research Results and Discussion

After giving treatment in the form of a TGT learning model, a pretest was previously carried out in order to know the initial ability and posttest to determine the ability after being given a learning model, the results were obtained as follows:

Table 1. Pretest and Posttest results of class IV students

Data	*Pretest*	*Posttest*
Lowest Score	40	65
Highest Score	75	95
Average	59,33	79,16
Completed	8	29
Not Completed	22	1

Based on the data above, it can be seen that this study found that when conducting the pretest, out of 30 students whose scores reached the KKM, only 8 students while 22 students scored below the KKM. When implementing the posttest, it can be seen that 29 out of 30 students who took part in the posttest activities scored above the KKM, while there was only 1 student who had a score below the KKM. The average score during the pretest and posttest also increased from 59.33 to 79.16. After knowing the results of the pretest and posttest, the next step is to test whether the hypothesis is rejected or accepted. But before testing the hypothesis, what must be done is to check whether the data is normally distributed or not using the normality test using Shapiro-Wilk. Syofian Siregar in Fachrurrazi (2021) states that to ascertain whether the variables used have a normal distribution or not is the purpose of normality testing. According to (Hakim & Syofyan, 2017) the data is not normally distributed if the significance level is < 0.05 and if > 0.05 the distribution is said to be normal. The normality test of this study used Shapiro-Wilk with the help of IBM SPSS 25 software for windows. Below is the acquisition of normality tests for pretest and posttest questions.

Table 2. Normality Test Results

Data		Conclusion
Category	Shapiro-Wilk Sig.	
PRETEST	.160	Normal
POSTTEST	.104	Normal

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According to the results of the Shapiro-Wilk test conducted, the pretest significance value is 0.160 > 0.05, while the posttest significance is 0.104 > 0.05. Therefore, the calculation of the two data carried out on the question instrument can be said to be normally distributed. After knowing if the data is normally distributed, the next step is to test the hypothesis.

According to Hakim and Syofyan (2017) to determine whether the hypothesis is accepted or not, the homogeneity test functions to compare significant values to determine the level of equality of variance in the two groups, namely pretest and posttest. When the significance level is > 0.05 the distribution is considered homogeneous, but when the significance level is < 0.05 then the data cannot be considered homogeneous. The results of the calculation of the homogeneity test of multiple choice questions pretest and posttest can be observed in the table below:

Table 3. Homogeneity Test Results

	Levene Statistic	**df1**	**df2**	Sig.
Based on Mean	2.630	1	58	.110

In the table above, we can find that the pretest and posttest data have a significance value of 0.110 > 0.05, so it can be said that the pretest and posttest data come from populations with the same variance. Hypothesis testing is used to determine whether the cooperative learning model of the TGT type has an effect on the learning outcomes of IPAS Material Changes in the Form of Objects of Class IV SD Negeri IV Karang Anyar students. If the tcount value ≤ ttable then *H*a is accepted and *Ho* is rejected with a sig value (2-tailed) < 0.05, meaning that there is an influence. However, if the tcount value ≥ ttable then *H*a is rejected and *Ho* is accepted with a sig value (2-tailed) < 0.05, meaning that there is no effect. Finding significant differences in the same sample is the purpose of this test.

Table 4. Hypothesis Test Results

Paired Samples Test

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	Df	Sig. (2-*tailed*)
					Lower	Upper			
Pair 1	*pretest – posttest*	-19.833	6.226	1.137	-22.158	-17.508	-17.448	29	.000

Based on the results of hypothesis testing, the data analyzed through IBM SPSS 25 software for windows shows that t_hitung 17.448 > T_{tabel} 1.699 with a Sig. (2-tailed) value of 0.000 < 0.05 then *H*a is accepted and *Ho* is rejected. Therefore, it can be concluded that there is an effect of the Team Games Tournament (TGT) model on the learning outcomes of IPAS material on changes in the form of objects of students in class IV Karang Anyar State Elementary School 4 Karang Anyar.

The learning stages carried out by the author in this study are on the first day the author gives a pretest to 4th grade students of SD Negeri 4 Karanganyar. On the second day, the author gave an explanation of the material on changes in the form of objects by starting with greetings then praying students then giving apperceptions or lighter questions whether students still remember the material on changes in the form of objects then the author gave an explanation using the help of Power Point media so that students better understand the explanation given.

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In addition, the author also provides a song about changes in the form of objects so that students more easily remember the material presented. Then the author asks students to make 6 groups by counting 1 to 6 to determine the group so that the students in the group are randomly selected or different abilities and gender after that the author gives questions to each group so that they discuss together in answering these questions about the material that has just been learned. On the third day the author provides tournament games treatment to students in the form of a glass relay game. The author invites students to the school field so that when playing games students are more free.

How to play this game is that each group will be given skewers and used plastic cups then they play glass relay by lining up students then the first and second students back to back then they are directed by the third person so that the glass can move and so on until the glass reaches the last person in the group. Then students run to take the questions that have been provided by jumping up and down to get the questions then the students return to their places and continue the game until the questions are up for grabs and they can work on these questions by discussing with their groups to find the answers to these questions after round 1 is complete the author will calculate the temporary score of which group will advance to the next round. The purpose of this round is to choose which team can win first place or "Super Team", second place or "Great Team", third place or "Good Team". If they already know the 3 groups that will advance to the next round, they will continue in the same way as the previous round but with tighter and more exciting competition. To motivate students to be more enthusiastic about learning, the author will give prizes to the winning team.

The author gave the students a posttest on the last day to see if there was a difference in the learning outcomes of IPAS material on changes in the form of objects before and after the Team Games tournament treatment. This study found significant differences between before and after students did learning using the TGT learning model. In addition to learning outcomes, the author can also find out that the learning process previously students were not active and centered on the teacher, as a result students became bored. After the TGT model is carried out, students become more active because the teacher is no longer the center and students are able to discuss with friends with different abilities so that the learning process that contains elements of this game becomes more fun. According to Suarjana in Sukenda Egok (2022) the TGT learning model has advantages and disadvantages. Efforts to accept everyone's differences at a limited time and better understand the material. This situation teaches students to socialize, increase sensitivity and a sense of tolerance. Taniredja in Sukenda Egok (2022) said that the disadvantage of TGT is that if the teacher cannot control the class, problems can arise when students following this game-based learning becomes unconducive. The solution to this problem is to prioritize student comfort and provide students with the knowledge they need to participate actively and cooperatively during the game.

Constructivist learning theory incorporates the TGT learning model. Ahmad Suryadi (2022) explained that constructivism requires teachers to be able to design learning actively so that students participate in learning through social interactions in the classroom. Vygotsky argued in Pranyata (2023) that social relationships are the main factor that maximizes the cognitive development of each student. Constructivism is the theory used by the author because the learning process in the classroom that only uses lectures and questions and answers so that students are less given the opportunity to engage directly with concrete materials. Students participating in teamwork is an important part of the TGT learning model which emphasizes constructivism theory in learning so that abilities can be further developed. The TGT learning

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model includes an award for the group with the highest score, referring to the learning constructivism idea of group rewards based on students' abilities and achievements.

The results of this study are in accordance with research conducted by Armidi's research (2022) entitled. "Application of Team Games Tournament Type Cooperative Learning Model to Improve Social Studies Learning Outcomes of Grade VI Elementary School Students". The results of data analysis stated that learning outcomes increased between cycle I and cycle II. Average absorption increased by 13%, and learning completeness increased by 25%. The data shows that social studies learning outcomes can be significantly improved by applying the TGT model to grade VI elementary school students. Furthermore, Paramitha's research (2022) entitled "The Effect of TGT Learning Model Assisted by Question Box Media on Science Learning Outcomes of Grade IV Elementary School". Based on data analysis, the t-test results obtained $T_{hitung} > T_{tabel}$, namely 3.692 HA 006 which means H_o is rejected. These results indicate a difference between the TGT learning model assisted by Question Box Media and Science Class IV SD Negeri Cengkareng Barat 16 Pagi. Both studies can strengthen the results of research conducted by the author because it shows that there is an effect of the TGT learning model on learning outcomes. Both studies can strengthen the results of research conducted by the author because it shows that there is an influence of the TGT learning model on learning outcomes. Based on the discussion of the data results, it leads to the conclusion that the learning outcomes of IPAS Material Changes in the Form of Objects of grade IV students of SD Negeri 4 Karang Anyar can have a positive and significant influence by applying the Team Games Tournament (TGT) learning model in the classroom. The results of this study are supported by the results of research from Armidi (2022) and Paramitha (2022).

Conclusion

Based on the results of the research that has been explained, it can be seen that learning using the Team Games Tournament learning model has an effect on the learning outcomes of IPAS Material Changes in the Form of Objects of Class IV Students of SD Negeri 4 Karang Anyar. Student learning outcomes can be evidence that there is an effect of increasing learning outcomes after being given the TGT learning model. When the pretest was carried out before being given the Team Games Tournament learning model, there were 22 students whose scores did not reach the KKM and only 8 students scored above the KKM. Meanwhile, after being given the Team Games Tournament learning model, student learning outcomes increased to 29 students whose scores exceeded the KKM and only 1 student scored the same as the KKM when doing the posttest. From the hypothesis test, it can be seen that T_{hitung} 17.448 > T_{tabel} 1.699 with a Sig. (2-tailed) value of 0.000 < 0.05, so Ha is accepted and Ho is rejected. From the hypothesis test criteria, it can be concluded that there is an effect of the Team Games Tournament (TGT) Learning Model on the Learning Outcomes of IPAS Material Changes in the Form of Objects of Fourth Grade Students of State Elementary School 4 Karang Anyar.

Suggestion

The author suggests that schools and teachers can apply the TGT learning model as an option to provide variety in the learning process so that students are more involved in the process. This recommendation is based on the results of the research that has been conducted. Then, recommendations for future researchers who want to use the TGT learning model should be modified to suit the implementation process, especially with regard to time allocation, availability of learning resources such as media, and characteristics of students in schools that use the model.

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