Jurnal Impresi Indonesia (JII)
Vol. 3, No. 10, October 2024
p-ISSN: 2828-1284 e-ISSN: 2810-062x
website: https: //rivierapublishing.id/JII/ index.php/jii/index

The Effect of Teams Games Tournament (TGT) Cooperative Learning Model Assisted by Educandy Application on Student Learning Outcomes on Ecology Material

Rizschy Nurfauzie Al-Ma'shum[1], Milla Listiawati[2], Astri Yuliawati[3]
Universitas Islam Negeri Sunan Gunung Djati Bandung, Indonesia
nurfauzie24@gmail.com

Keywords
Teams Games Tournament, Learning Model, Learning Outcomes, Ecology.

Abstract
The learning model is one of the causes of the lack of student motivation in learning problems so that it affects student learning outcomes. The use of the right learning model is one of the determinants of success in learning activities carried out by teachers. This study aims to analyze the effect of TGT learning model assisted by educandy on student learning outcomes on ecology material. This research uses a quantitative approach with a quasi-experimental design. The sample amounted to 28 students selected through cluster random sampling technique. Cognitive aspect learning outcomes were obtained through pretest and posttest. Learning ecology material through the TGT model assisted by educandy makes students participate actively so that the learning stages are carried out very well. The cognitive learning outcomes of students using the TGT model assisted by educandy obtained a score of 82 with an n-gain value of 0.62 with moderate criteria. While in the control class, students' cognitive learning outcomes obtained a score of 70 and an n-gain value of 0.45 with a moderate category. The results of the t-test analysis obtained a significant value of 0.000 <0.005 means the hypothesis is accepted. There is an effect of TGT learning model assisted by educandy application on student learning outcomes on ecology material.

Corresponding Author : Rizschy Nurfauzie Al-Ma'shum
E-mail: nurfauzie24@gmail.com

INTRODUCTION

Education is one of the most important things for the development of a country. Quality education will produce quality human resources (Pfeffer, 2015). The world of education is constantly striving to improve and improve the quality of education in the digital era. One of the efforts in improving the quality of education in the digital era is to improve the education system. A good education includes a good teaching and learning process because teaching and learning is the core behavior in the educational process where students and educators interact with each other (Stronge, 2018).

In a learning environment, communication between students, teachers and learning resources is a learning process (Korhonen et al., 2019). Learning is the assistance delivered by educators to students in order to help them acquire knowledge, skills, and productive habits, and help them create behavior. In other words, learning is the process of helping students learn. In the scope of learning, communication between students, educators, and learning resources is a stage of learning (Simonson et al., 2019). This description is in line with the view of (Barnawi, 2014) who says that learning is essentially a process of direct and indirect communication between educators and students, namely through various learning media.

Teachers must plan lessons in order to facilitate effective learning in the classroom (Alsafari et al., 2024). Teachers have a number of considerations when designing learning activities, including knowing their learners' personalities, the learning objectives they want to achieve or the skills they need to understand them, the teaching resources they want to use, the fun learning models, and the types of assessments they want to use to measure their students' progress towards their academic goals (Morrison et al., 2019). One of the factors that determine teacher performance in carrying out learning activities is the use of appropriate learning models. Thus, to achieve the desired learning objectives, educators can ensure the right kind of learning model.

Based on the results of observations made at State High Schools in Tasikmalaya Regency, through interviews with Biology teachers, many students' learning outcomes in biology subjects are still below the KKM. The KKM provisions that have been set in this high school for Biology lessons are 75. In class X MIPA I of 28 students only 10 students or 35% have completed, and 18 students or 65% have not completed. While in class X MIPA 2 of 28 students 12 students or 42% have completed and 19 students or 57% have not completed. This happens because the amount of material presented by the teacher makes it difficult for students to memorize and understand the material, lack of student involvement, variations in learning models and student motivation to learn.

Responding to these problems, efforts can be made by improving the learning model. By applying a learning model that is fun and student-centered, making students actively involved and fostering enthusiasm for learning, so that it will facilitate students in achieving learning outcomes (Kassem, 2019). One of the efforts that can be made is by applying cooperative learning models. According to (Ramadhan et al., 2017) cooperative learning does not only come from teachers to students, but also from students to other students. The use of the right learning model can certainly attract students' attention so that the learning process takes place in a pleasant atmosphere and attracts students' interest to be actively involved and achieve good learning outcomes. One of the cooperative learning models that can facilitate this is the Teams Games Tournament model. In this type of cooperative learning model, there is a tournament phase. With the tournament, students can be motivated and learn seriously during the learning process, so that they can get good scores during the tournament. With this tournament, it can increase the enthusiasm for learning so that it is hoped that student learning outcomes will increase, especially in ecological material. According to (Yudianto et al., 2014), in this Cooperative learning model, by grouping students into several small groups, the goal is to train students to work together and socialize in solving a problem so that students will more easily understand the material. The right learning model and media will facilitate the learning process between teachers and students.

The current study shows some significant differences compared to previous studies. First, this study uses the Teams Games Tournament (TGT) cooperative learning model assisted by the Educandy app, which enhances students' active interaction through fun games. In contrast, previous studies often did not utilize digital technology. Secondly, this study focused on analyzing students' cognitive learning outcomes in ecological materials, showing significant improvement, while previous studies may have emphasized more on motivation without specifically measuring cognitive outcomes. The methodology used is a quantitative approach with a quasi-experimental design, in contrast to previous studies that may have used surveys or case studies. Finally, this study was conducted at SMA Negeri 1 Cikalong with a sample of 28 students, while previous studies may involve different contexts. Overall, this research contributes to the integration of technology in cooperative learning, expected to improve student learning outcomes better than traditional approaches.

The learning process uses the TGT learning model, in the tournament games stage using educandy. Educandy is a web-based application with the slogan "Making Learning Sweeter". With educandy, you can create online games that are fun and still relevant to learning. With the educandy application, teachers can design and create a collection of questions about the material taught during learning. Educandy's attractive, colorful appearance can also stimulate students' interest in playing while learning, and interactive really helps students increase their interest and enthusiasm in learning (Fitriati et al., 2021).

Based on the problems stated above, a study was conducted to find out how the effect of the Teams Games tournament (TGT) type cooperative learning model aided by Educandy on ecological material.

RESEARCH METHODS

This research uses a quantitative approach with a quasi-experimental method. The form of research design used is nonequivalent control group design, the experimental class is treated with the Teams Games Tournament (TGT) learning model assisted by Educandy and the control class without the Teams Games Tournament (TGT) learning model assisted by Educandy.

All students of class X MIPA SMA Negeri 1 Cikalong, which consists of four classes with a total of 120 students, cover the population in this study. Class X MIPA 1 which consisted of 28 students and acted as the control class, while class X MIPA 2 which also consisted of 28 students and acted as the experimental class, constituted the research sample. The sampling technique used was cluster random sampling.

This study measures students' cognitive understanding of ecological material through the use of test questions as pretest and posttest instruments. The test questions in this study were a variety of multiple choice (PG) questions totaling 20 items selected based on the results of the analysis of the research question trials.

RESULT AND DISCUSSION

The results of the pretest and posttest that have been carried out in the experimental class treated with the Teams Games Tournament (TGT) model assisted by educandy and the control class without using the Teams Games Tournament (TGT) model assisted by educandy can be seen in Table 1 below:

Table 1. Average Pretest and Posttest Scores

Class	Average Value		N-Gain	Criteria
	Pretest	Posttest		
Experiment	51	82	0,62	**Medium**
Control	43	70	0,45	**Medium**

Table 1 shows that the average pretest score was 51 in the experimental class using the Teams Games Tournament model assisted by educandy, and increased to 82 after treatment. The N-Gain value shows that student learning outcomes in ecological material have increased, which is supported by the difference in pretest and posttest scores. With moderate criteria, the experimental class N-Gain value is 0.62. The difference between pretest and posttest results shows an increase in student learning outcomes in ecological material. The difference between the pretest and posttest results shows that the increase in student learning outcomes in ecological material is inseparable from the effect of using the Teams Games Tournament learning model assisted by educandy during learning. This shows that on average students have been able to achieve Basic Competencies (KD) on ecological material. This supports the statement made by (Ramadhan et al., 2017) about learning media

that utilize technology. One example is educandy-based edugame media, which prioritizes learning that is fun and easy to understand and helps students achieve KKM.

While the learning outcomes in the control class also showed an increase in learning outcomes but the increase was lower than the experimental class (Webb & Doman, 2016). Students in the control class obtained an average pretest score of 43 and a posttest score of 70 and an n-gain value of 0.45 This is because in the control class learning is only through power point, without the use of other media so that learning is less interesting and less varied which causes a lack of motivation and student involvement in learning, causing unsatisfactory learning outcomes compared to the experimental class, the use of media can make students feel motivated and more interesting in the learning process allowing students to actively participate in the education and learning process, high learning motivation results in students learning to be enthusiastic and serious so that when students feel less motivated learning makes them lazy to take learning seriously. Learning without the TGT learning model assisted by educandy produces learning outcomes that are less good than learning with the TGT learning model assisted by educandy. The researchers defines the success of the learning process as the formation of changes in the cognitive, affective, and psychomotor domains of students (Abbasi et al., 2023). These changes become one of the signs that the learning process has been running well and effectively.

After the pretest and posttest are carried out, it is necessary to do a normality test, homogeneity test and hypothesis test with the help of SPSS software version 26. The normality test table can be seen in Table 2.

Table 2. Normality Test of Pretest Posttest Values

Tests of Normality							
	Class	**Kolmogorov-Smirnov[a]**			**Shapiro-Wilk**		
		Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Student Learning Outcomes	Experiment Pre-Test	.155	28	.084	.933	28	**.073**
	Experiment Post-Test	.155	28	.082	.964	28	**.441**
	Control Pre-Test	.153	28	.091	.961	28	**.375**
	Control Post-Test	.155	28	.083	.954	28	**.253**
a. Lilliefors Significance Correction							

Based on the data above, the results of the normality test are normally distributed, that if a significant value> 0.005 is obtained, it indicates that the data is normally distributed. In the table above the normality test has a significance value of 0.082 in the experimental class and 0.083 in the control class. This shows that the experimental class and control class have normally distributed data.

Furthermore, the data homogeneity test was carried out, following the homogeneity test table:

Table. 3 Homogeneity Test Results

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	**Sig.**
Student Learning Outcomes	Based on Mean	.066	1	54	**.798**
	Based on Median	.112	1	54	**.739**
	Based on Median and with adjusted df	.112	1	52.904	**.740**
	Based on trimmed mean	.076	1	54	**.784**

The homogeneity test in the table above shows a homogeneity value of 0.798. If sig. > 0.005 indicates homogeneous data, so the homogeneity test in this study is homogeneous, because 0.798 > 0.005. After the homogeneity test is carried out, then the data is continued

with the research hypothesis test to find out whether or not there is an influence on the Teams Games Tournament (TGT) learning model assisted by educandy on student learning outcomes on ecological material. Based on this, the T-Test test is carried out which is found in table 4 below:

Table 4. T-Test Hypothesis Test Results

Paired Samples Test

		Paired Differences					t	df	**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-Test Experiment - Post-Test Experiment	-30.536	12.121	2.291	-35.236	-25.836	-13.330	27	**.000**
Pair 2	Pretest Control - Post-Test Control	-26.607	14.469	2.734	-32.218	-20.997	-9.730	27	**.000**

Based on Table 4 above, the 2-tailed sig value is 0.000 <0.05, so H_0 is rejected and H_1 is accepted. Thus, it can be said that the use of the TGT learning model assisted by educandy has a significant and positive effect on student learning outcomes on ecological material. The results of research that have been conducted by researchers show the same results as previous research. The results of research conducted by (Rahmawati et al., 2020) show that the application of the TGT (Teams Games Tournament) type cooperative learning model could increase motivation and learning outcomes in biology. According to previous researchers in their research stated that the TGT Cooperative Learning Model assisted by Ludo Games had an effect on learning outcomes (Maryam, 2017). Nurjamilah's research (2020) also supports this, which shows a good and significant impact of the TGT learning model on learning outcomes (Nurjamilah et al., 2020).

CONCLUSION

Based on the results of the research and discussion that has been described, it can be concluded that there is an effect of the Teams Games Tournament (TGT) type cooperative learning model assisted by educandy on student learning outcomes on ecological material. This is evidenced in the results of hypothesis testing which obtained a 2-tailed sig value of 0.000, which shows that the hypothesis is accepted.

REFERENCES

Abbasi, M., Shirazi, M., Torkmandi, H., Homayoon, S., & Abdi, M. (2023). Impact of teaching, learning, and assessment of medical law on cognitive, affective and psychomotor skills of medical students: a systematic review. *BMC Medical Education*, *23*(1), 703.

Alsafari, B., Atwell, E., Walker, A., & Callaghan, M. (2024). Towards effective teaching assistants: From intent-based chatbots to LLM-powered teaching assistants. *Natural Language Processing Journal*, *8*, 100101. https://doi.org/https://doi.org/10.1016/j.nlp.2024.100101

Barnawi, R. (2014). Model-Model Pembelajaran: Mengembangkan Profesionalisme Guru. *Jakarta: Rajawali Pers*.

Fitriati, I., Purnamasari, R., Fitrianingsi, N. F., & Irawati, I. (2021). Implementasi Digital Game Based Learning Menggunakan Aplikasi Educandy Untuk Evaluasi Dan Motivasi Belajar Mahasiswa Bima. *Prosiding Penelitian Pendidikan Dan Pengabdian 2021*, *1*(1), 307–312.

Kassem, H. M. (2019). The Impact of Student-Centered Instruction on EFL Learners' Affect and Achievement. *English Language Teaching*, *12*(1), 134–153.

Korhonen, A.-M., Ruhalahti, S., & Veermans, M. (2019). The online learning process and scaffolding in student teachers' personal learning environments. *Education and Information Technologies*, *24*, 755–779.

Maryam, H. (2017). *Pengaruh cooperative approach tipe TGT berbantuan facebook terhadap hasil belajar siswa pada materi ekologi: penelitian di Kelas X SMA PGRI Rancaekek*. UIN Sunan Gunung Djati Bandung.

Morrison, G. R., Ross, S. J., Morrison, J. R., & Kalman, H. K. (2019). *Designing effective instruction*. John Wiley & Sons.

Nurjamilah, I. P., Ukit, U., & Muttaqin, M. (2020). Kemampuan Berpikir Kreatif Siswa Pada Sistem Pernapasan Melalui Penerapan Team Game Turnamen (Tgt) Berbantu Monopoli. *Jurnal BIOEDUIN*, *10*(2), 41–49.

Pfeffer, F. T. (2015). Equality and quality in education. A comparative study of 19 countries. *Social Science Research*, *51*, 350–368.

Rahmawati, F., Utami, B., & Mufitdah, N. (2020). Aplikasi model pembelajaran kooperatif tipe TGT (teams-games-tournament) dalam meningkatkan motivasi dan hasil belajar biologi materi animalia siswa kelas X IPA SMA bina insan mandiri Nganjuk tahun ajaran 2018/2019. *Jurnal Biologi Dan Pembelajarannya (JB&P)*, *7*(1), 11–14.

Ramadhan, F., Mahanal, S., & Zubaidah, S. (2017). Meningkatkan hasil belajar kognitif siswa melalui model pembelajaran Biologi REMAP STAD. *Jurnal Pendidikan*, *2*(5), 610–615.

Simonson, M., Zvacek, S. M., & Smaldino, S. (2019). *Teaching and learning at a distance: Foundations of distance education 7th edition*.

Stronge, J. H. (2018). *Qualities of effective teachers*. Ascd.

Webb, M., & Doman, E. (2016). Does the Flipped Classroom Lead to Increased Gains on Learning Outcomes in ESL/EFL Contexts?. *Catesol Journal*, *28*(1), 39–67.

Yudianto, W. D., Sumardi, K., & Berman, E. T. (2014). Model pembelajaran teams games tournament untuk meningkatkan hasil belajar siswa SMK. *Journal of Mechanical Engineering Education*, *1*(2), 323–330.