JPPIPA 10(5) (2024)

Jurnal Penelitian Pendidikan IPA

Journal of Research in Science Education

http://jppipa.unram.ac.id/index.php/jppipa/index

The Influence of TGT Type Cooperative Learning through Jellyfish Hunting Games on Science Collaboration Ability

Rolila Faradizah[1*], Herwin[1], Nimas Vindy Armadyaningtyas[1]

[1]Basic Education, Yogyakarta State University, Yogyakarta, Indonesia.

Received: December 28, 2023
Revised: April 24, 2024
Accepted: May 25, 2024
Published: May 31, 2024

Corresponding Author:
Rolila Faradizah
rolilafaradizah.2022@student.uny.ac.id

DOI: 10.29303/jppipa.v10i5.6743

Abstract: This study aims to determine the significance of the effect of implementing the TGT-type cooperative learning model on the science collaboration abilities of fourth-grade elementary school students on photosynthesis material. The method in this research is a quantitative method with a pre-experimental model (One Group Pretest-Posttest). The data collection technique used in this study uses non-test techniques, namely questionnaires and student activity observation sheets. Participants in this study were 25 fourth-grade students at SD Muhammadiyah Blawong I. Data analysis used a paired sample t-test. Based on the results of the Paired-Sample T-Test analysis, a Sig value of 0.000 <0.05 was obtained. Because the significant value is smaller than 0.05, H_0 is rejected and H_1 is accepted. The TGT-type cooperative learning model through a jellyfish hunting game shows significant differences in students' collaboration abilities before and after treatment. The conclusion is that there is a significant effect of implementing the TGT-type cooperative learning model through the jellyfish hunting game on the science collaboration abilities of fourth-grade elementary school students on photosynthesis material.

Keywords: Collaboration; Cooperative Learning; Jellyfish Hunting Games; TGT

Introduction

The urgency of education for every human being is an investment in developing a nation of high quality and competitiveness (Prasetyo et al., 2022). The quality of education can be determined from how a country organizes its society in the education system (Suharno et al., 2020). The education system implemented in each country certainly varies according to the guidelines used in a country (Sadjadi, 2023).

Indonesia makes Pancasila the basis for national and state life (Junaidi & Prakoso, 2021). This indicates that Pancasila is also used as a guideline in the implementation of education in Indonesia as stated in Law no. 20 of 2003 concerning the National Education system, which reads: National Education is based on Pancasila and the 1945 Constitution. Therefore, education in Indonesia must be based on, imbued with and a reflection of the identity of Pancasila (Sari et al., 2023).

In order to shape student character that reflects Pancasila identity, the government issued a policy implementing an independent curriculum which includes the term Pancasila student profile (Utami et al., 2023). According to the Ministry of Education and Culture (2022), the Pancasila student profile is the embodiment of character traits and competencies based on Pancasila values that students are expected to achieve.

There are 6 dimensions of the Pancasila student profile which can be realized in students' daily lives through school culture, intracurricular learning, projects to strengthen the Pancasila student profile and extracurricular activities (Monaliza et al., 2023). If the six dimensions are implemented well, there will be

How to Cite:
Faradizah, R., Herwin, & Armadyaningtyas, N. V. (2024). The Influence of TGT Type Cooperative Learning through Jellyfish Hunting Games on Science Collaboration Ability. *Jurnal Penelitian Pendidikan IPA*, *10*(5), 2648–2656. https://doi.org/10.29303/jppipa.v10i5.6743

Pancasila students who can be relied upon by the nation and state in all areas of life (Andriani et al., 2023).

According to the Ministry of Education and Culture (2022), the profile of Pancasila students has several dimensions, one of which is the dimension of mutual cooperation. In the dimension of mutual cooperation there are several elements, one of which is the element of collaboration. Collaboration is the ability to actively carry out joint activities to achieve a goal (Holmes et al., 2019). Collaborative learning is considered as a method in which participants educate work in groups and cooperatively help each other in learning, in line with common goals (Laksmiwati et al., 2022). Shinde & Shinde (2022) state that in collaborative learning participants educate must be grouped, so that they can interact and discuss it with their friends, have a strong will to teach other friends, and benefit from the benefits of collaborative learning. The application of collaboration in learning can be done by creating group learning situations to create a democratic atmosphere such as learning to respect differences of opinion, realizing mistakes made, and fostering a sense of responsibility (Yates et al., 2021).

Saputri & Aminatun (2021) state that activities carried out in collaboration include: seeking knowledge together, building groups, setting goals, managing time, sharing opinions and solving problems in the group. In this case, the teacher as a facilitator in the class has a role in designing fun learning activities to create a collaborative learning atmosphere between students (Nguyen et al., 2022). Students must be accustomed to collaborating with other students through learning, both inside and outside the classroom (Qureshi et al., 2023). Teachers as the spearhead of education are required to be able to design collaborative learning to create students who have the Pancasila student profile, especially in the elements of mutual cooperation (Muthoharoh, 2022). The realization of students who have the Pancasila student profile can be implemented by implementing *cooperative learning* (Usman et al., 2023).

Cooperative learning is learning that divides the class into several small heterogeneous groups to work together, propose opinions to each other in developing concepts, solve problems with full responsibility, achieve common goals, need each other and practice interacting, communicating and socializing (Iswan, 2021). Cooperative learning in learning emphasizes cooperation between participants educate in groups (Tran et al., 2019). This is based on the idea that students find it easier to find and understand a factual concept if they discuss the problem with each other (Gunawan et al., 2019; Ozkale & Ozdemir Erdogan, 2022). Members of a group in cooperative learning usually consist of four to six people, where the group members formed are heterogeneous based on differences in academic ability, religion, gender and ethnicity (Silalahi & Hutauruk , 2020). Teams Games Tournament or TGT is one type of cooperative learning model that can be applied by teachers in the classroom (Pongkendek et al., 2019).

Based on the term TGT which has elements of games, TGT carries the concept of learning which has games in it, although not directly and the games are played through academic tournaments (Capinding, 2021). The presence of game elements certainly makes students enthusiastic about participating in class learning. TGT makes each student compete with each other between groups to collect as many points as possible (Sugiyati & Indriani, 2022). Each student is required to be responsible for solving questions in the game because the results will be accumulated in one group (Sun et al., 2020).

Jellyfish hunting is a new breakthrough in TGT type cooperative learning. Students hunt for questions contained in jellyfish tentacles to be done by each student to get points for their group. The questions on the jellyfish tentacles can be adjusted to suit students' needs. Question hunting activities like this are certainly able to encourage students to collaborate with each other in their groups (Benoit et al., 2019; Mamajanova, 2020).

Based on research results, TGT is defined as a learning model carried out in groups in order to improve students' collaboration abilities (Zuhri et al., 2022). The application of TGT assisted by missing cards (KaHi) can improve participants' numeracy skills educate 1st grade elementary school (Deyu Kaslita et al., 2023). Apart from that, there are also studies that show an increase in collaboration skills after implementing the TGT model assisted by snakes and ladders media (Putri & Prasetyo, 2018). Furthermore, the findings of Pratama et al., (2023) show that cooperative learning using the TGT type assisted by crossword puzzles has an effect on mastery of biological concepts. Ningsyih et al., (2022) also found that there was an influence of the team game tournament model using congklak pinang nuts as a traditional game to train participants' critical thinking skills. E cducate to be applied to help train participants critically educate thinking ability.

Based on the explanation above, it is necessary to design an innovation and update in science learning by implementing the TGT type cooperative learning model through jellyfish hunting games to improve students' science collaboration abilities and form a Pancasila student profile, especially in the dimension of mutual cooperation. Furthermore, this research also has several other objectives, the first is to analyze the effect of providing TGT cooperative learning model treatment through jellyfish hunting games on science learning in

terms of students' achievement of basic competencies. The next aim is to analyze science learning using the TGT-type cooperative learning model through jellyfish hunting games to improve students' collaboration abilities.

Method

This research is quantitative research with pre-experimental methods which was carried out on (date) at SD Muhammadiyah Blawong I in the 2023/2024 academic year. The design used in this research is the One Group Pretest-Posttest. In this study, the researcher only treated one class, this means that this study did not use a control class or comparison class. It can also be said that only taking one class has two functions, namely as an experimental class and as a control class. The design of this study can be illustrated as follows:

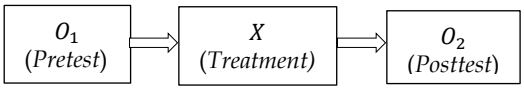

Figure 1. Research scheme

The aim of using this design is to examine the effect of the TGT-type cooperative learning model through a jellyfish hunting game to improve students' collaboration abilities. This experimental study involved 25 fourth-grade students at SD Muhammadiyah Blawong I as research subjects. The participants in this study consisted of 13 male students and 12 female students. Samples were taken using a simple random sampling technique.

This experimental research was carried out through activities by the TGT syntax which lasted for six class hours. The first syntax is class presentation. In this phase, the teacher presents the prepared material and prepares a jellyfish hunting game. The second syntax is a team discussion consisting of 3-4 students. Team formation is carried out heterogeneously to create learning groups that do not dominate. In discussion activities, students are required to contribute to solving problems together. The fourth syntax is a game, in this phase, the game is still played in one team to test the students' abilities. The fifth syntax is competition, in this phase a competition is held between teams to solve science problems on photosynthesis material through a jellyfish hunting game. The final syntax is awarding. At the end of the phase, the team that gets the highest score or points will become the champion and will receive an appreciation. Apart from that, motivation is also given to teams that have not received high scores so that they try to be better in the future.

The instruments for measuring students' collaboration abilities in science lessons in this study were in the form of questionnaires and student activity observation sheets. The development of the instrument in this study is the result of modifications and discussions with colleagues and has gone through expert validity testing from science teachers. This test instrument is used to measure students' science collaboration abilities which consists of 15 statement items. The instrument grid has been developed in Table 1.

Table 1. Collaboration ability instrument grid

Indicator	Item
Have teamwork skills	1, 2, 3, 4, 5
Able to adapt to conditions in various roles, working productively with others	6, 7, 8, 9
Have empathy and a different perspective	10, 11, 12
Able to collaborate with other team members for goals	13, 14, 15

The data collection technique used in this study uses non-test techniques, namely questionnaires and activity observation sheets. Questionnaires and observation sheets were used to see the extent to which science learning was implemented in elementary school class IV photosynthesis materials using the TGT type cooperative learning model through jellyfish hunting games. The form of questionnaire used is a closed questionnaire, namely using closed statements where the person who is the subject just has to choose the answers that have been provided. The answers to each instrument item use a Likert scale which has gradations from very suitable, suitable, not suitable, and very not suitable. The following are the criteria for giving scores on students' science collaboration questionnaires. Then, for the purposes of quantitative analysis, the Likert scale was converted into a score as in Table 2.

Table 2. Likert scale scores

Positive statements		Negative statements	
Score		Score	
1	Strongly disagree	4	Strongly disagree
2	Disagree	3	Disagree
3	Agree	2	Agree
4	Strongly agree	1	Strongly agree

Table 3. Collaboration ability score interval

Score Interval	Information
3.26 - 4	Very High
2.6 – 3.25	High
1.76 – 2.5	Medium
1 – 1.75	Low

Collaboration ability data is taken at the beginning of learning activities (pretest) to see the initial condition of students before treatment and at the end of learning (posttest) to see the final condition of students after

being given treatment. The technique for determining scores 1–4 uses a likert scale as in Table 3. To determine whether a respondent falls into the low, medium, high, or very high category, the scores for each answer from the 15 statements are added up and then divided by the number of statements. Then the results are matched to the intervalization list above to classify respondents.

Instrument validity testing is carried out to find out whether an instrument is valid or not. A valid instrument means that it can measure the indicators you want to measure and the results can be said to be valid. Based on the data obtained from the questionnaire and the results of observations given to respondents, the instrument is then tested to measure the level of suitability of the instrument, and a validity analysis can be carried out. After obtaining validity evidence that states that the instrument is ready to be used in research, the instrument is tested to estimate its reliability. The reliability estimation results are presented in Table 4. Based on the results of calculations using SPSS 27, the reliability value of the instrument tested was 0.90. This means that the level of accuracy of the instrument tested is very high and reliable.

Table 4. Results of reliability estimation of research instruments

Test Reliability	Interpretation
0.90	Very high

The research data analyzed were pretest and posttest data on students' collaboration abilities. Pretest data is used to determine the initial conditions of the two sample classes, while posttest data is used to test and compare the learning of the control class and conventional class. The data analysis techniques used are descriptive statistics and inferential statistics. The prerequisite tests used are the normality type test and the variance type homogeneity test.

Descriptive analysis is used to describe data on students' collaboration abilities before and after treatment. The data presented consists of the average (mean), standard deviation (SD), maximum and minimum scores achieved, as well as the percentage of students' completion. Data on students' collaboration ability scores is described by comparing the average score of each variable with the specified minimum completeness criteria. Inferential data analysis is used to statistically prove the proposed research hypothesis and answer the stated problem formulation.

To test the hypothesis, researchers used data analysis techniques with paired sample t-test using the SPSS 27 application. If the significance value is <0.05 then it can be said that variable and H_1 is accepted and vice versa if t count < t table then H_0 is accepted and H_1 is rejected.

Result and Discussion

This research focuses on analyzing changes in the collaboration abilities of fourth-grade students in science lessons on photosynthesis material before and after being treated with the TGT-type cooperative learning model through a jellyfish hunting game. The data in this research are scores from the results of collaboration skills on a questionnaire totaling 15 statements developed from several indicators on the instrument grid. The questionnaire was given to students before and after being given the TGT-type cooperative learning model treatment through a jellyfish hunting game sharing material. Descriptive analysis was carried out first to determine changes in students' collaboration abilities.

Table 5. Statistical Description

	Descriptive Statistics			
	N	Minimum	Maximum	Mean
Pre Test	25	50	88	71.20
Post Test	25	62	90	80.24

Based on Table 5, the average score for students' collaboration ability was 71.2 before being treated with the TGT type cooperative learning model through the jellyfish hunting game. Meanwhile, after being treated with the TGT type cooperative learning model through a jellyfish hunting game, the average posttest score was 80.24. The maximum score obtained from 88 increased to 90 after being treated with the TGT type cooperative learning model through a jellyfish hunting game. This indicates that there appears to be an increase in students' collaboration abilities. This collaboration ability data will then be tested for normality to determine whether the data is normally or not normally distributed.

Normality test data can be taken by comparing the significance value with the alpha value. This test utilizes the Shapiro-Wilk test because the number of research subjects is less than 100. The following is a hypothesis for testing data normality.

H_0 : Normally distributed data

H_1 : Data is not normally distributed

Based on Table 6, data on students' collaboration abilities in the pretest phase received a value of 0.441 and in the posttest phase, they received a value of 0.066. This shows that in both phases, the significance value of students' collaboration abilities is more than alpha 0.05 in the Shapiro-Wilk test. So it can be concluded that the science collaboration ability data has a normal distribution so the next step is to analyze the data using the t-test.

Table 6. Normality Test Results

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Pre Test	.129	25	.200*	.961	25	.441
Post Test	.128	25	.200*	.925	25	.066

Testing with the t-test can provide arguments regarding whether there are significant differences in the two phases, namely the pretest phase and the posttest phase. After applying the TGT-type cooperative learning model, both data, namely the pretest and posttest, were analyzed using the paired sample t-test. This test aims to compare the values of paired samples. The one-sample t-test can measure whether the average of a variable statistically has a significant difference when compared with the average value as an assumption or hypothesis value. In this study, we want to test whether there is a significant difference in the average science collaboration abilities of students. The following is the hypothesis of this research.

H_0 : There is no significant effect of implementing the TGT-type cooperative learning model through a jellyfish hunting game on the science collaboration abilities of fourth-grade elementary school students.

H_1 : There is a significant influence of implementing the TGT-type cooperative learning model through the jellyfish hunting game on the science collaboration abilities of fourth-grade elementary school students.

The context of the word "influence" in this study's hypothesis refers to the impact of implementing the TGT-type cooperative learning model through jellyfish hunting games, resulting in significant changes between the pretest and posttest results. The t-test results are presented in Table 7.

Table 7. T-test results

		Paired Samples Test							
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. dev	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest - Posttest	-9.040	6.636	1.327	-11.779	-6.301	-6.811	2	.000

Based on Table 7, it can be seen that the results of the t-test data on students' collaboration abilities obtained a sig value of 0.000, which means less than 0.05. So from these results, it can be concluded that H_0 is rejected. The final conclusion is that there is a significant effect of implementing the TGT-type cooperative learning model through the jellyfish hunting game on the science collaboration abilities of fourth-grade elementary school students.

The application of the TGT-type cooperative learning model through a jellyfish hunting game aims to train students' collaboration skills in teamwork. Before the study was carried out, the research instrument had been validated by the validator and the validator was of the opinion that the instrument that had been prepared fell into the valid category of content validation. The results of this study show that there is an influence of the application of the TGT-type cooperative learning model through a jellyfish hunting game on the science collaboration abilities of fourth-grade elementary school students after hypothesis testing. The following is a form of change in the phases before and after the implementation of the TGT model.

Figure 2. Jellyfish hunting activity

Based on Figure 2, students carry out jellyfish hunting activities in the form of science problems on photosynthesis material. These questions are divided into 3 categories which are arranged based on the level of students' ability to solve science problems, namely low, medium, and high. The three categories are given points of 5, 10, and 15. The aim of giving points is to determine which team gets the highest score.

Through jellyfish hunting activities, students appear enthusiastic in hunting for questions and increase their self-confidence and mutual respect for other students when taking questions. This finding is supported by the

results of a study that shows an increase in self-confidence and enjoyment when learning through games so that good collaborative relationships and mutual respect are established (Baydar, 2020). Apart from that, research results Permadi et al. (2018), state that the TGT model is cooperative learning which contains game elements. These findings are very in accordance with the study of the TGT-type cooperative learning model through the jellyfish hunting game. In line with these findings, Yudha & Mandasari, (2021) argue that learning that contains game elements can make it easier for students to absorb knowledge.

TGT activities allow students to have responsibility and involvement in collaboration with other team members to achieve common goals. TGT can provide opportunities for students to interact openly with their groups and the teaching and learning process by holding small tournaments (Hanjayani, 2022). This is confirmed by studies found Kaeksi & Setiawati, (2019) that TGT increases students' responsible abilities. The involvement of students in team collaboration is shown in Figure 3.

Figure 3. Student involvement activities in team collaboration

Based on Figure 3, the application of the TGT model by involving all team members causes students to actively participate in solving problems so that each student feels they have a responsibility in making their team the team that gets the highest score. This finding is supported by research results which suggest that the TGT model allows students to be more interested in learning and fosters a sense of responsibility, teamwork, healthy competition, and learning involvement (Hidayah & Sari, 2020). In addition, Azizah et al., (2021) argue that learning using TGT allows students to learn in a relaxed manner and with greater responsibility, cooperation, healthy competition, and learning involvement.

Through the results of the research and discussion presented above, the TGT-type cooperative learning model has a significant impact on students' science collaboration abilities regarding class IV elementary school photosynthesis material. Students' collaboration abilities are one of the important things to develop in students. The ability to collaborate between students is included in the mutual cooperation element in the Pancasila student profile. Therefore, to form students who have a Pancasila student profile, especially in the element of mutual cooperation, it is necessary to have student activities that require collaboration between students.

Activities to form elements of mutual cooperation, especially collaboration, can be realized in the TGT-type cooperative learning model through jellyfish hunting games. The study results show that TGT can improve the collaboration abilities of fourth-grade elementary school students. TGT through a jellyfish hunting game played in groups. TGT can support activities that involve all students because each student has the same responsibility in developing their team. Apart from that, TGT can provide opportunities for students to learn with game elements. This makes students feel happy participating and competing healthily during tournaments with other teams.

Conclusion

Based on the findings and discussion of studies regarding science learning using the TGT type cooperative learning model through jellyfish hunting games to improve students' collaborative abilities, it shows that there are significant differences in collaborative abilities in learning that applies the TGT type cooperative learning model through jellyfish hunting games. Science learning using the TGT-type cooperative learning model through jellyfish hunting games has an effect on the collaboration abilities of fourth-grade elementary school students on photosynthesis material.

Acknowledgments

The researcher would like to thank the supervisor of scientific papers in the basic education study program, Faculty of Education and Psychology, Yogyakarta State University, school principals, teachers, and fourth grade students at SD Muhammadiyah Blawong I district/city who have helped carry out this research. The researchers also thank their beloved family and friends for their support in this research.

Author Contributions

Conceptualization, R. F, H. H, N. V. A.; methodology, R. F.; validation, H. H.; formal analysis, R. F.; investigation, R. F., and N. V. A.; resources, R. F.; data curation, R. F.; writing—original draft preparation, R. F.; writing—review and editing, H. H.

and N. V. A.; visualization, R. F. All authors have read and agreed to the published version of the manuscript.

Funding
This research received no external funding.

Conflicts of Interest
The authors declare that there is no conflict of interest regarding the publication of this paper.

References

Andriani, A., Maryani, E., & Affandi, I. (2023). The Vital Role of Pancasila Values in Building National Character Through Civics Education. *AL-ISHLAH: Jurnal Pendidikan*, *15*(3), 3051–3062. https://doi.org/10.35445/alishlah.v15i3.4067

Azizah, N., Nengsih, E. W., Wati, L., Rahimah, & Nastiti, L. R. (2021). The perspective on monopoly as media in physics learning by using teams games tournament. *Journal of Physics: Conference Series*, *1760*(1), 012015. https://doi.org/10.1088/1742-6596/1760/1/012015

Baydar, A. (2020). Pre-Service Primary Teachers' Opinions on Team-Games-Tournaments. *International Education Studies*, *14*(1), 86. https://doi.org/10.5539/ies.v14n1p86

Benoit, S., Klose, S., Wirtz, J., Andreassen, T. W., & Keiningham, T. L. (2019). Bridging the data divide between practitioners and academics: Approaches to collaborating better to leverage each other's resources. *Journal of Service Management*, *30*(5), 524–548. https://doi.org/10.1108/JOSM-05-2019-0158

Capinding, A. T. (2021). Effect of Teams-Games Tournament (TGT) Strategy on Mathematics Achievement and Class Motivation of Grade 8 Students: *International Journal of Game-Based Learning*, *11*(3), 56–68. https://doi.org/10.4018/IJGBL.2021070104

Deyu Kaslita, R., Yantoro, Y., Zahyuni, V., & Risti Meylani, R. (2023). Implementation of the Teams Games Tournament (TGT) Learning Model Assisted with Lost Card Media to Improve the Numeration Abilities of Class I Students in Primary Schools. *Jurnal Tonggak Pendidikan Dasar : Jurnal Kajian Teori Dan Hasil Pendidikan Dasar*, *2*(2), 91–102. https://doi.org/10.22437/jtpd.v2i2.28502

Gunawan, G., Harjono, A., Hermansyah, H., & Herayanti, L. (2019). Guided Inquiry Model Through Virtual Laboratory To Enhance Students' Science Process Skills On Heat Concept. *Jurnal Cakrawala Pendidikan*, *38*(2), 259–268. https://doi.org/10.21831/cp.v38i2.23345

Hanjayani, D. (2022). The Effectiveness Of The Team Games Tournament Learning Model Based On Virus Material Exploration On Student Learning Outcomes. *Journal of Education Technology and Inovation*, *5*(1), 126–135. https://doi.org/10.31537/jeti.v5i1.963

Hidayah, I. N., & Sari, S. M. (2020). Application of cooperative learning type teams games tournament (TGT) to increase the student's activity. In *AIP Conference Proceedings, 2215*(1). https://doi.org/10.1063/5.0000522

Holmes, L., Cresswell, K., Williams, S., Parsons, S., Keane, A., Wilson, C., Islam, S., Joseph, O., Miah, J., Robinson, E., & Starling, B. (2019). Innovating public engagement and patient involvement through strategic collaboration and practice. *Research Involvement and Engagement*, *5*(1), 30. https://doi.org/10.1186/s40900-019-0160-4

Iswan, I. (2021). The Influence Of Cooperative Learning Model Of Jigsaw Type Implementation On Students' Learning Achievements. *Scirea Journal of Education, 6*(4), 88-113. https://doi.org/10.54647/education88269

Junaidi, M. E., & Prakoso, L. Y. (2021). Pancasila as the Basis for Indonesia's Universal Defense. *Journal of Social and Political Sciences*, *4*(2). https://doi.org/10.31014/aior.1991.04.02.283

Kaeksi, S. W., & Setiawati, F. A. (2019). The role of teams games tournaments (TGT) against activity of learning elementary school students. *ScienceRise: Pedagogical Education*, *5*(32), 16–18. https://doi.org/10.15587/2519-4984.2019.179145

Laksmiwati, H., Rusijono, R., Teknologi Pendidikan, Universitas Negeri Surabaya, Surabaya, Indonesia, Mariono, A., Teknologi Pendidikan, Universitas Negeri Surabaya, Surabaya, Indonesia, Arianto, F., & Teknologi Pendidikan, Universitas Negeri Surabaya, Surabaya, Indonesia. (2022). The Influence of Collaborative Learning on Social Skills in Higher Education. *International Journal of Multidisciplinary Research and Analysis*, *5*(11), 2997–3000. https://doi.org/10.47191/ijmra/v5-i11-05

Mamajanova, G. (2020). Effective Methods Of Learning Technical Terms. *Theoretical & Applied Science*, *81*(01), 567–570. https://doi.org/10.15863/TAS.2020.01.81.94

Monaliza, M., Rifma Rifma, Anisah Anisah, & Syahril Syahril. (2023). Analysis of Teacher Performance in the Context of Successful Implementation of the Pancasila Student Profile Program at SDN 04 Birugo, Bukittinggi City. *International Journal Of Humanities Education and Social Sciences (IJHESS)*, *2*(4). https://doi.org/10.55227/ijhess.v2i4.352

Muthoharoh, M. (2022). The Role Of Religious Education Teachers In Shaping The Profile Of Pancasila Students. *AT-TA'DIB: Jurnal Ilmiah Prodi Pendidikan*

Agama Islam, 23–34. https://doi.org/10.47498/tadib.v14i1.987

Nguyen, L. T., Kanjug, I., Lowatcharin, G., Manakul, T., Poonpon, K., Sarakorn, W., Somabut, A., Srisawasdi, N., Traiyarach, S., & Tuamsuk, K. (2022). How teachers manage their classroom in the digital learning environment – experiences from the University Smart Learning Project. *Heliyon*, *8*(10), e10817. https://doi.org/10.1016/j.heliyon.2022.e10817

Ozkale, A., & Ozdemir Erdogan, E. (2022). An analysis of the interaction between mathematical literacy and financial literacy in PISA*. *International Journal of Mathematical Education in Science and Technology*, *53*(8), 1983–2003. https://doi.org/10.1080/0020739X.2020.1842526

Permadi, A. E., Cholily, Y. M., & Putri, A. A. (2018). Cooperative Models Practice Type Teams Games Tournaments (TGT) With a Saintific Approach on Material Opportunity. *Mathematics Education Journal*, *2*(2), 127. https://doi.org/10.22219/mej.v2i2.6498

Pongkendek, J. J., Parlindungan, J. Y., & Marpaung, D. N. (2019). Effectiveness of the application of team games tournament cooperative learning model (TGT) to improve learning outcomes of students of class xi science 1 SMA Frater Makassar in the principal material of salt hydrolysis. *IOP Conference Series: Earth and Environmental Science*, *343*(1), 012228. https://doi.org/10.1088/1755-1315/343/1/012228

Prasetyo, M. A. M., Anwar, K., Asvio, N., & M, Z. (2022). Dimensional Analysis of School Based Pesantren Design Development. *Jurnal Iqra' : Kajian Ilmu Pendidikan*, *7*(1), 1–13. https://doi.org/10.25217/ji.v7i1.1636

Pratama, D. A., Kusmiyati, Tri Ayu Lestari, & Muhlis. (2023). The effect of cooperative learning model TGT-type assisted by crossword puzzle media on biology concept mastering. *Jurnal Pijar Mipa*, *18*(5). https://doi.org/10.29303/jpm.v18i5.5190

Putri, I. W., & Prasetyo, K. (2018). The Effect Of TGT (Teams Game Tournament) With Snakes And Ladder Media On Primary School Activities And Learning Outcome. *Proceedings of the 2nd International Conference on Education Innovation (ICEI 2018)*, 389-395. https://doi.org/10.2991/icei-18.2018.85

Qureshi, M. A., Khaskheli, A., Qureshi, J. A., Raza, S. A., & Yousufi, S. Q. (2023). Factors affecting students' learning performance through collaborative learning and engagement. *Interactive Learning Environments*, *31*(4), 2371–2391. https://doi.org/10.1080/10494820.2021.1884886

Sadjadi, E. N. (2023). Challenges and Opportunities for Education Systems with the Current Movement toward Digitalization at the Time of COVID-19. *Mathematics*, *11*(2), 259. https://doi.org/10.3390/math11020259

Saputri, S. S., & Aminatun, T. (2021). The Importance of Improving Collaboration Skill in Confront an Earthquake with Mitigation Learning: A Content Analysis. In *6th International Seminar on Science Education (ISSE 2020)*, 801-805. https://doi.org/10.2991/assehr.k.210326.115

Sari, F. F. K., Sukarno, & Murwaningsih, T. (2023). The New Paradigm of Merdeka Curriculum: Implementation of Pancasila Education Subject in Elementary School. *International Journal of Elementary Education*, *7*(1), 79–88. https://doi.org/10.23887/ijee.v7i1.54092

Shinde, S. M., & Shinde, M. B. (2022). Effectiveness Of Cooperative Learning Techniques in Teaching Communication Skills: Esp Learners' Perspective. *Journal of Teaching English for Specific and Academic Purposes*, 001. https://doi.org/10.22190/JTESAP2201001S

Silalahi, T. F., & Hutauruk, A. F. (2020). The Application of Cooperative Learning Model during Online Learning in the Pandemic Period. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, *3*(3), 1683–1691. https://doi.org/10.33258/birci.v3i3.1100

Sugiyati, K., & Indriani, L. (2022). Utilizing Teams-Game-Tournament (TGT) to Enhance Students' Grammatical Understanding in Online Learning Setting. *Metathesis: Journal of English Language, Literature, and Teaching*, *6*(2), 168–178. https://doi.org/10.31002/metathesis.v6i2.154

Suharno, Pambudi, N. A., & Harjanto, B. (2020). Vocational education in Indonesia: History, development, opportunities, and challenges. *Children and Youth Services Review*, *115*, 105092. https://doi.org/10.1016/j.childyouth.2020.105092

Sun, C., Shute, V. J., Stewart, A., Yonehiro, J., Duran, N., & D'Mello, S. (2020). Towards a generalized competency model of collaborative problem solving. *Computers & Education*, *143*, 103672. https://doi.org/10.1016/j.compedu.2019.103672

Tran, V. D., Loc Nguyen, T. M., Van De, N., Soryaly, C., & Doan, M. N. (2019). Does Cooperative Learning may Enhance the Use of Students' Learning Strategies? *International Journal of Higher Education*, *8*(4), 79. https://doi.org/10.5430/ijhe.v8n4p79

Usman, U., Nuraulia, D., Nauroh, R., Rajudin, I., & Rifqiawati, I. (2023). Project to Strengthen Pancasila Student Profile as an Application of Differentiated Learning in the Independent Curriculum: A Case

Study at a Senior High School in Pandeglang, Indonesia. *Jurnal Pendidikan Indonesia Gemilang*, *3*(1), 103–113. https://doi.org/10.53889/jpig.v3i1.159

Utami, W. B., Wedi, A., Sulthoni, & Aulia, F. (2023). Management of Merdeka Curriculum Towards Strengthening the Profile of Pancasila Students in Schools. In *Proceedings of the International Conference on Educational Management and Technology (ICEMT 2022)*, 240–246. https://doi.org/10.2991/978-2-494069-95-4_29

Yates, A., Starkey, L., Egerton, B., & Flueggen, F. (2021). High school students' experience of online learning during Covid-19: The influence of technology and pedagogy. *Technology, Pedagogy and Education*, *30*(1), 59–73. https://doi.org/10.1080/1475939X.2020.1854337

Yudha, H. T., & Mandasari, B. (2021). The Analysis of Game Usage for Senior High School Students to Improve Their Vocabulary Mastery. *Journal of English Language Teaching and Learning*, *2*(2), 74–79. https://doi.org/10.33365/jeltl.v2i2.1329

Zuhri, Z., Irwan, I., Perangin-Angin, A., & Fisela, D. (2022). Teams Game Tournament (TGT) Model Influence on Students' Mathematics Ability Through Online Learning on Class VII Students of Hinai Junior High School. *International Journal of Social Service and Research*, *2*(11), 1011–1017. https://doi.org/10.46799/ijssr.v2i11.186