

The application of team games tournament learning model to improve student critical thinking in science learning class V SDN 3 Kemaduhbatur

Ani Listianingsih^{1,*}, Bambang Sumardjoko¹, Arif Subowo¹

¹ Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

* Corresponding author: a510210257@student.ums.ac.id

Abstract

Purpose: This study aims to (1) describe science learning in the classroom, (2) analyze the application of the Team Games Tournament (TGT) learning model in enhancing students' critical thinking in science education, and (3) identify the supporting and inhibiting factors in implementing the TGT model in class V at SDN 3 Kemaduhbatur.

Methodology: A qualitative approach was employed, focusing on descriptive data presented in narrative form without numerical analysis. Data collection techniques included observation, interviews, and documentation. Data validity was ensured through triangulation, while data analysis followed Miles and Huberman's four-step model: data collection, data reduction, data display, and conclusion drawing/verification.

Results: The findings indicate that the TGT learning model effectively improves students' critical thinking in science learning. The model also enhances students' understanding of material and promotes active participation in classroom activities. The use of relevant learning media supports the model's success. However, limited time allocation presents a significant challenge in its implementation.

Applications/Originality/Value: This study emphasizes the value of using the Team Games Tournament learning model to foster critical thinking in science education. The insights derived from this research are expected to serve as a reference for educators seeking to improve instructional strategies and cultivate critical thinking skills among elementary students.

Introduction

Education is one of the most important things for every human being. Education is a decision that must be fulfilled by every human being throughout life. Education in Law Number 20 of 2003 is a conscious and planned effort to create a learning environment and process that enables students to actively develop their potential, thereby possessing spiritual strength, self-control, character, intelligence, noble morals, and the skills required for themselves, society, nation and state. National education aims to provide students with knowledge, skills, creativity and independence, so as to enable students to become democratic and responsible citizens. The goal is to reflect that the state has a big vision to form a generation that is characterized, intelligent, and ready to face future challenges. Efforts are made to achieve educational goals, so learning with an independent curriculum is carried out in an independent learning manner. Independent learning means that students become student centers so that knowledge is obtained not only from teachers but also from students. So that knowledge, skills, creativity, and independence will increase and develop. This step is taken to improve the quality and quality of education in Indonesia by changing the learning curriculum. In addition, the learning process also affects the achievement of learning objectives.

The best learning is implementation of communication between teachers and students. Agree with Ramayulis by Hazmi (2019) that learning is a two-way communication process with the teacher as an educator to support students in achieving predetermined learning goals. So that to produce quality learning there must be two-way communication from teachers and students during learning. Elementary school science is the main subject content in the independent curriculum. According to Mariana and Praginda by Tursinawati (2016), natural science at the elementary school level involves understanding nature and its various phenomena, behaviors, or characteristics, which are organized into a set of theories and concepts derived from scientific processes conducted by humans. Science is a subject at school that directs natural concepts related to human life which has an important role in helping students understand the relationship between humans and nature, as well as in developing the ability of students to apply scientific knowledge in everyday life and support technological progress (Surahman et al., 2015). So that science lessons are knowledge to learn and understand natural phenomena and symptoms by applying scientific knowledge in everyday life. In line with the purpose of learning science,

namely to help students understand science concepts, recognize natural phenomena, and apply them in everyday life (Pawe et al., 2023).

Science lessons in elementary schools that have a scope of learning that covers various aspects such as the body and five senses, plants and animals, the nature and shape of objects around, the universe and its phenomena, the body structure of animals and plants, the life cycle of living things, how to breed plants, the shape and form of objects, force and motion, as well as various forms and sources of energy (Nadhifah et al., 2023). Therefore, to learn science lessons that cover many things can be supported by the skills possessed by each individual.

The 21st century skills that must be possessed by every individual are known as the 4Cs which include critical thinking, creativity, communication, and collaboration. One of the things that the government has done to support student achievement in 21st century skills is by implementing the HOTS (Higher Order Thinking Skills) learning system. HOTS (Higher Order Thinking Skills) learning is a learning process with the aim of developing students' high-level thinking skills at the cognitive level. Critical thinking in the independent curriculum is applied to the learning process. Its application in the independent curriculum is a student-centered learning process. Critical thinking is the ability used to distinguish relevant and irrelevant information, connect ideas, conclude, and justify the information received (Jaswal & Behera, 2024). Critical thinking is having curiosity and evaluating events based on one's personal point of view and inner world (Polat, 2020). Critical thinking according to Sumarmo by Kurniasih & Hakim (2020) is a systematic process in which each individual is able to formulate and evaluate their own beliefs and opinions. Therefore, critical thinking is one of the abilities in having curiosity, distinguishing relevant and irrelevant information, and evaluating it according to their point of view.

Based on the results of the PISA (Program for International Study Assessment) survey in 2022, Indonesia scored 383 points in the science aspect, ranked 66 out of 81 countries, with an average standard score of 485 points in OECD countries. The questions used in the PISA survey include HOTS standards, which are questions that cover contextual problems in everyday life. The results of the scores obtained by students in this survey are able to show a large gap and are still below the international average. Therefore, these results are able to show that critical thinking skills of students in Indonesia are still relatively low and need encouragement to support future progress.

Critical thinking in learning has a positive role. The ability to think critically is also able to be used by someone in drawing conclusions appropriately and correctly. Critical thinking is an ability possessed by each individual and used in identifying and formulating problems by gathering information to make an effective decision. Critical thinking uses its ability to analyze and think creatively (Basak & Yucel, 2024). Critical thinking skills include reviewing, thinking logically, and avoiding mistakes (Alharbi, 2022). The critical thinking skills that must be possessed by each individual are identifying problems and basic assumptions, recognizing relationships between subjects, making and drawing conclusions based on the data obtained, testing and evaluating data again (Er, 2024). Therefore, critical thinking skills are the ability to identify problems, analyze, review logically, and evaluate them again.

Critical thinking skills in science learning can be developed properly, this critical thinking ability can be developed by choosing the right learning model and method. Selection of inappropriate learning models and methods can result in low student learning outcomes and low levels of student critical thinking skills as well. This happened in the learning science in public elementary school 3 Kemaduhbatur. The results of observations show that critical thinking skills in science learning for class V are low, because the learning model still uses conventional methods. Conventional learning models that still center information on the teacher can make learning where students are not actively involved, student interest is lacking, motivation is lacking, students are easily bored and bored during learning. To improve students' critical thinking skills, choose the right model in learning. One of the models that can be used is the Team Games Tournament (TGT) learning model.

The Team Games Tournament (TGT) learning model is an instructional approach that involves tournaments heterogeneous groups consisting of 4-6 members (Baydar, 2021). This model emphasizes collaboration among group members to compete positively with other groups (Simsek & Baydar, 2019). Team Games Tournament (TGT) learning model is a combination team-based learning with elements of games and competition, creating an enjoyable learning environment while fostering responsibility, teamwork, and healthy competition among students according to their abilities (Arlina et al., 2023). The Team Games Tournament (TGT) learning process begins with an explanation from the teacher in the classroom, followed by group learning activities, games, academic tournament, and concludes with team recognition or rewards for the best performing group (Mulyani et al., 2018). Through this approach, Team Games Tournament (TGT) integrates elements of competition and recognition to enhance student engagement and motivation. The conclusion can be drawn that, Team Games Tournament (TGT) learning model is a learning process that combines games and competition starting from the presentation of the class, the division of groups with 5-6 members each group heterogeneously, games, tournaments and awards for the team.

Based on the explanation above, it can be seen that this research aims to describe science learning in class, describe the application of the Team Games Tournament (TGT) learning model to improve students' critical thinking in science learning, and describe the inhibiting factors and supporting factors in the application of the Team Games Tournament (TGT) learning model to improve students' critical thinking in science learning in class V at SDN 3 Kemaduhbatur by applying the Team Games Tournament (TGT) model. The title research this "The application of the Team Games Tournament (TGT) learning model to improve students' critical thinking in science learning in grade V SDN 3 Kemaduhbatur".

Method

This research uses descriptive qualitative methods. Descriptive qualitative research method is a study that presents data without manipulating or other treatments, with the aim of providing a comprehensive description of a phenomenon (Rusli, 2021). Qualitative research is a research method that uses narratives or words to explain the meaning of each phenomenon, symptom, and certain social situations (Waruwu, 2023). Therefore, descriptive qualitative research methods are research that presents data without manipulation with data presented in the form of narratives or words used to explain it. The place of this research was conducted at SDN 3 Kemaduhbatur in class V in science learning. For the object of research in class V there are 18 children consisting of 6 female students and 12 male students.

This research uses descriptive qualitative methods. Descriptive qualitative research method is a study that presents data without manipulating or other treatments, with the aim of providing a comprehensive description of a phenomenon. Qualitative research is a research method that uses narratives or words to explain the meaning of each phenomenon, symptom, and certain social situations. Therefore, descriptive qualitative research methods are research that presents data without manipulation with data presented in the form of narratives or words used to explain it. The place of this research was conducted at SDN 3 Kemaduhbatur in class V in science learning. For the object of research in class V there are 18 children consisting of 6 female students and 12 male students.

Data collection techniques used in the study were observation, interview and documentation. Observation is a direct observation process carried out by researchers on research subjects with the aim of collecting data (Iba & Wardhana, 2023). This observation was carried out during the learning process involving teachers and students in learning science using the *Team Games Tournament (TGT)* learning model. Interview is an activity carried out to obtain sources of information from both teachers and students. Interview is a process carried out with the aim of obtaining information or question and answer with respondents or interviewees (Mazaya & Suliswaningsih, 2023). Interviews with teachers related to the implementation of the *Team Games Tournament (TGT)* learning model and students related to the implementation of the learning model and the principal with learning at school. Documentation is a technique of collecting information or data by examining archives and documents (Hanafiah et al., 2022). Documentation in this study can be in the form of teaching modules, student grades lists, and photographs in the learning process.

Data validity carried out in this study is using triangulation. According to William Wiersma in (Naamy, 2022) triangulation in credibility testing is verifying data from various sources at different times. Triangulation is divided into three based on sources, data collection techniques, and time. As for data analysis using interative analysis according to Miles & Huberman. Qualitative data analysis used in this research is interactive analysis. Interactive analysis according to Miles and Huberman by Sugiyono (2017) is qualitative data that is analyzed interactively on an ongoing basis until the data reaches a level of saturation. The level of data saturation can be characterized by the absence of data that can be obtained again from informants. The interactive analysis model according to Miles & Huberman is data collection, data reduction, data display, and conclusion drawing/verification.

The data analysis method used to compare data from various sources to triangulate conclusions and ensure validity. The use of this approach in research is expected to describe science learning, the application of the *Team Games Tournament (TGT)* learning model to improve critical thinking and the supporting and inhibiting factors in its application in class V of SDN 3 Kemaduhbatur.

Result and Discussion

This Based on the results of observations, interviews, and documentation at SDN 3 Kemaduhbatur resulted in data 1) the process of learning science 2) the application of the *Team Game Tournament (TGT)* learning model can improve critical thinking 3) inhibiting and supporting factors

The process science learning

The science learning process at SDN 3 Kemaduhbatur for grade 5 is carried out through planning, implementation and evaluation. All of these learning processes are carried out by the class teacher. The first step taken by the teacher before the learning process is learning planning. This learning planning starts from the teacher determining the flow of learning objectives (ATP) and teaching modules. Teaching modules made by teachers by accommodating the *Team Games Tournament (TGT)* learning model. In this planning stage, the teacher determines the learning objectives specifically and clearly. Teachers at this stage, design the learning process with the aim of active students in the classroom both asking questions, researching, analyzing, and understanding the subject matter properly and correctly. Teachers organize this learning material with more focus on electricity flow material.

In this planning process, teachers use various resources and supporting tools to facilitate the application of the *Team Games Tournament (TGT)* learning model. The resources used in this learning include student packet books, student worksheets (LKS), and media related to electricity flow materials. In addition to preparing learning resources, teachers also prepare group assignments, games, and tournaments that are able to make students work in groups and help students improve critical thinking. The tasks that have been designed by the teacher can be completed by students by using the

ability to identify problems, formulate questions, analyze information, and compile arguments related to electricity flow material. Teachers also set clear assessments to evaluate critical thinking skills in each stage of the Team Games Tournament (TGT) learning model. This is done by the teacher with the aim of ensuring the learning process using Team Games Tournament (TGT) learning can run effectively and purposefully.

After planning the next step taken by the teacher is the implementation of learning. Implementation of learning by applying the Team Games Tournament (TGT) model. This learning implementation activity includes preliminary, core, and closing activities. The implementation of this learning process begins with preliminary activities. The preliminary activities in this learning process begin with the teacher conducting learning orientation starting from the teacher saying greetings, praying, singing the P5 song to increase nationalism and presenting attendance. Giving lighter questions that are exemplified by the surrounding environment and linking them to the material. Motivation in this part of the introduction is carried out by the teacher starting from conveying learning objectives, assessments that will be taken and providing ice breaking. The core activities in this lesson use the Team Games Tournament model. The steps in the Team Games Tournament learning model are class presentation, team, game, tournament, and group awards.

The last activity carried out in the learning process is closing. This closing activity students are given time by the teacher to ask questions related to material that has not been understood. The teacher also asks students to summarize the material that has been discussed and the teacher provides information related to learning materials at the next meeting and the teacher says greetings to close the learning.

The application of Team Games Tournament learning model to improve critical thinking

The problems in this study that have been contained in the introduction are the lack of active students in learning, the low critical thinking of students and teachers still use traditional learning models. The traditional learning model is a learning model where the teacher is the center of the information source and still uses the lecture method in the learning process. Because learning is still monotonous and boring, students become easily bored and inactive in learning. The selection of a fun learning model is needed to support the learning process so that it is not monotonous, boring, active students, and students become the center of learning.

The application of the Team Games Tournament (TGT) learning model implemented in science learning in class V SDN 3 Kemaduhbatur. The Team Games Tournament (TGT) learning model is a learning model used with the aim of increasing students' critical thinking in the science learning process. The application of the Team Games Tournament (TGT) learning model allows students to learn actively and master the learning material well, learning is fun and the learning process is not boring for students and critical thinking skills increase.

All learning models basically have the aim of making the learning process interactive and students can master the material well, as well as making learning fun and not boring. The application of learning models is needed in every learning process for all subjects at school. The existence of this learning model with the aim that students do not get bored and bored quickly during the learning process. In addition to the learning model, there are other things that need to be considered, namely learning media. This learning media must be considered with the aim of supporting an interactive learning process, such as the learning process by applying games and tournaments in learning can increase the enthusiasm and enthusiasm of students in participating in the learning process

The application of the Team Games Tournament (TGT) learning model is implemented during the core activities of the learning process with the aim of enhancing students' critical thinking skills. The implementation of the Team Games Tournament (TGT) model involves 5 main stages, which are as follows:

a. Class presentation

This stage, the teacher delivers information related to the topic electric currents, ask questions to the students, and facilitates two-way communication to ensure students understand the material presented.

b. Team/group formation

Team/ group formation in the learning process carried out by the teacher includes the division of heterogeneous groups conducted by the teacher with each group consisting of 6 students. After the group is formed, the teacher provides an opportunity for students to study and re-understand the material that has been brought. Because during the *game* students are not allowed to look at books to solve the problem.

c. Game

Before doing this game, the teacher first prepares the learning media by attaching it to the blackboard in front of the class. This learning media is made of cardboard paper in which there are the same questions for each group. The questions contained in the learning media are also unknown to students. The questions made by the teacher are related to the material studied, namely the flow of electricity

d. Tournament

This tournament activity the teacher first explains how to play. The teacher asks each group to line up in rows. Each group provides stationery used to answer questions contained in cardboard media. The teacher gives 5 minutes for each group to answer the questions contained in the cardboard media. The questions contained in the cardboard media are as many as 6 questions that will be answered by each group. Each group relayed with their group members to fill in the questions by taking turns until all the questions were answered.

e. Group awards

The teacher provides rewards to two groups: the fastest group and the best-performing group. The fastest group is the one that completes the tournament most quickly, while the best-performing group is the one that answers the most question correctly.

The tournament can see the level of critical thinking in students during learning, without distinguishing between active and inactive students. All students are active and think critically in answering the questions contained in the carton. So, in the end there is a group that finishes first and gets an award as the fastest group.

During the learning process, the success of learning can be influenced by students' interest, motivation and critical thinking. This learning process also shows that students are more active with an increase in the ability to ask questions, analyze information, and develop arguments related to electricity flow material. Interviews with students showed that students are more challenged and motivated to learn because the Team Games Tournament (TGT) learning model can provide opportunities for students to explore topics that interest them. Teachers also reported an increase in students' critical thinking skills in terms of the quality of discussions and assignment results

Inhibiting and supporting factors

One of the challenges encountered during the learning process with Team Games Tournament (TGT) model is the limited duration of learning time. The allocated 70 minutes encompasses all stages of learning, including introductory activities, core activities, and closing activities, leaving only 5 minutes for the game tournament itself. But the time restriction does not make students inactive, but on the contrary students are active and enthusiastic during the learning process. enthusiastic during the learning process. Students are also not easily bored, bored, and happy during this learning process. In addition to inhibiting factors in the learning process learning process there are also supporting factors. Alongside these challenges, there are also several supporting factors. These include increased student participation, mutual respect among group members, effective learning experiences, heightened enthusiasm for learning, and a clear understanding of the material. These aspects significantly contribute to the success of the learning process. Moreover, the enthusiasm displayed by V grade student during science lessons using the Team Games Tournament model plays a vital role in fostering their critical thinking skills

Discussion

The research findings demonstrate that the Team Games Tournament (TGT) learning model effectively enhances critical thinking skills among fifth-grade student at SDN 3 Kemaduhbatur. These findings align with previous studies, such as the research by Kurniawan & Wiseza (2023), which indicated that the Team Games Tournament learning model improves students' critical thinking in the learning process. According by Nisa et al. (2024) reported that the Team Games Tournament (TGT) learning model positively influences students' critical thinking abilities, thereby raising their overall level of critical thinking. Research conducted also according by Rohmah & Prayito (2024) confirmed that implementing the Team Games Tournament learning model leads to measurable improvements in students critical thinking, as evidenced by significant gains following its application. The application of the Team Games Tournament (TGT) learning model conducted by several researchers shows the same results, namely increasing students' critical thinking skills and this learning model can be applied with a variety of subjects and school levels.

Lesson planning done before learning is also one of the supporters of success in applying a learning model in the classroom. Planning that is not done before learning can cause learning that has no purpose and is not directed. Therefore, learning planning is very important for teachers to do by determining learning objectives and making tools that support learning such as teaching modules, learning videos, books, and learning media, and teachers also determine the models and methods used in the learning. If the planning is carried out in a directed manner, the learning will be successful and directed. According by Andhini & Widodo (2024) also shows that the planning and preparation of learning administration such as learning objectives and teaching modul can be one of the supporters in the successful application of the learning model. Research conducted by Çakıroğlu & Öztürk (2017) also shows that self-directed learning planning can by determining learning objectives and strategies as well as tasks and skills that will be given to students can make learning well organized in the classroom, so that learning will be successfully implemented. Lesson planning according by Farhang et al. (2023) is a very important plan in a lesson, because learning plans that design a goal, method, and learning process that includes a documentation that can be used to change the flow of learning and this plan can be designed in one year or one day according to the teacher's decision, so that learning plans can support the learning process well.

Implementation of learning that applies the Team Games Tournament (TGT) learning model in the classroom in science learning for class V. The steps of the Team Games Tournament (TGT) learning model according to Jaya (2023) are class presentation, forming groups, games, competition, and awarding. The stages of implementing the Team Games Tournament (TGT) learning model include class presentation, learning in groups, games, matches or competitions and group awards (Khusnudin et al., 2022). The implementation of learning applied with the Team Games Tournament (TGT) model includes class presentation, group division, games, tournaments, and group awards. The existence of these stages in learning shows that students are enthusiastic in participating in learning, because learning is not boring, not saturated, and

not monotonous. It became one of the spirit and learning outcomes of students increased, both from motivation, learning activities, understanding of the material, and the level of critical thinking skills also increased.

Evaluation of learning that is carried out at the end of learning. Learning evaluation which contains summarizing learning and delivering the next material. In addition, the evaluation carried out after the learning process can help teachers in knowing the supporting and inhibiting factors in the application of the Team Games Tournament (TGT) learning model. According to Shoimin by Sururi & Wahid (2022) in implementing the Team Games Tournament (TGT) learning model has supporting factors, namely students can play an active role in the group, respect between members, increased student enthusiasm, and enjoy learning due to tournaments, while the inhibiting factors are the time required, the teacher must choose the material to be given, and the teacher must master the material in depth. According to Milawati by Manalu & Margareta (2023) for the supporting factors in applying the Team Games Tournament (TGT) model, namely students are active in groups, fostering mutual respect between students, the awards given by the teacher are motivating enthusiasm for students, and the existing tournaments make students enjoy learning, while for the inhibiting factors, namely the time required is long and the teacher must choose the subject matter and prepare the learning model before class. Supporting and inhibiting factors in applying the Team Games Tournament (TGT) learning model according to Nasrudin in (Tanjung et al., 2022), namely for supporting factors including more effective time allocation in completing tasks, mutual respect between individuals, mastery of in-depth material with a short time, tolerance between group members, and active students in learning, while for inhibiting factors, namely the distribution of heterogeneous groups can cause students who have high abilities to have difficulty explaining to their group members. Based on the results of the study also showed that the application of the Team Games Tournament (TGT) learning model for its supporting factors, namely students are more active, mutual respect between group members, effective learning, increased student enthusiasm in participating in learning, and students understand the material in a short time. As for the inhibiting factors, namely the time that is less long in learning and the teacher who must prepare the media before learning time.

Conclusion

Based on research conducted on grade V students in science learning with the topic of electrical circuit at SDN3 Kemaduhatur, it shows that the application of the Team Games Tournament (TGT) learning model effectively improves critical thinking skills for students. This learning process proceeded smoothly according to the plans prepared beforehand. The implementation of learning by applying all stages in the Team Games Tournament (TGT) learning model is also well implemented. The improvement in students critical thinking skills was evident their active participation during the learning process, good understanding of the material, and higher quality in completing assignments.

References

- Alharbi, B. (2022). Saudi Teachers'knowledge of Critical Thinking Skills and Their Attitudes Towards Improving Saudi Students'critical Thinking Skills. *Problems of Education in the 21st Century*, 80(3), 395–407.
- Andhini, N. A., & Widodo, J. P. (2024). Self-Regulated Learning And Cognitive Processes In Flipped Classroom: A Library Investigation. *Gudang Jurnal Multidisiplin Ilmu*, 2(3), 42–46.
- Arlina, A., Sari, D. P., Safitri, D., Nuraisyah, N., & Nisa, S. (2023). Meningkatkan Hasil Belajar Siswa melalui Metode Team Games Tournament (TGT) pada Pembelajaran SKI Kelas V di Sekolah MIS Al-Amin Tembung. *Bersatu: Jurnal Pendidikan Bhinneka Tunggal Ika*, 1(4), 21–32.
- Basak, R., & Yucel, E. (2024). Critical Chinking Dispositions of Undergraduate Art Education and History Students. *International Journal of Education and Literacy Studies*, 12(2), 191–199.
- Baydar, A. (2021). Pre-Service Primary Teachers' Opinions on Team-Games-Tournaments. *International Education Studies*, 14(1), 86–96.
- Çakıroğlu, Ü., & Öztürk, M. (2017). *Flipped Classroom with Problem based Activities: Exploring Self-regulated Learning in A Programming Language Course*.
- Er, Z. (2024). Examination of the Relationship between Mathematical and Critical Thinking Skills and Academic Achievement. *Pedagogical Research*, 9(1).
- Farhang, Q., Hashemi, A., & Ghorianfar, A. (2023). Lesson Plan and its Importance in Teaching Process. *International Journal of Current Science Research and Review*, 6(08), 5901–5913.
- Hanafiah, H., Sauri, R. S., Mulyadi, D., & Arifudin, O. (2022). Penanggulangan Dampak Learning Loss dalam Meningkatkan Mutu Pembelajaran pada Sekolah Menengah Atas. *JIIP-Jurnal Ilmiah Ilmu Pendidikan*, 5(6), 1816–1823.
- Hazmi, N. (2019). Tugas Guru dalam Proses Pembelajaran. *Journal of Education and Instruction (JOEAI)*, 2(1), 56–65.

- Iba, Z., & Wardhana, A. (2023). *Metode Penelitian*. EUREKA MEDIA AKSARA.
- Jaswal, P., & Behera, B. (2024). Blended Matters: Nurturing Critical Thinking. *E-Learning and Digital Media*, 21(2), 106–124.
- Jaya, A. (2023). The Implementation of Team Cooperative Learning Model on Teaching the Procedure Text Materials At Class X Sman 1 Palembang. *JETAL: Journal of English Teaching & Applied Linguistic*, 4(2), 135–144.
- Khusnudin, R., Suyoto, S., & Anjarini, T. (2022). Model Pembelajaran Teams Games Turnaments untuk Meningkatkan Keaktifan Belajar Siswa. *Jurnal Educatio FKIP UNMA*, 8(4), 1246–1252.
- Kurniasih, R., & Hakim, D. L. (2020). Berpikir Kritis Siswa dalam Materi Segiempat. *Prosiding Sesiomadika*, 2(1e).
- Kurniawan, S., & Wiseza, F. C. (2023). Meningkatkan Kemampuan Berfikir Kritis Melalui Model Pembelajaran Team Games Tournament. *El-Madib: Jurnal Pendidikan Dasar Islam*, 3(2), 177–195.
- Manalu, S. I. Y., & Margareta, E. (2023). Pengaruh Model Pembelajaran Team Games Tournament (Tgt) terhadap Hasil Belajar IPS Siswa Kelas VII SMP Negeri 1 Lawe Sigala-Gala. *Jurnal Pendidikan Ekonomi Dan Entrepreneurship*, 1(3), 24–33.
- Mazaya, N. N., & Suliswaningsih, S. (2023). Perancangan Ui/Ux Aplikasi “Dengerin” Berbasis Mobile Menggunakan Metode Design Thinking. *Komputa: Jurnal Ilmiah Komputer Dan Informatika*, 12(2), 39–49.
- Mulyani, R., Djumhana, N., & Syaripudin, T. (2018). Penerapan Model Pembelajaran Kooperatif Team Games Tournament (TGT) untuk Meningkatkan Kemampuan Kerja Sama Siswa Sekolah Dasar. *Jurnal Pendidikan Guru Sekolah Dasar*, 3(2), 38–45.
- Naamy, N. (2022). Metodologi Penelitian Kualitatif Dasar-Dasar & Aplikasinya. *Rake Sarasini (Issue Maret)*. [https://Repository.Uinmataram.Ac.Id/2853/1/Buku Metode Penelitian. Pdf](https://Repository.Uinmataram.Ac.Id/2853/1/Buku%20Metode%20Penelitian.Pdf).
- Nadhifah, D. N., Aufa, A., Prastiwi, T. S., Damayanti, E., Bilqish, A., & Heriadi, H. (2023). Identifikasi Proses Pembelajaran Ilmu Pengetahuan Alam (IPA) pada Kelas 4 di SDS Mardliatul Islamiyah. *Jurnal Pendidikan Dan Konseling (JPDK)*, 5(1), 1830–1835.
- Nisa, M., Alim, J. A., & Putra, Z. H. (2024). Pengaruh Model Pembelajaran TGT (Teams Games Tournament) Ditinjau dari Kemampuan Berpikir Kritis Pada Pembelajaran IPAS di SDS Cendana Duri. *Innovative: Journal Of Social Science Research*, 4(1), 320–327.
- Pawe, Y. M. P., Yitu, A. M., Ndana, M. Y., Wea, H. A., Lawe, Y. U., & Noge, M. D. (2023). Upaya Guru Dalam Meningkatkan Pembelajaran Yang Menyenangkan Melalui Metode Demonstrasi Pada Pembelajaran IPA Kelas III SD. *Jurnal Citra Pendidikan Anak*, 2(1), 73–81.
- Polat, S. (2020). Multidimensional Analysis of the Teaching Process of the Critical Thinking Skills. *Research in Social Sciences and Technology*, 5(2), 134–157.
- Rohmah, K., & Prayito, M. (2024). Penerapan Model Team Games Tournament (TGT) terhadap Kemampuan Berpikir Kritis Peserta Didik Materi Kalimat Ajakan Kelas II SD Sawah Besar 01 Semarang. *Jurnal Pendidikan Tambusai*, 8(1), 13868–13874.
- Rusli, M. (2021). Merancang Penelitian Kualitatif Dasar/Deskriptif dan Studi Kasus. *Al-Ubudiyah: Jurnal Pendidikan Dan Studi Islam*, 2(1), 48–60.
- Simsek, U., & Baydar, A. (2019). Impacts of Jigsaw and Teams-Games-Tournaments (TGT) on Social Studies Preservice Teachers’ Epistemological Beliefs. *International Online Journal of Education and Teaching*, 6(2), 405–414.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*.
- Surahman, S., Paudi, R. I., & Tureni, D. (2015). Meningkatkan Hasil Belajar Siswa dalam Pembelajaran IPA Pokok Bahasan MakhluK Hidup dan Proses Kehidupan Melalui Media Gambar Kontekstual pada Siswa Kelas II SD Alkhairaat Towera. *Jurnal Kreatif Online*, 3(4).
- Sururi, I., & Wahid, A. (2022). Teams Games Tournament (TGT) Sebagai Metode untuk Meningkatkan Ketrampilan Berbicara pada Siswa Madrasah Ibtidaiyah. *Jurnal Ilmu Sosial Dan Pendidikan (JISIP)*, 6(2), 2414–2420.
- Tanjung, E. S., Theresia, M., & Nurbaiti, N. (2022). Pengaruh Model Pembelajaran Kooperatif Tipe Teams Games Tournament (TGT) terhadap Hasil Belajar Matematika Materi Bangun Ruang Kelas V SD Muhammadiyah 1 Padangsidempuan. *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)*, 2(2), 22–28.
- Tursinawati, T. (2016). Penguasaan Konsep Hakikat Sains dalam Pelaksanaan Percobaan pada Pembelajaran IPA di SDN Kota Banda Aceh. *Pesona Dasar: Jurnal Pendidikan Dasar Dan Humaniora*, 2(4), 72–84.

Waruwu, M. (2023). Pendekatan Penelitian Pendidikan: Metode Penelitian Kualitatif, Metode Penelitian Kuantitatif dan Metode Penelitian Kombinasi (Mixed Method). *Jurnal Pendidikan Tambusai*, 7(1), 2896–2910.