



Equilibrium: Jurnal Pendidikan
Vol. XIV. Issu 2. Mei-September 2026



Implementation of Project-Based Learning Through a Cooperative Approach to Improve Student Activities and Learning Outcomes

¹Wanda Dea Khairani, ²Roza Thohiri, ³Rini Herliani, ⁴Sondang Aida Silalahi, ⁵Weny Nurwendari

¹Accounting Education Study Program, State University of Medan, Indonesia

E-mail: wandadea1211@gmail.com

²Accounting Education Study Program, State University of Medan, Indonesia

E-mail: rozatho@unimed.ac.id

³Accounting Education Study Program, State University of Medan, Indonesia

E-mail: rininuhaji2013@gmail.com

⁴Accounting Education Study Program, State University of Medan, Indonesia

E-mail : Sondangaidasilalahi140179@gmail.com

⁵Accounting Education Study Program, State University of Medan, Indonesia

E-mail : weny.nurwendry@unimed.ac.id

Article History ; Submitted: 25-04-2026; Accepted: 12-05-2026; Published: 20-05-2026

Abstract. *This study adopted the Project-Based Learning (PjBL) model with a cooperative approach in order to enhance student participation and learning achievement. The research was conducted at SMKN 1 Patumbak, involving all 35 students from class XI AKL 1. The method employed was Classroom Action Research (CAR), which was structured into two cycles, with each cycle consisting of planning, implementation, observation, and reflection phases. Data were collected using student learning activity observation sheets and learning outcome test instruments. The research findings revealed that the application of the cooperative-based PjBL model was able to encourage students to keep progressing over time. This model proved effective, as reflected in the surge of learning activity percentage from 65% in the first cycle to 88% in the second cycle. Student learning outcomes also showed considerable improvement, marked by the pre-test average score of 68.2 which rose to 75.8 in the first cycle, then increased again to 86.7 in the second cycle. Furthermore, classical learning completeness also experienced a jump from 34% to reaching 91%.*

Keywords : *Project-Based Learning; Cooperative Learning; Learning Activities; Learning Outcomes*

Abstrak. *Penelitian ini menerapkan model Project-Based Learning (PjBL) dengan pendekatan kooperatif untuk meningkatkan partisipasi dan hasil belajar siswa. Penelitian dilaksanakan di SMKN 1 Patumbak dengan melibatkan seluruh siswa kelas XI AKL 1 yang berjumlah 35 orang. Metode yang digunakan adalah Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus, di mana setiap siklus terdiri atas tahap perencanaan, pelaksanaan, observasi, dan refleksi. Data dikumpulkan melalui lembar observasi aktivitas belajar siswa dan instrumen tes hasil belajar. Hasil penelitian menunjukkan bahwa penerapan model PjBL berbasis kooperatif mampu mendorong siswa untuk terus mengalami peningkatan dari waktu ke waktu. Model ini terbukti efektif, yang ditunjukkan oleh peningkatan persentase aktivitas belajar dari 65% pada siklus I menjadi 88% pada siklus II. Hasil belajar siswa juga mengalami peningkatan yang signifikan, ditandai dengan rata-rata nilai pre-test sebesar 68,2 yang meningkat menjadi 75,8 pada siklus I, kemudian meningkat kembali menjadi 86,7 pada siklus II. Selain itu, ketuntasan belajar secara klasikal juga mengalami peningkatan dari 34% hingga mencapai 91%.*

Kata kunci: *Project-Based Learning; Pembelajaran Kooperatif; Aktivitas Belajar; Hasil Belajar.*

INTRODUCTION

Learning in schools is a systematic process designed to develop students' knowledge, skills, and attitudes. Learning success is measured not only by students' level of understanding of the material but also by the extent to which they are actively involved during the learning process. Active student engagement can create more meaningful learning experiences and improve learning outcomes (Sardiman, 2018).

Developments in education in the 21st century have brought about a paradigm shift in learning from teacher-centered to student-centered. In this paradigm, students no longer passively receive information but are required to actively construct knowledge through interaction, collaboration, problem-solving, and hands-on learning experiences. This change aligns with the implementation of the Independent Curriculum, which emphasizes active, collaborative, and creative learning, while also developing students' critical thinking and communication skills (Ministry of Education and Culture, 2022). Therefore, teachers are required to implement innovative learning models that support the development of 21st-century competencies, such as critical thinking, creativity, collaboration, and communication.

In the context of 21st-century learning, students in Vocational High Schools (SMK) are not only required to master theory but also to possess practical skills relevant to the needs of the workplace. Financial Accounting subjects are characterized by emphasizing conceptual understanding as well as application skills in real-world situations. Therefore, the learning process needs to be systematically designed to provide students with contextual and meaningful learning experiences. Effective learning must engage students physically and mentally, and encourage interaction between students, teachers, and learning resources (Wina Sanjaya, 2015).

Student engagement in the learning process is a key factor in determining learning success. This engagement can be seen through asking questions, discussing, collaborating in groups, expressing opinions, and solving learning problems. According to Mudjiono (2009), learning quality can be seen from the level of active student participation and the competency attainment achieved. Research by Barokah (2021) shows that students who are active during the learning process tend to achieve better learning outcomes than passive students. Furthermore, learning outcomes also serve as an indicator of students' level of understanding of the material being studied (Wibowo, 2021).

Several recent studies have also shown that the implementation of innovative learning models can improve student activity and learning outcomes. Research conducted by Rahmawati and Nugroho (2022) stated that the Project-Based Learning (PjBL) model can improve critical thinking skills and student engagement in accounting learning. Another study by Sari et al. (2023) showed that project-based learning is effective in improving collaboration and communication skills in vocational high school students. Furthermore, a study by Putri and Wahyudi (2021) found that a cooperative approach can create a more active and interactive learning atmosphere. Research by Lestari et al. (2024) also demonstrated that the implementation of collaborative-based PjBL can significantly improve student learning outcomes. Furthermore, research by Handayani and Pratama (2025) revealed that the integration of PjBL with cooperative learning supports the strengthening of 21st-century competencies in vocational high school students.

However, most previous research has focused more on improving learning outcomes or specific skills in general. Research on the application of the cooperative Project-Based Learning model to Financial Accounting in vocational high schools, particularly those examining improvements in student activity and learning outcomes, is still relatively limited. Therefore, this study is positioned as an extension of previous research, emphasizing the combination of the Project-Based Learning (PjBL) model and a cooperative approach in Financial Accounting learning in class XI AKL 1 students at SMKN 1 Patumbak. This research is expected to provide new contributions to the development of learning strategies that are more relevant to the needs of vocational learning and the Independent Curriculum.

Based on observations in class XI AKL 1 of SMKN 1 Patumbak, it was found that the level of student participation in the learning process was still relatively low. Most students simply listened

and took notes on the teacher's explanations without actively participating in the learning process. Students also lacked the confidence to ask questions, express their opinions, or participate in group discussions. This situation indicates that the learning process still tends to be teacher-centered, thus students' potential for active and critical thinking has not yet developed optimally.

This low level of learning activity impacts student learning outcomes. Data shows that many students still score below the Minimum Completion Criteria (KKM) of 75, thus preventing classical learning completion. This situation demonstrates the urgency of implementing more innovative and active learning models that enhance student engagement. In implementing the Independent Curriculum, teachers are required to create student-centered learning and provide authentic learning experiences through collaborative and project-based activities. Therefore, implementing learning models that meet these demands is crucial for students to optimally develop academic competencies and 21st-century skills.

One alternative learning model that can be implemented is cooperative Project-Based Learning (PjBL). The PjBL model is a learning approach that places projects at the core of learning activities, allowing students to be directly involved in the planning, implementation, and evaluation of projects. Through this model, students can develop critical thinking skills, creativity, problem-solving, and responsibility for assigned tasks (Hosnan, 2014).

The implementation of Project-Based Learning (PjBL) will be more effective when combined with a cooperative approach. Cooperative learning emphasizes collaboration in heterogeneous groups to achieve learning objectives together (Slavin, 2015). Through group activities, students can exchange ideas, discuss, help each other, and improve social and communication skills. Thomas (2000) stated that Project-Based Learning (PjBL) can enhance student learning activities through discussions, group work, and project presentations. Furthermore, project-based learning also provides a more realistic and contextual learning experience, thus positively impacting student learning outcomes (Wena, 2008).

Based on the above description, this study was conducted to determine the extent to which the implementation of the cooperative Project-Based Learning model can improve student activity and learning outcomes in Financial Accounting in class XI AKL 1 of SMKN 1 Patumbak. This study is expected to create a more active, collaborative, and meaningful learning atmosphere, as well as support the implementation of the Independent Curriculum and the development of 21st-century competencies in vocational high school students.

METHODS

This study adopted a Classroom Action Research (CAR) approach. The reason for choosing this method was quite clear: it allowed for improvements to the learning process to be carried out directly in the classroom while simultaneously striving to increase student participation and achievement. As explained by Arikunto (2007), CAR is essentially an activity of observing the teaching and learning process through a series of well-planned actions implemented collaboratively in the classroom. By using CAR, researchers identified the root of learning problems, implement corrective interventions, and then measure their impact in stages. The research took place at SMKN 1 Patumbak in the 2025/2026 academic year, with all 35 class XI AKL 1 students as research subjects.

The research was designed in two cycles, each divided into four phases: planning, action, observation, and reflection. In the first phase, the researcher prepared various learning materials, including teaching modules, student activity observation sheets, and learning outcome test measurement tools. Then, in the action phase, the cooperative Project-Based Learning (PjBL) model was piloted in Financial Accounting learning, focusing on Inventory material. Following this, in the observation phase, in-depth observations were made of student behavior and engagement during the learning activities. Finally, the reflection phase was used to assess the success of the actions taken, detect any obstacles that arose, and develop improvement strategies for the next cycle.

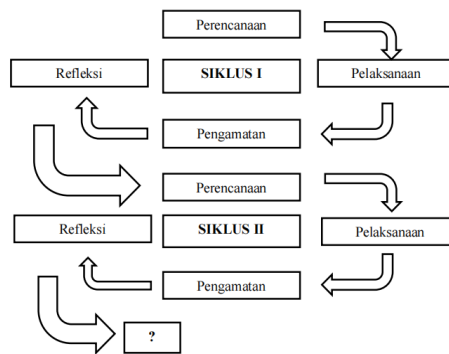


Figure 1. PTK Research Cycle

The classroom action research conducted in this study followed four main steps: planning, implementation, observation, and reflection. These four steps were repeated in each cycle, with the hope that the teaching and learning process could be continuously refined over time, while student participation and achievement also increased. Data collection techniques in this study were conducted through observation and learning outcome tests. Observations were used to observe student activities during the learning process, such as paying attention to teacher explanations, asking questions, discussing, working in groups, taking notes, analyzing problems, and demonstrating enthusiasm for learning. Meanwhile, learning outcome tests were used to measure students' understanding of the material being taught. These tests were administered in the form of a pre-test before the intervention and a post-test at the end of each cycle.

During the observation process, the researcher was assisted by an observer whose role was to observe student activities during the learning process. The observer's role was to record student engagement based on activity indicators compiled on an observation sheet. Observations were conducted directly throughout the learning process, from introductory activities, group discussions, project work, and project presentations. The observer's involvement aimed to obtain more objective data and reduce the subjectivity of assessments that might arise if observations were conducted solely by the researcher. The collected data was then analyzed in two ways: qualitatively and quantitatively. The qualitative approach was used to describe student activity during the learning process, from the level of participation to the interactions that occurred in the classroom. On the other hand, quantitative analysis served to calculate the average score, the percentage of active learning, and the percentage of students who achieved completion. The passing grade was set at a minimum of 75, in accordance with the applicable Minimum Completion Criteria (KKM). Furthermore, the action in this study was considered successful if at least 75% of students fell into the active category, and no less than 75% of the remaining students obtained a score of 75 or above.

Table 1. Student Learning Activity Indicators

No	Activity Indicator	Observed Aspects
1	Visual activities	Pay attention to the teacher's explanation, read the material, and observe the learning process
2	Oral activities	Asking, answering, expressing opinions, and responding to friends' opinions
3	Listening activities	Listen to the teacher's explanation and pay attention to the group presentation
4	Writing activities	Recording materials, writing discussion results, and compiling project reports
5	Mental activity	Analyze problems, understand concepts, and provide solutions
6	Emotional activity	Demonstrate interest, enthusiasm, confidence, and motivation to learn

Table 1 lists indicators of student learning activities used as assessment guidelines during the learning process. These indicators include visual, oral, listening, writing, mental, and emotional activities. These six aspects were deliberately chosen because they were deemed most appropriate for the nature of Financial Accounting learning, which implements a cooperative Project-Based Learning (PjBL) model, particularly in a series of activities such as reading and observing material, discussing, collaborating in groups, working on projects, and presenting work results.

The selection of these indicators also refers to Paul B. Diedrich's view as quoted by Sardiman (2018), which states that learning activities encompass various forms of student involvement during the teaching and learning process, ranging from visual, oral, listening, writing, mental, to emotional activities. In this study, these six dimensions were utilized because they were able to represent student involvement physically, cognitively, and socially during Financial Accounting learning with the application of the cooperative-based PjBL model.

Table 2. Learning Activity Assessment Criteria

Score Category	
4	Very good
3	Good
2	Enough
1	Not enough

The learning activity assessment rubric in Table 2 was used to score students' levels of engagement during learning. Each activity indicator was scored on a scale of 1–4 based on the frequency and quality of student engagement in the learning process. The higher the score, the higher the level of learning engagement demonstrated during the learning process.

Table 3. Criteria for Action Success

Aspect	Success Indicators
Learning activities	At least 75% of students obtain an activity score of ≥ 14
Learning outcomes	At least 75% of students get a score of ≥ 75
Individual completion	Students get scores according to the KKM, namely ≥ 75
Impact of learning	Students are more active, collaborative, and able to complete projects.

Table 3 presents the criteria for successful actions used as a reference in assessing the effectiveness of the research implementation. These criteria focus on two main aspects: increasing learning activities and achieving student learning outcomes. Learning activities are considered successful if the majority of students demonstrate active engagement during the learning process, such as discussions, collaboration, asking questions, answering questions, and completing projects. Meanwhile, learning outcomes are considered successful if students are able to achieve grades in accordance with the Minimum Completion Criteria (KKM) set by the school.

With established success criteria, researchers can measure the extent to which the implementation of cooperative Project-Based Learning (PjBL) has a positive impact on the teaching and learning process. If the number of active students and students achieving completion meets the expected percentage threshold, the action taken can be categorized as successful. Therefore, this table serves as a reference for assessing whether the implemented learning strategy is effective enough to maximize student participation and achievement.

RESULTS AND DISCUSSION

Research Results

The research findings show that the implementation of the cooperative Project-Based Learning (PjBL) model has successfully contributed positively to improving the activities and learning outcomes of class XI AKL 1 students at SMKN 1 Patumbak. These changes for the better are evident from observation records of student activities during the learning activities, as well as from the test scores given in each cycle. Through project-based activities carried out in groups, students appear more enthusiastic in understanding the material, discussing with their group mates, completing assignments together, and presenting the results of group work in front of the class.

a. Student Learning Activities

After the cooperative-based PjBL model was implemented, an increase in student learning activity was observed. In the first cycle, only 23 students, or approximately 65% of the 35 students, were categorized as active or very active. While this figure indicates progress, it is not enough to meet the previously set success target of at least 75% of students being active.

In the first cycle, some students still appeared hesitant, unaccustomed to working in groups, and tended to remain silent when asked to ask questions, answer questions, or express their opinions. Based on these findings, several improvements were made in the second cycle, such as clarifying the division of tasks for each group member, increasing the intensity of teacher guidance, and providing more space for students to discuss and present their project results.

Following these improvements, student activity in the second cycle showed a significant increase, with 31 students, or 88%, categorized as active and very active. This increase demonstrates that students are now more engaged in various learning activities, from group discussions and collaboration, asking questions, responding to questions, taking notes, analyzing problems, and presenting project results. In other words, the success indicator for learning activities has been met, as the percentage of active students has exceeded 75%.

Table 4. Summary of Student Learning Activities

Learning Categories	Activity Cycle I Number of Students	Number of Cycle I (%)	Activity Cycle II Number of Students	Number of Cycle II (%)
Very Active	6	17%	14	40%
Active	17	48%	17	48%
Quite Active	7	20%	3	9%
Less Active	5	15%	1	3%
Not active	0	0%	0	0%

Table 4 shows an increase in student learning activity from the first cycle to the second. In the first cycle, only 23 students, or 65% of the 35 students, fell into the active and very active categories. After several refinements in the second cycle, the number of students falling into the active and very active categories rose to 31, or 88%.

This increase demonstrates that the implementation of cooperative Project-Based Learning (PjBL) is effective in encouraging student engagement in the teaching and learning process. Students began to show greater enthusiasm in various activities, such as group discussions, assignments, collaboration, Q&A sessions, and project presentations. Therefore, student activity in the second cycle met the success indicator, as the percentage of active students exceeded the established minimum threshold.

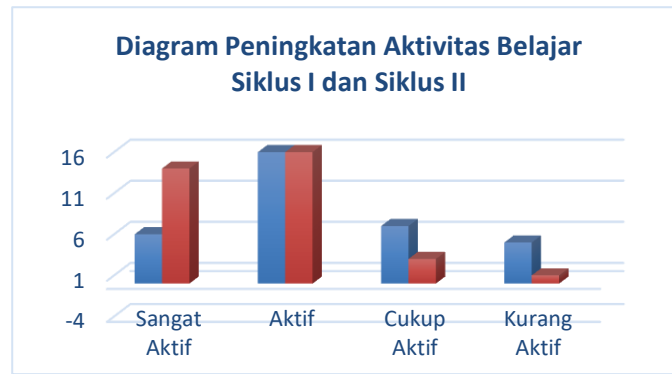


Figure 2. Graph of Increase in Student Learning Activities

The graph in Figure 2 shows an increase in student learning activity from cycle I to cycle II. The percentage of students in the active and very active categories increased from 65% to 88%. This indicates that the implementation of the cooperative Project-Based Learning (PjBL) model can increase student engagement throughout the learning process.

Analysis of Student Activities Based on Indicators

Based on observations, improvements in student learning activity were evident across each activity indicator. In the visual activity indicator, most students began to focus on the teacher's explanations and read the assigned project materials. In the oral activity indicator, students began to demonstrate courage in asking questions, answering questions, and expressing opinions during group discussions.

Listening activity also improved, as evidenced by students' attentiveness to the teacher's explanations and other groups' presentations. In the writing activity indicator, students were actively taking notes on important material and compiling project reports with their groups.

Furthermore, students' mental activity increased as they began to analyze problems and find solutions to complete projects. Emotionally, students appeared more enthusiastic, confident, and motivated to participate in learning compared to before the implementation of the cooperative Project-Based Learning (PjBL) model.

b. Student Learning Outcomes

Student learning outcomes also improved after the cooperative Project-Based Learning (PjBL) model was piloted. Prior to the intervention, pre-test results showed that the average student score remained stagnant at 68.2, with only 34% classical completion. This figure indicates that most students had not yet achieved the Minimum Completion Criteria (KKM) of 75.

After the first cycle of actions was implemented, the average student score rose to 75.8, with the completion percentage increasing to 60%. This increase indicates that the implementation of cooperative-based PjBL has begun to have a positive impact on student understanding, although the overall classical completion has not yet fully reached the predetermined success target.

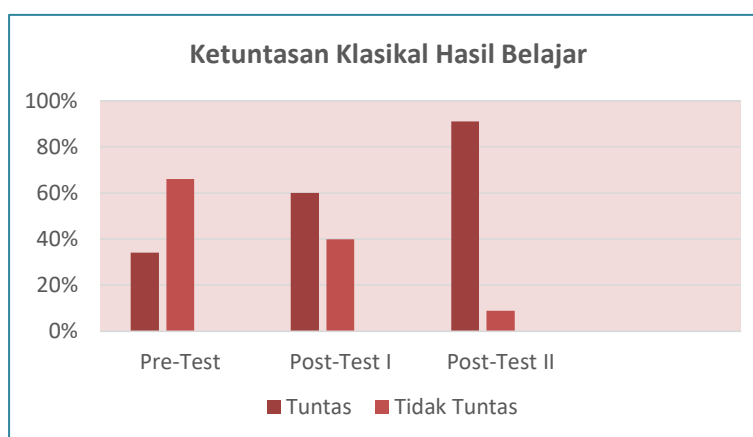
In the second cycle, student achievement showed even more striking progress. The average student score reached 86.7, while the classical mastery rate jumped to 91%. These findings suggest that most students had a sufficient understanding of the material after participating in cooperative project-based learning. In other words, the implementation of cooperative-based PjBL has proven effective in gradually improving student learning outcomes, from the initial stage to the end of the second cycle.

Table 5. Summary of Student Learning Outcomes

Test Types	Average value	Completed Students	Number of Completed (%)	Incomplete Students	Number of Not Completed (%)
Pre-test	68.2	12	34%	23	66%
Post-test I	75.8	21	60%	14	40%
Post-test II	86.7	32	91%	3	9%

Table 5 reveals that student learning outcomes continued to increase gradually, from before the intervention until the end of the second cycle. In the pre-test phase, only 12 students, or 34%, successfully achieved learning completion, while the remainder fell below the Minimum Completion Criteria (KKM). After the cooperative Project-Based Learning (PjBL) model was implemented in the first cycle, the number of students graduating increased to 21, or 60%. This increase indicates that project-based learning is effective in helping students understand the material more deeply. Then, in the second cycle, learning completion jumped significantly to 32 students, or 91%.

This improvement demonstrates that the implementation of cooperative-based PjBL has a positive impact on student learning outcomes. Through project activities, group discussions, collaboration, and presentations, students more easily understand Financial Accounting material because they are directly involved in the learning process.

**Figure 3. Graph of Improvement in Student Learning Outcomes**

Based on Figure 3, it can be seen that student learning outcomes improved in each cycle. Learning completion increased from 34% in the pre-test to 60% in cycle I and again to 91% in cycle II. This improvement indicates that the implementation of the cooperative Project-Based Learning (PjBL) model is effective in helping students understand Financial Accounting material.

Discussion

The increase in student activity and learning outcomes demonstrates that the implementation of cooperative Project-Based Learning is able to create a more active learning process and directly involve students. In this model, students not only act as recipients of information, but also as the main actors in the learning activities. Students are given the opportunity to understand problems, design project solutions, collaborate in groups, divide tasks, discuss, find solutions to problems, and present the results of their group work. These activities make learning more meaningful because students gain direct and contextual learning experiences.

In cycle I, learning implementation was not yet optimal. Some students still appeared hesitant, unaccustomed to expressing their opinions, and tended to rely on more active group members. Furthermore, some students were still reluctant to ask questions or respond to questions raised during the lesson. This situation indicates that students still need to adapt to cooperative project-based learning.

During the learning process in Cycle I, student behavior tended to be passive and lacked confidence. Some students appeared to simply follow the directions of their group mates without making a full contribution to discussions or project completion. However, after improvements were made in Cycle II, student behavior began to show more positive changes. Students appeared more active in discussions, expressed their ideas boldly, and demonstrated better cooperation in completing group projects. Furthermore, the learning atmosphere became more lively as students appeared more enthusiastic, confident, and directly involved in each stage of the learning process.

Based on the reflection results from cycle I, several improvements were made in cycle II, such as providing more detailed task explanations, clearer role allocation within groups, increasing the intensity of teacher guidance, and providing students with more opportunities to discuss and present project results. Following these improvements, students began to show positive changes. They appeared more enthusiastic, confident, able to work collaboratively, and more confident in expressing their opinions and responding to ideas from their group mates.

The increase in student learning activities has a positive impact on learning outcomes. When students actively observe, discuss, record, analyze problems, and present project results, their understanding of Financial Accounting material also improves. This is evident in the increase in students' average scores, from 68.2 in the pre-test to 75.8 in cycle I and again to 86.7 in cycle II. Classical completion also increased from 34% in the initial stage to 91% at the end of cycle II.

Thus, the implementation of cooperative Project-Based Learning has been proven to improve the activity and learning outcomes of class XI AKL 1 students at SMKN 1 Patumbak. This learning model is able to create a more active, collaborative, and student-centered learning atmosphere, making it suitable for application in Financial Accounting learning.

CONCLUSION

From the implementation of classroom action research that has taken place, several conclusions can be drawn as follows:

1. The implementation of the Project-Based Learning (PjBL) model combined with a cooperative approach has proven effective in enhancing student learning activities. This is evident in the increasing student engagement throughout the learning process, from active group discussions, boldly expressing opinions, to participating in presentations. In the second cycle, the increase in learning activities was significantly more evident than in the first cycle, characterized by a more dynamic, communicative, and interactive classroom atmosphere.
2. The implementation of the Project-Based Learning (PjBL) model with a cooperative approach also had a positive impact on improving student learning outcomes. This was evidenced by students' deepened understanding of the material and their ability to solve problems more accurately, systematically, and structuredly after improvements were made in the second cycle.
3. The Project-Based Learning (PjBL) model, with its cooperative approach, develops collaborative skills while enhancing students' self-confidence during the learning process. Students become more accustomed to working in groups, dividing tasks, and helping each other understand the material. Furthermore, students' self-confidence also increases, as evidenced by their confidence in asking questions, answering questions, and presenting discussion results to the class.

REFERENCES

- A. (2014). Pentingnya berpikir kritis dalam kehidupan sehari-hari. *Jurnal Pendidikan dan Masyarakat*, 8(1), 40-50.
- A.M, Sardiman (2016). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta : PT Raja Grafindo
- Agus, Suprijono. 2013. *Cooperative Learning Teori dan Aplikasi PAIKEM*. Yogyakarta: Pustaka Pelajar.
- Al-Tabany, Trianto, I.B. (2017). *Mendesain Model Pembelajaran Inovatif, Progresif, dan Kontekstial*. Jakarta: PT. Kharisma Putra Utama
- Aqib, Jainal dkk. 2017. *Penelitian Tindakan Kelas*. Yogyakarta:AR-Ruzz Media
- Arends, R. I. (2013). *Learning to Teach* (9th ed.). New York: McGraw-Hill.
- Arikunto, S., Suhardjono, & Supardi. (2007). *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara.
- Arikunto, Suharsimi. 2007. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Rineka Cipta.
- Asep Jihad dan Abdul Haris. (2012). *Evaluasi Pembelajaran*. Multi Pressindo.
- Barokah. (2021). Upaya peningkatan motivasi, keaktifan, dan hasil belajar melalui model pembelajaran inkuiri kolaboratif. *Jurnal Inovasi Penelitian Tindakan Kelas dan Sekolah*, 1(2), 45–54.
- Belland, B. R. (2020). *Project-based learning in the STEM classroom: Educational practice and research*. In D. B. Krajcik & R. B. Edelson (Eds.), *Learning and Teaching in the 21st Century*, 23–50.
- Budiningsih, S. E. (2023). Penerapan Project Based Learning Berorientasi Peningkatan Hasil Belajar dan Kemampuan Membuat Laporan Keuangan pada Siswa Vokasi. *Journal of Education Action Research (JEAR)*, 7(2), 245–254. <https://doi.org/10.23887/jea.v7i2.60327>
- Departemen Pendidikan dan Kebudayaan. (2001). *Pedoman penilaian hasil belajar*. Jakarta: Depdikbud.
- Diedrich, Paul B. (2000). Aktifitas Belajar Siswa. Tersedia : <http://binham.wordpress.com/2012/04/aktifitas-belajar-siswa/>
- Dimiyati, & Mudjiono. (2019). *Belajar dan pembelajaran*. Jakarta: Rineka Cipta.
- Djamarah, S. B., & Zain, A. (2010). *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta.
- Endang Poerwanti, dkk. (2008). *Asesmen Pembelajaran SD*. Jakarta: Depdiknas.
- Faudati, M., Septiyanti, I. F., Sholihin, A., Dewi, N. A. K., & Nisa, A. F. (2024). Penerapan model *Project Based Learning* (PjBL) dalam meningkatkan kreativitas dan hasil belajar IPA siswa kelas V sekolah dasar. *Natural: Jurnal Ilmiah Pendidikan IPA*.

- Feniuntari, T. (2019). *Penerapan model pembelajaran kooperatif tipe Student Teams Achievement Divisions (STAD) berbantu Roll Spin Accounting untuk meningkatkan hasil belajar siswa kelas X Akuntansi 2 SMK YPKK 2 Sleman Tahun Ajaran 2018/2019* (Skripsi). Program Studi Pendidikan Akuntansi, Fakultas Ekonomi, Universitas Negeri Yogyakarta.
- Hamalik, O. (2011). *Proses Belajar Mengajar*. Jakarta: Bumi Aksara.
- Haryati, Sri. (2012). *Model dan Teknik Penilaian pada Tingkat Satuan Pendidikan*. Yogyakarta: Penerbit Prestasi Pustaka.
- Herliani, Boleng, D. T., & Maasawet, E. T. (2021). *Teori Belajar dan Pembelajaran*. Penerbit Lakeisha .
- Hosnan, M. (2014). *Pendekatan Sainifik dan Kontekstual dalam Pembelajaran Abad 21*. Bogor: Ghalia Indonesia.
- Ibrahim, M. (2012). *Pembelajaran Kooperatif: Teori, Praktik, dan Penilaian*. Surabaya: UNESA Press.
- Ibrahim, M. dkk. 2000. *Pembelajaran Kooperatif*. Surabaya: University Press.
- Jihad, A., & Haris, A. (2012). *Evaluasi Pembelajaran*. Yogyakarta: Multi Pressindo.
- Johnson, D. W., Johnson, R. T., & Holubec, E. J. (2017). *Cooperation in the classroom* (9th ed.). Interaction Book Company.
- Kemendikbud. 2022. *Merdeka belajar. Tanya jawab kurikulum merdeka*. Jakarta: kemendikbud RI.
- Kementerian Pendidikan dan Kebudayaan. (2017). *Model Pembelajaran Berbasis Proyek (Project Based Learning)*. Jakarta: Kemdikbud.
- Kieso, et al. (2018). *Third Edition Intermediate Accounting IFRS Edition*. United States. Wiley.
- Masgumelar, N. K., & Mustafa, P. S. (2021). *Teori belajar konstruktivisme dan implikasinya dalam pendidikan dan pembelajaran*. GHAITSA: Islamic Education Journal, 2(1), 49-57. <https://doi.org/10.33853/ghaitsa.v2i1.161>
- Merakai. *Jurnal Ilmiah Aquinas*, 4(1), 60–64. <https://doi.org/10.54367/aquinas.v4i1.974>
- Meriana, & Buyung, A. (2025). *Penerapan Model Project Based Learning untuk Meningkatkan Kolaborasi dan Prestasi Belajar pada Mata Pelajaran Akuntansi*. Tesis. Bengkulu: Universitas Bengkulu.
- Mulyani Sumantri, & Permana, J. (1999). *Strategi Belajar Mengajar*. Jakarta: Depdikbud.
- Nerita, S., Ananda, A., & Mukhaiyar, M. (2023). *Pemikiran Konstruktivisme Dan Implementasinya Dalam Pembelajaran*. *Jurnal Education and Development*, 11(2), 292– 297. <https://doi.org/10.37081/ed.v11i2.4634>
- Rahayu, L. (2020). *Pengaruh aktivitas belajar siswa dalam penerapan model Project Based Learning (PjBL) berbasis saintifik terhadap hasil belajar akuntansi*. *Action Research Journal Indonesia (ARJI)*, 2(1).

- Salamun. (2022). *Model-model pembelajaran inovatif*. Yogyakarta: Penerbit Pendidikan.
- Sanjaya, W. (2013). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.
- Sanjaya, W. (2016). *Perencanaan dan Desain Sistem Pembelajaran*. Jakarta: Kencana.
- Sardiman, A. M. (2014). *Interaksi dan motivasi belajar mengajar*. Jakarta: Rajawali Pers.
- Sardiman, A. M. (2016). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: RajaGrafindo Persada.
- Sardiman. 2018. *Indikator Motivasi Belajar*. Jakarta: Raja Grafindo Persada
- Slameto. (2010). *Belajar dan faktor-faktor yang mempengaruhinya*. Jakarta: PT Rineka Cipta.
- Slavin,R. (2015). *Cooperative Learning Teori, Riset dan Praktik*. Bandung: Nusa Media
- Sudjana, N. (2009). *Penilaian Hasil Proses Belajar Mengajar*. Bandung: Remaja Rosdakarya.
- Sudjana, Nana. 2009. *Penilaian Hasil Proses Belajar Mengajar*. Bandung: PT. Remaja Rosdakarya
- Sudjana. (2016). *Metode Statistika*. Bandung: Tarsito.
- Sugiyono. (2009). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.
- Sugiyono. (2019). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
- Suparlan. 2019. "Implementasi Teori Belajar Konstruktivisme Dalam Pembelajaran Sains." *Humanika* Vol.1 No.2: 79–88. <https://ejournal.stitpn.ac.id/index.php/islamika/article/view/208/170>.
- Suprijono, A. (2013). *Cooperative Learning: Teori dan Aplikasi PAIKEM*. Yogyakarta: Pustaka Pelajar.
- Suprijono, A. (2016). *Model-Model Pembelajaran Emansipatoris*. Yogyakarta: Pustaka Pelajar.
- The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83(2), 39–43.
- Thohiri, R., & Yuni, R. (2020). *Problem based Learning Module's on Tax Education*.
- Thomas, J. W. (2000). *A Review of Research on Project-Based Learning*. San Rafael, CA: Autodesk Foundation.
- Trianto. (2017). *Model Pembelajaran Terpadu: Konsep, Strategi, dan Implementasinya dalam Kurikulum Tingkat Satuan Pendidikan*. Jakarta: Bumi Aksara.
- Trianto.2011. *Model – Model Pembelajaran Inovatif Berorientasi Konstruktivistik*. Jakarta : Prestasi Pustaka.
- Wena, M. (2013). *Strategi Pembelajaran Inovatif Kontemporer*. Jakarta: Bumi Aksara.

Wibowo, D. C., Ocberti, L., & Gandasari, A. (2021). Faktor-faktor yang memengaruhi hasil belajar matematika siswa sekolah dasar. *Jurnal Pendidikan Dasar*, 12(2), 85–94.

Wibowo, D. C., Ocberti, L., & Gandasari, A. (2021). Studi Kasus Faktor-Faktor yang Mempengaruhi Hasil Belajar Matematika di SD Negeri 01 Nanga. <https://doi.org/10.21009/JPD.012.09>