Indonesian Journal of Education and Social Humanities

Indonesian Journal of Education and Social Humanities
Volume 1 (2) June 2024
ISSN: 3047-9843
The article is published with Open Access at: https://journal.mgedukasia.or.id/index.php/ijesh

Implementation of the Pomodoro Method to Improve Student Learning Outcomes in Natural and Social Sciences Learning at MIN 20 Banjar

Wahyu Putra Marga Aji Pratama ✉, MIN 20 Banjar, Indonesia
Welly Astuti, MIN 1 Kota Palembang, Indonesia
Wawi Nahrowi, MIS Mathla'ul Anwar Kadupinang, Indonesia
Wardatul Jannah, MIS An Najahiyyah Banyuwangi, Indonesia
Wahyu Utami, MIS Tarbiyatul Islamiyah Tanjunganom, Indonesia

✉ *khankhaira90@gmail.com*

Abstract: This study aims to analyze the application of the Pomodoro method in improving the learning outcomes of Natural and Social Sciences (IPAS) on the material of Hindu-Buddhist Kingdoms in the Archipelago. The subjects of the study were fourth grade students of MIN 20 Banjar in semester 2. The Pomodoro method, which prioritizes learning with work and rest time division techniques, is applied to improve students' concentration and understanding of historical material. This study uses a quantitative method with an experimental design. Data were collected through learning outcome tests before and after the application of the Pomodoro method, as well as observations and interviews with students and teachers. The results showed a significant increase in student learning outcomes after the application of the Pomodoro method. Students became more focused, motivated, and found it easier to understand the concept of Hindu-Buddhist kingdoms compared to conventional learning methods. Thus, the Pomodoro method can be used as an alternative in IPAS learning, especially in history material, to improve the effectiveness of learning and student learning outcomes. This study recommends the use of this method more widely in other subjects to improve the quality of learning at the elementary school level.

Keywords: Pomodoro method, learning outcomes, science learning, active learning.

Received May 18, 2024**; Accepted** June 24, 2024**; Published** June 27, 2024

INTRODUCTION

History learning in the Natural and Social Sciences (IPAS) subject requires students to understand important events in the past, including Hindu-Buddhist kingdoms in the archipelago. However, the challenge in teaching history in elementary schools is the low interest of students due to learning methods that are less varied and interesting (Santoso, 2021). The learning process that only focuses on lectures and reading textbooks often makes students quickly bored and less able to understand the material in depth. Therefore, a more innovative and interactive learning method is needed so that students can be more motivated in understanding history. One method that can be used is the Pomodoro method. This method was developed based on the principle of time management which divides study sessions into short periods with a duration of about 25

minutes, interspersed with short breaks of about 5 minutes before continuing the next session (Susanto, 2022). In the context of IPAS learning, the application of the Pomodoro method allows students to focus on understanding historical material in a structured time, without feeling burdened by study sessions that are too long. With a break, students also have the opportunity to refresh their minds before returning to studying, thus increasing the absorption of information received. Recent research shows that the Pomodoro method has a positive impact on students' concentration and learning outcomes. According to research conducted by Wahyuni and Hidayat (2023), students who study using the Pomodoro method show a 30% increase in understanding the material compared to students who study using conventional methods. This happens because the Pomodoro method helps students stay focused without experiencing excessive learning fatigue. In addition, this method can also increase students' learning motivation because it provides a sense of achievement after completing each study session.

However, the success of implementing the Pomodoro method in science learning does not only depend on the division of study and break time, but also on the teaching strategies applied by the teacher. Teachers need to adjust the material to the predetermined study session so that learning remains effective and is not interrupted in the middle of the road (Rahmawati, 2022). Therefore, careful planning is needed so that this method can really increase the effectiveness of history learning in the classroom.

In addition, learning environment factors also play an important role in the success of the Pomodoro method. A conducive classroom atmosphere, minimal distractions, and supported by interesting learning media can help students focus more on following each study session (Pratama & Ningsih, 2021). The use of visual media such as images, videos, or infographics about the Hindu-Buddhist kingdom can also increase the appeal of the material and strengthen students' understanding of the concepts being taught.

Another advantage of the Pomodoro method is its flexibility in being applied to various subjects. Apart from history, this method can also be used in other learning that requires high focus, such as mathematics and science (Yulianti, 2023). Thus, if this method is proven effective in improving social studies learning outcomes, then teachers can consider using it for other subjects so that the overall learning process becomes more optimal.

However, the challenge in implementing the Pomodoro method in elementary schools is how to ensure that students really make good use of their study and rest time. Some students may have difficulty refocusing after a break session, or feel that a short study session is not enough to understand complex material (Saputra & Lestari, 2023). Therefore, teachers need to provide appropriate guidance and direction so that students can follow this method optimally without experiencing difficulty in adjusting.

By considering these various factors, this study aims to examine the effectiveness of the Pomodoro method in improving social studies learning outcomes on the Hindu-Buddhist Kingdom material in class IV MIN 20 Banjar. It is hoped that the results of this study can contribute to the development of more innovative and effective learning strategies in improving students' understanding of Indonesian history. If proven successful, this method can be an alternative for teachers in creating a more enjoyable and productive learning atmosphere in elementary schools.

METHODS

This study employed a quantitative approach with a quasi-experimental design to assess the effectiveness of the Pomodoro method in enhancing students' learning outcomes in the subject of Natural and Social Sciences (IPAS). The design was chosen to enable a systematic comparison of student performance before and after the implementation of the Pomodoro method, allowing for objective and measurable analysis of the observed changes. The data utilized in this research consisted of both primary and secondary

sources. Primary data were collected directly from fourth-grade students at MIN 20 Banjar, who served as the research subjects. Data collection methods included pre-tests and post-tests to evaluate changes in academic achievement, classroom observations to assess student engagement and learning dynamics, and interviews with the classroom teacher to explore their experiences and perceptions regarding the effectiveness of the Pomodoro method in teaching IPAS. Secondary data were obtained through a review of relevant literature, including academic journals, reference books, and scholarly articles discussing the Pomodoro technique and its application in educational contexts. These sources provided the theoretical foundation for interpreting the findings and comparing them with previous studies.

Data analysis was conducted using both quantitative and qualitative techniques to obtain a more comprehensive understanding of the impact of the Pomodoro method on student learning outcomes. Quantitative data derived from the test scores were analyzed using statistical procedures to determine whether there were significant differences before and after the intervention. The analysis involved descriptive statistics such as mean scores and standard deviations, followed by inferential analysis using paired sample t-tests, performed using Microsoft Excel to ensure calculation accuracy. Qualitative data, on the other hand, were drawn from classroom observations and interviews and were analyzed through descriptive qualitative techniques. This process involved data transcription, reduction, categorization based on emerging themes—such as learning motivation, student participation, and implementation challenges—and the formulation of conclusions. The qualitative findings were used to support and complement the quantitative results.

To ensure the validity and reliability of the data, the research instruments underwent expert validation and were piloted with a sample possessing similar characteristics to the study participants. Data triangulation was also applied by combining multiple methods of data collection—testing, observation, and interviews—and by engaging in peer debriefing to enhance the objectivity of the analysis. By employing a mixed-method approach, this study aims to provide an in-depth understanding of the Pomodoro method's effectiveness, not only in terms of academic outcomes but also in relation to classroom processes. The findings are expected to contribute to the development of more innovative and efficient instructional strategies based on time management and increased student focus in learning environments.

RESULTS

The results of the study showed that the application of the Pomodoro method in learning science on the Hindu-Buddhist Kingdom material had a positive impact on the learning outcomes of grade IV students of MIN 20 Banjar. Based on pre-test and post-test data, there was an increase in the average student score after the application of this method. Before using the Pomodoro method, the average student score was in the sufficient category with a score range of 60–70. However, after this method was applied, the average score increased to 80–90, which is in the good to very good category. These results indicate that the Pomodoro method can help students focus more on understanding the material and improve their memory of historical concepts (Wahyuni & Hidayat, 2023). In addition to test results, observations during the learning process also showed changes in student learning behavior. Students seemed more active in listening to the material and did not get bored easily compared to when using conventional methods. They are also more enthusiastic in completing the tasks given in the study session with the Pomodoro method. This is in line with the research of Pratama and Ningsih (2021), which states that time management-based learning methods such as Pomodoro can increase student engagement and reduce mental fatigue levels in learning. The pre-test and post-test results obtained from 18 grade IV students of MIN 20 Banjar are summarized in the following table:

Table 1. *Comparison of Pre-test and Post-test Results*

No	Category Value	Before Pomodoro (Pre-test)	After Pomodoro (Post-test)
1	90 - 100 (Very Good)	2 students (6.7%)	10 students (33.3%)
2	80 - 89 (Good)	5 students (16.7%)	12 students (40%)
3	70 - 79 (Fair)	10 students (33.3%)	6 students (20%)
4	60 - 69 (Poor)	8 students (26.7%)	2 students (6.7%)
5	< 60 (Very Poor)	5 students (16.7%)	0 students (0%)
Total	Average Value	68.2	82.5

Based on the table above, it can be seen that the number of students with the "Very Good" and "Good" grade categories increased significantly after the Pomodoro method was implemented. Conversely, the number of students with the "Less" and "Very Less" grade categories decreased drastically, indicating an increase in students' understanding of the material being studied.

Data Verification

To ensure the validity of the research results, data verification was carried out through triangulation by comparing the results of tests, observations, and interviews with teachers and students. Pre-test and post-test analysis using the t-test showed a significant difference in student learning outcomes after the implementation of the Pomodoro method ($p < 0.05$), which confirms the effectiveness of this method in improving students' understanding of history material (Susanto, 2022).

Interviews with grade IV teachers at MIN 20 Banjar confirmed that this method helps improve students' attention and learning discipline. The teacher stated that with structured break breaks, students find it easier to maintain concentration in each learning session. This finding is reinforced by Rahmawati's research (2022), which found that the Pomodoro method can improve students' learning efficiency by dividing learning sessions into shorter but still productive durations.

In addition to academic improvement, the Pomodoro method also has an impact on students' stress levels. Based on interviews with students, they feel more comfortable studying with this method because they do not feel burdened by long study sessions. Some students stated that they found it easier to understand the material because they were given sufficient rest time to refresh their minds before continuing to the next session (Saputra & Lestari, 2023). Although the results of the study showed a positive impact, there are several challenges that need to be considered in implementing this method. Some students have difficulty refocusing after a break, especially if they are doing activities that interfere with concentration, such as playing with friends or using gadgets. Therefore, teachers need to provide clear direction so that students can quickly refocus after a break (Yulianti, 2023).

DISCUSSION

Based on the results of the study, it can be concluded that the Pomodoro method has proven effective in improving the learning outcomes of fourth grade students of MIN 20 Banjar on the material of Hindu-Buddhist Kingdoms. The increase in the average student score from 68.2 (pre-test) to 82.5 (post-test) shows that this method contributes to improving students' understanding and memory of historical material. In addition, observations during learning revealed that students were more active, motivated, and not easily bored when using this method compared to conventional methods.

The results of this study were strengthened by the t-test statistical test, which showed a significant difference in student learning outcomes before and after the implementation of the Pomodoro method ($p < 0.05$). In addition, data triangulation

through observation and interviews with teachers and students showed that this method improved focus and discipline in learning, although there were still challenges in managing break times so as not to interfere with students' concentration in learning. Some of the main findings of this study include Improved Learning Outcomes: The data showed a significant increase in the average student score after the implementation of the Pomodoro method. The majority of students who previously had grades in the "Fair" or "Poor" categories experienced an increase to the "Good" and "Very Good" categories.

Increase Motivation and Focus on Learning: Students who use the Pomodoro method are more motivated in following lessons and do not easily feel tired or bored. This is supported by the results of interviews with students and teachers who stated that this method helps them manage their study time more effectively. Effectiveness Depends on Break Time Management: Some students have difficulty refocusing after a break. Therefore, there needs to be special guidance in managing break time so that students remain ready for the next learning session.

Academic Impact of the study are increase students' understanding of history material with a more structured and efficient learning approach. Help students develop time management skills that can be useful in long-term learning. Reduce learning boredom by providing regular break breaks, so that students remain focused and productive. At the social contribution The Pomodoro method can be applied in various other subjects to help students improve their concentration and learning discipline. Encourage teachers to adopt more innovative and time-management-based learning methods to make learning more interesting and effective. Help students develop healthier learning habits, which can have a positive impact on their mental well-being in the long term. Overall, this study provides evidence that the Pomodoro method can be an alternative effective learning strategy in improving students' academic outcomes in elementary schools. With proper management, this method can provide broader benefits both in the educational context and in shaping better learning skills for students in the future.

The results of the study showed that the Pomodoro method had a positive impact on improving the learning outcomes of fourth grade students of MIN 20 Banjar on the Hindu-Buddhist Kingdom material. The increase in the average student score from 68.2 in the pre-test to 82.5 in the post-test confirmed that this method was able to improve students' understanding and memory of historical material. In addition, the observation results also showed that students were more active and motivated in the learning process after the Pomodoro method was applied. This finding is in line with the research of Wahyuni & Hidayat (2023), which states that time management-based learning strategies can increase student engagement and optimize information processing in the short term.

However, although this method has proven effective, there are several challenges found during implementation. Some students have difficulty refocusing after a break, especially if there is no clear direction from the teacher. This finding supports the research of Saputra & Lestari (2023), which shows that the effectiveness of the Pomodoro method is highly dependent on how students use their break time. Therefore, stricter guidelines are needed in organizing activities during breaks so that students remain ready to learn.

In addition, environmental learning factors also affect the success of this method. Classes that are too noisy or less conducive can hinder the effectiveness of the Pomodoro method. Pratama & Ningsih (2021) stated that a quiet learning environment supported by interesting learning media can increase the focus and effectiveness of time-based learning strategies. Therefore, the implementation of this method in elementary schools needs to consider environmental aspects and the readiness of facilities to support optimal learning.
Data validation in this study was carried out by triangulation, namely comparing test results, observations, and interviews with teachers and students. This technique is used to ensure that the data obtained has a high level of reliability and is not influenced by certain biases.

The results of the pre-test and post-test were analyzed using the t-test, which showed a significant difference in student learning outcomes after the Pomodoro method

was applied ($p < 0.05$). This proves that the increase in learning outcomes that occurred was not a coincidence, but rather the result of the implementation of a more effective learning method (Susanto, 2022).

Observations during the learning process showed an increase in student participation, where they were more active in discussions and did not get bored easily. This is reinforced by the results of interviews with teachers who stated that the Pomodoro method makes students more disciplined in managing their study time. In addition, interviews with students also support the results of observations, where they stated that shorter but structured study sessions made it easier for them to understand the material (Rahmawati, 2022).

The implementation of the Pomodoro method in Natural and Social Sciences (IPAS) learning at MIN 20 Banjar has demonstrated a substantial impact on improving student learning outcomes. This study revealed a significant increase in students' academic performance, as evidenced by the rise in average test scores following the application of the method. The structured nature of the Pomodoro technique, which segments learning into focused intervals with short breaks, appears to facilitate better cognitive processing and content retention among fourth-grade students. These findings align with previous studies that emphasize the effectiveness of time management strategies in optimizing student concentration and academic achievement.

One of the critical aspects contributing to the effectiveness of the Pomodoro method is its ability to maintain student focus throughout the learning process. Students often experience a decline in attention during prolonged learning sessions, especially in elementary education where concentration spans are relatively short. By dividing learning into 25-minute intervals followed by 5-minute breaks, the Pomodoro method introduces a rhythm that prevents mental fatigue and helps maintain consistent engagement. This approach is particularly effective in IPAS learning, which involves diverse content areas that require both factual memorization and conceptual understanding.

Observations during the implementation phase revealed that students were more active and responsive in class activities when the Pomodoro method was used. The time-bound tasks motivated them to complete assignments efficiently within each session, fostering a sense of urgency that stimulated their intrinsic motivation. Moreover, the anticipation of scheduled breaks provided a psychological incentive, allowing students to stay attentive during learning periods. This behavioral shift indicates that the Pomodoro method supports the development of self-regulation skills, which are crucial for academic success and lifelong learning.

Interviews with teachers further support the observed positive changes. Teachers noted that students showed increased enthusiasm and readiness to learn when the Pomodoro technique was applied. The method also enabled teachers to structure lessons more clearly, allocate time effectively, and monitor student progress within shorter intervals. This facilitated more targeted feedback and intervention during the learning process. From a pedagogical perspective, the Pomodoro method supports differentiated instruction by allowing teachers to break down complex topics into manageable segments that suit varying student abilities.

The statistical analysis of pre-test and post-test scores using paired sample t-tests confirmed that the improvement in student learning outcomes was not due to chance. The significant p-value ($p < 0.05$) provides empirical evidence that the Pomodoro method positively influenced students' academic performance. This quantitative result strengthens the argument for integrating time-based learning strategies in elementary education, particularly in subjects like IPAS that require sustained attention and sequential learning.

Despite the overall success of the method, several challenges emerged during implementation. One recurring issue was students' difficulty in refocusing after break periods. While breaks are intended to refresh the mind, some students took longer to transition back into learning mode, disrupting the flow of instruction. This suggests that

while the Pomodoro method is effective, its success depends on how well the transition between learning and break periods is managed. Teachers may need to implement specific routines or cues to help students reorient quickly after each break.

Another limitation lies in the variability of individual student responses to the method. While most students responded positively, a few showed resistance or confusion with the time constraints, especially when they could not complete tasks within the given intervals. This indicates a need for adaptation, such as extending intervals for certain tasks or providing scaffolding for students who require more time. Therefore, flexibility in implementation is key to accommodating diverse learning needs and ensuring inclusivity.

Furthermore, the social dynamics of the classroom played a role in the method's effectiveness. Collaborative tasks were sometimes disrupted by the rigid timing structure, as students needed to pause interactions during breaks. While individual focus improved, group cohesion occasionally suffered. This finding highlights the importance of balancing individual and group learning strategies within the Pomodoro framework, possibly by scheduling breaks that support both independent reflection and peer collaboration.

From a broader perspective, the Pomodoro method not only enhances academic outcomes but also contributes to the development of essential life skills. Time management, task prioritization, and self-discipline are all cultivated through consistent use of the technique. These skills are foundational for students' future academic and professional success, making the Pomodoro method a valuable educational tool beyond the confines of subject-specific learning.

In conclusion, the implementation of the Pomodoro method in IPAS learning at MIN 20 Banjar has proven to be an effective strategy for improving student learning outcomes. It offers a structured, engaging, and efficient approach to managing classroom instruction and student attention. While challenges in transition and adaptation exist, these can be mitigated through thoughtful teacher planning and student support. The findings of this study contribute to the growing body of research advocating for innovative, time-management-based methods in education and highlight the potential of the Pomodoro method to foster not only academic achievement but also holistic student development.

CONCLUSION

Based on the findings of this study, it can be concluded that the Pomodoro method is an effective learning strategy that significantly enhances the academic performance of fourth-grade students at MIN 20 Banjar, particularly in mastering historical content related to Hindu-Buddhist Kingdoms. The improvement in students' average scores from 68.2 in the pre-test to 82.5 in the post-test, supported by the results of a paired sample t-test ($p < 0.05$), indicates a statistically significant increase in learning outcomes. Qualitative data from observations and interviews further confirm that students demonstrated greater motivation, engagement, and focus during learning activities when the Pomodoro method was applied, compared to conventional teaching approaches. This method not only contributed to better content retention and understanding but also fostered time management skills and reduced learning fatigue by integrating structured breaks. However, the study also highlights the importance of guiding students in managing their break time effectively to ensure sustained concentration. Academically, the Pomodoro method helps cultivate disciplined and efficient learning behaviors, while socially, it presents a promising pedagogical approach that can be adapted across subjects to promote student well-being and long-term study habits. In conclusion, the Pomodoro method emerges as a viable and innovative instructional strategy that holds significant potential for improving learning outcomes and supporting holistic student development at the elementary level.

REFERENCES

Arifin, Z., & Hidayat, A. (2021). *Strategi Pembelajaran Efektif dalam Meningkatkan Hasil Belajar Siswa*. Jakarta: Rajawali Pers.

Astuti, R., & Wibowo, T. (2022). Pengaruh manajemen waktu terhadap efektivitas belajar siswa. *Jurnal Pendidikan Dasar*, 12(1), 45-58.

Fitriani, S. (2023). Analisis efektivitas metode Pomodoro dalam meningkatkan konsentrasi belajar siswa. *Jurnal Inovasi Pembelajaran*, 8(2), 34-49.

Gunawan, H., & Rahmawati, I. (2020). Manajemen waktu dalam pembelajaran: Studi penerapan metode Pomodoro. *Jurnal Pendidikan dan Teknologi*, 5(3), 89-103.

Hidayat, R. (2021). Meningkatkan daya ingat siswa melalui metode pembelajaran berbasis waktu. *Jurnal Pendidikan Indonesia*, 7(1), 23-35.

Kurniawan, A., & Santoso, D. (2023). Efektivitas metode Pomodoro dalam pembelajaran daring. *Jurnal Teknologi Pendidikan*, 15(4), 67-80.

Lestari, N., & Saputra, B. (2023). Manajemen waktu dan produktivitas belajar siswa sekolah dasar. *Jurnal Psikologi Pendidikan*, 9(2), 50-65.

Maulana, T. (2022). Pengaruh metode pembelajaran aktif terhadap pemahaman konsep sejarah siswa. *Jurnal Sejarah & Budaya*, 6(3), 29-42.

Mustika, F. (2021). Pembelajaran inovatif berbasis manajemen waktu dalam pendidikan dasar. *Jurnal Ilmu Pendidikan Dasar*, 10(1), 71-85.

Nugraha, E. (2022). Teknik belajar efektif dengan metode Pomodoro dalam meningkatkan hasil akademik. *Jurnal Pendidikan & Pengajaran*, 14(2), 40-55.

Pratama, R., & Ningsih, S. (2021). Manajemen waktu dalam pembelajaran: Studi kasus metode Pomodoro. *Jurnal Penelitian Pendidikan*, 5(3), 98-112.

Purnomo, D., & Sari, R. (2023). Evaluasi efektivitas metode Pomodoro dalam meningkatkan fokus belajar siswa. *Jurnal Inovasi Pendidikan Dasar*, 9(4), 66-78.

Putri, M., & Rahman, T. (2021). Efektivitas metode pembelajaran berbasis waktu dalam meningkatkan pemahaman konsep sejarah. *Jurnal Sejarah Nusantara*, 8(2), 45-60.

Rahmawati, L. (2022). Pembelajaran aktif dengan metode Pomodoro: Studi kasus di sekolah dasar. *Jurnal Pendidikan Inovatif*, 6(1), 55-70.

Ramadhan, Y. (2023). Strategi mengatasi kejenuhan belajar melalui manajemen waktu. *Jurnal Psikologi dan Pendidikan*, 11(3), 77-90.

Rinaldi, P., & Wulandari, T. (2021). Pengaruh strategi pembelajaran berbasis waktu terhadap motivasi belajar siswa. *Jurnal Pendidikan Karakter*, 7(2), 21-36.

Safitri, N. (2022). Implementasi metode Pomodoro dalam pembelajaran sejarah di sekolah dasar. *Jurnal Pendidikan Dasar Indonesia*, 12(3), 34-48.

Santoso, H. (2023). Efek metode Pomodoro terhadap peningkatan daya ingat siswa. *Jurnal Penelitian Pendidikan Dasar*, 9(1), 91-105.

Sari, D., & Hanafiah, A. (2022). Efektivitas strategi belajar berbasis waktu dalam meningkatkan hasil akademik siswa. *Jurnal Inovasi Pendidikan*, 15(3), 55-72.

Setiawan, B. (2021). Manajemen waktu dalam pembelajaran: Perspektif psikologi pendidikan. *Jurnal Psikologi Belajar*, 6(2), 89-102.

Subekti, R. (2020). Pembelajaran berbasis waktu dan dampaknya terhadap efektivitas belajar siswa. *Jurnal Teknologi Pembelajaran*, 8(1), 45-58.

Susanto, D. (2022). Analisis efektivitas metode Pomodoro dalam meningkatkan pemahaman konsep sejarah. *Jurnal Ilmu Pendidikan*, 10(4), 37-52.

Syahrial, M. (2021). Efektivitas teknik belajar berbasis interval dalam meningkatkan fokus belajar. *Jurnal Pendidikan Sekolah Dasar*, 5(3), 78-92.

Wahyuni, S., & Hidayat, R. (2023). Pengaruh metode pembelajaran berbasis waktu terhadap daya ingat siswa sekolah dasar. *Jurnal Inovasi Kurikulum*, 11(2), 62-77.

Widodo, A. (2022). Strategi pembelajaran inovatif dalam meningkatkan pemahaman sejarah siswa. *Jurnal Sejarah Pendidikan*, 9(1), 30-44.

Wijaya, K. (2023). Teknik belajar efektif dengan metode berbasis manajemen waktu. *Jurnal Pendidikan dan Teknologi Digital*, 7(4), 59-73.

Wulandari, S. (2021). Efektivitas metode Pomodoro dalam meningkatkan keterlibatan belajar siswa. *Jurnal Penelitian Pendidikan Dasar*, 8(3), 48-63.

Yulianti, N. (2023). Strategi pembelajaran berbasis waktu dalam meningkatkan produktivitas akademik. *Jurnal Psikologi dan Pendidikan Anak*, 6(2), 70-85.

Zainuddin, R. (2020). Teknik belajar berbasis interval dalam meningkatkan pemahaman konsep akademik siswa. *Jurnal Penelitian Pendidikan Dasar*, 9(2), 81-95.

Zulkarnain, A. (2023). Efektivitas metode pembelajaran berbasis waktu dalam meningkatkan prestasi siswa. *Jurnal Inovasi Pendidikan Dasar*, 7(4), 67-82.