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MINDFULNESS BASED LEARNING (MBL) AS A CATALYST FOR EDUCATIONAL TRANSFORMATION THE BASICS: IMPACT ON STUDENT LEARNING OUTCOMES

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Abstract

This study aims to describe the science learning outcomes after the implementation of Mindfulness Based Learning (MBL) in elementary school students. The study used a quantitative approach with a quasi-experimental design of switching replication type. The subjects were 61 sixth-grade students of SDN Pepe Sedati. Data collection techniques included written tests and observations. Data were analyzed using descriptive statistics, N-Gain scores, and paired sample t-tests. The results showed that the implementation of MBL learning reached 100% with a very good category. The learning outcomes of students in grades VIA and VIB increased significantly. The average score of class VIA increased from 38.3 to 94.3 with an N-Gain of 0.91 in the high category, while class VIB increased from 52.2 to 88.7 with an N-Gain of 0.75 in the high category. Thus, Mindfulness Based Learning effectively improves the science learning outcomes of elementary school students.

Keywords: Mindfulness Based Learning, learning outcomes, elementary school.

Abstrak

Penelitian ini bertujuan mendeskripsikan hasil belajar IPA setelah penerapan *Mindfulness Based Learning* (MBL) pada murid sekolah dasar. Penelitian menggunakan pendekatan kuantitatif dengan desain *quasi experimental type switching replication*. Subjek penelitian adalah 61 murid kelas VI SDN Pepe Sedati. Teknik pengumpulan data meliputi tes tulis dan observasi. Data dianalisis menggunakan statistik deskriptif, N-Gain score, dan paired sample t-test. Hasil penelitian menunjukkan bahwa keterlaksanaan pembelajaran MBL mencapai 100% dengan kategori sangat baik. Hasil belajar murid kelas VIA dan VIB meningkat signifikan. Nilai rata-rata kelas VIA meningkat dari 38,3 menjadi 94,3 dengan N-Gain 0,91 kategori tinggi, sedangkan kelas VIB meningkat dari 52,2 menjadi 88,7 dengan N-Gain 0,75 kategori tinggi. Dengan demikian, *Mindfulness Based Learning* efektif meningkatkan hasil belajar IPA murid sekolah dasar.

Kata kunci: *Mindfulness Based Learning*, hasil belajar, sekolah dasar.

INTRODUCTION

21st-century education demands that students develop self-regulation, emotional management, and focus as part of lifelong learning skills. These demands align with UNESCO's Sustainable Development Goals (SDGs), specifically SDG 4 on quality education and SDG 3 on student mental well-being. Self-regulation plays a crucial role in helping students manage their attention, emotions, and learning behaviors to achieve academic goals. According to Barry J. Zimmerman (2000), self-regulation is a student's ability to consciously plan, monitor, and evaluate their learning process. However, learning in elementary schools still faces various obstacles, such as low concentration, high levels of distraction, and poor emotional control. These conditions impact students' low learning engagement and academic performance. The facts in Pepe Sedati Elementary School (SDN Pepe Sedati) showed that 71.4% of students experienced difficulty focusing and were unable to manage their emotions during learning. Teacher-centered learning also leads to students lacking learning awareness and independence. One approach considered relevant to addressing these issues is Mindfulness-Based Learning (MBL). This approach emphasizes present-moment awareness, focused attention, and non-judgmental acceptance in the learning process.

Research by Lai Kuan Tan et al.(2024) showed that mindfulness-based learning can improve attention, emotional regulation, and academic outcomes for elementary school students. Research by Ayu Ulandari and Muhammad Efendi (2025) also reported that mindfulness learning can improve student concentration and learning outcomes. However, mindfulness research in elementary education still has several gaps. Most previous studies have focused solely on psychological aspects or learning outcomes, using simple pretest-posttest designs, and have not been widely conducted in the context of elementary schools in Indonesia. Furthermore, research linking mindfulness, self-regulation, and learning outcomes simultaneously is still limited. The novelty of this research lies in the integration of Mindfulness-Based Learning as a pedagogical approach that connects cognitive and socio-emotional aspects by strengthening student self-regulation. This study also uses a quasi-experimental switching replication design which is rarely used in basic education research in Indonesia. This study aims to analyze the

influence of Mindfulness-Based Learning on learning outcomes in elementary school students.

The factors influencing learning outcomes in this approach are identified through the STOP phase. The first phase is Stop, where the influencing factor is the student's mindset (growth mindset), where students do not immediately react negatively when experiencing learning difficulties and do not immediately give up when faced with difficult tasks. The second phase is Take a Breath, where the influencing factor is concentration (attention control) so students can improve concentration and reduce learning anxiety. The third phase is Observe, where the influencing factor is metacognitive awareness (awareness of learning strategies) so students are better able to understand the material and improve their learning methods. The final phase is Proceed, where the influencing factor is intrinsic motivation to correct mistakes and achieve learning goals, where students choose more effective learning strategies to improve academic achievement.

METHODS

This study uses a quantitative approach with a quasi-experimental design of switching replication type referring to the quasi-experimental concept of William R. Shadish. This design was used to test the effect of Mindfulness Based Learning (MBL) on self-regulation and student learning outcomes in stages, where all groups received learning treatment. The study was conducted in the even semester of the 2025/2026 academic year at SDN Pepe Sedati. The study population was all 61 sixth-grade students. The study sample consisted of class VIA (30 students) and class VIB (31 students) selected using a class random sampling technique. In the first stage, class VIA received MBL learning and class VIB received conventional learning, then the treatments were exchanged in the second stage. Data collection was carried out through tests and observations. Tests were used to measure science learning outcomes before and after the treatment. Observations were used to determine the implementation of learning. Data were analyzed using descriptive and inferential statistics with the help of SPSS. The analysis includes normality test, homogeneity, N-Gain score, and paired sample t-test at a significance level of 0.05 to determine the effect of Mindfulness Based Learning on self-regulation and student learning outcomes.

RESULTS AND DISCUSSION

The implementation of Mindfulness-Based Learning (MBL) in elementary school science instruction has demonstrated positive results on learning outcomes. Research findings were obtained through learning outcome tests. Observations indicated that the implementation of the MBL approach achieved a very good rating, with a 100% implementation rate. All stages of the STOP technique (Stop, Take a Breath, Observe, Proceed) were implemented according to the lesson plan. In the stop phase, students were able to pause their activities and focus their attention before the lesson began. The take a breath phase helped students practice mindful breathing, creating a calmer and more focused learning environment. The observe phase encouraged students to reflect on their own condition and the learning process they were experiencing, while the proceed phase helped students continue their learning activities more consciously and purposefully. Observations also showed that students became more active, calm, and able to maintain attention throughout the learning process.

Students' science learning outcomes significantly improved after the implementation of MBL. In class VIA, the average pretest score of 38.3 increased to 94.3 on the posttest, with an N-Gain score of 0.91, which is in the high category. Meanwhile, class VIB experienced an increase in average score from 52.2 to 88.7, with an N-Gain score of 0.75, in the high category. The paired-sample t-test results showed a significance value (p-value) <0.05, indicating a significant difference between pretest and posttest scores after implementing mindfulness-based learning. Statistically, these results indicate that the implementation of Mindfulness-Based Learning (MBL) has a positive impact on improving elementary school students' learning outcomes.

The findings of this study indicate that Mindfulness-Based Learning contributes to improved student self-regulation by strengthening learning awareness and attentional control. These results align with Barry J. Zimmerman's theory of Self-Regulated Learning, which states that learning success is influenced by students' ability to consciously control their thoughts, emotions, and learning behaviors. In this study, the STOP technique helped students develop the ability to manage their emotional responses and increase self-control during the learning process. This strengthened students' self-regulation skills, which subsequently impacted their learning, improving learning engagement and academic outcomes. Empirically, these results are supported by the findings of Ulandari and Efendi (2025), who reported a significant increase in students' academic scores after implementing mindfulness-based learning. This research is further supported by Portele (2023), who reported that mindfulness-based neuroeducation in elementary school students demonstrated that mindfulness can improve executive function, attention, and self-control, contributing to improved learning outcomes. Other research also shows that implementing mindfulness techniques can increase elementary school students' learning motivation through mindfulness exercises, breath regulation, and focused attention during learning (Rosita et al., 2024). In the context of this study, increased focus and calmness in learning were seen when students were able to maintain attention longer during learning and showed a decrease in disruptive behavior in class. Improved student learning outcomes indicate that mindfulness impacts not only psychological aspects but also academic achievement. Theoretically, mindfulness helps reduce cognitive load and academic stress, allowing students to optimally absorb and process learning information. These findings align with those of Golubickis et al. (2024), who found that mindfulness can increase students' attention capacity and learning speed, thereby improving learning outcomes.

This study reinforces the view that self-regulation plays a crucial role in mediating the influence of mindfulness on student learning success. Furthermore, the use of a switching replication design provides a methodological contribution that strengthens the validity of the research results while meeting ethical aspects of educational research. All groups received the learning intervention, ensuring that no group missed out on the benefits of mindfulness learning.

Tables, Images and Graphics

The results of this study can be shown through graphs and tables of N Gain score calculations to describe the impact of mindfulness learning on student learning outcomes. Student learning outcomes (pretest-post test) are shown in diagram below:

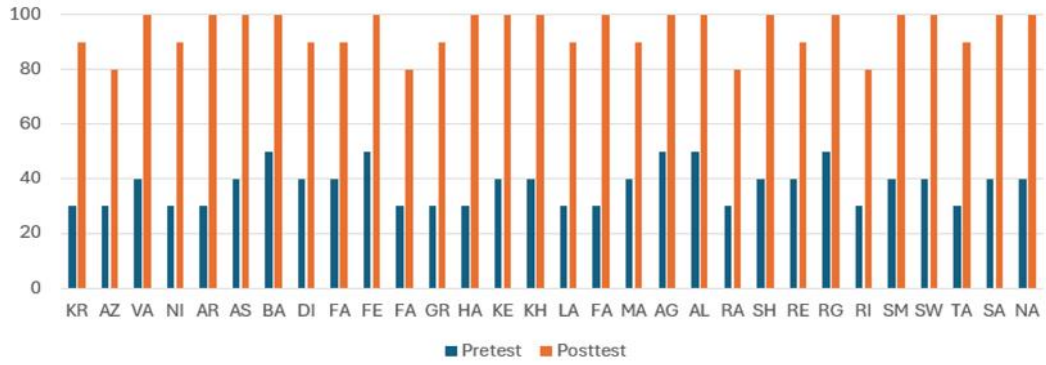


Figure 1. Diagram of Class VI A Student Learning Outcomes

Based on the VIA class diagram, the average post-test score was 94.3, and the average pre-test score was 38.3. The highest post-test score was 100. This improvement proves that the Mindfulness Based Learning approach has a positive impact on the understanding and mastery of elementary school science material. The Mindfulness-Based Learning approach demonstrated improved logical thinking and metacognitive skills, as students were able to manage learning pressure and focus on problem-solving. This finding also strengthens the argument within the framework that using a Mindfulness-Based Learning approach can increase learning interest and conceptual understanding, which in turn improves learning outcomes. Empirically, these results are supported by the findings of Ulandari and Efendi (2025), who reported significant improvements in students' academic grades after implementing mindfulness-based learning. The following is a table of student learning outcomes that have been calculated using the N-Gain score.

Table 1. Results of Class VI A N-Gain Score Analysis

Variable	N	Minimum	Maximum	Mean	Standard Deviation	Category
N-Gain Score	30	0,71	1,00	0,91	0,10	High
N-Gain Persen	30	71,43	100,00	91,58	10,62	High

Based on the analysis results, the average Class VIA N-Gain value was 0.91 or 91.59%, which is included in the high category. This indicates that the applied learning is able to improve student learning outcomes very effectively. The minimum N-Gain value of 0.71 is in the high category, so that all students experienced a good increase in ability after the learning process.

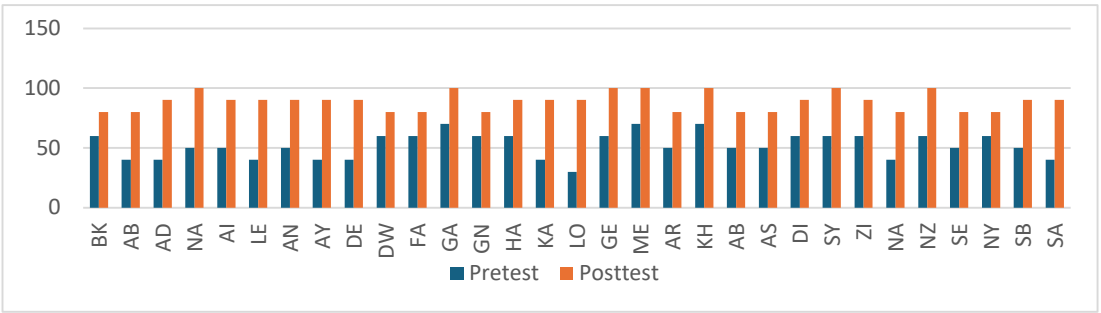


Figure 2. Diagram of Class VI B Student Learning Outcomes

Based on the VIA class diagram, the average post-test score was 88.7, and the average pre-test score was 52.3. The highest post-test score was 100. This improvement proves that the Mindfulness Based Learning approach has a positive impact on the understanding and mastery of elementary school science material. The Mindfulness-Based Learning approach demonstrated improved logical thinking and metacognitive skills, as students were able to manage learning pressure and focus on problem-solving. This finding also strengthens the argument within the framework that using a Mindfulness-Based Learning approach can increase learning interest and conceptual understanding, which in turn improves learning outcomes.

Table 2. Results of Class VI B N-Gain Score Analysis

Variable	N	Minimum	Maximum	Mean	Standard Deviation	Category
N-Gain Score	31	0,33	1,00	0,76	0,18	High
N-Gain Persen	31	33	100,00	76,97	18,98	High

Based on the analysis results, the average Class VIB N-Gain value was 0.76 or 76.97%, which is included in the high category. This indicates that the applied learning is able to improve student learning outcomes very effectively. This research is also supported by Portele (2023), regarding mindfulness-based neuroeducation in elementary school students, which shows that mindfulness can improve executive function, attention, and self-control abilities which contribute to improving learning outcomes. Thus, it can be concluded that learning using the Mindfulness Based Learning approach can improve learning outcomes in elementary school science subjects.

CONCLUSION

The application of Mindfulness-Based Learning (MBL) in science learning in elementary schools has been proven to significantly improve students' learning outcomes. Through the STOP technique stages (Stop, Take a Breath, Observe, Proceed), students become better able to manage attention, control emotions, and maintain focus during the learning process. This condition results in increased learning engagement, calm learning, and the ability to understand the material more optimally. Research findings indicate that mindfulness not only contributes to students' psychological well-being but also influences academic achievement. The improvement in student learning outcomes after implementing the Mindfulness-Based Learning approach showed significant results. Class VIA achieved an average N-Gain score of 0.91, while class VIB achieved an average of 0.76. Both classes' results are classified as high according to the Hake classification.

Self-regulation developed during the learning process is an important mechanism that helps students learn more consciously, purposefully, and independently. Thus, Mindfulness-Based Learning can be understood as a holistic pedagogical approach that integrates cognitive and socio-emotional dimensions in learning. The correlation between self-regulation skills and improved learning outcomes in elementary school students shows a very strong and positive relationship.

This research reinforces Barry J. Zimmerman's theory of Self-Regulated Learning, which states that the ability to control thoughts, emotions, and learning behavior plays a

crucial role in students' academic success. Furthermore, this research provides a conceptual contribution that suggests that mindfulness in elementary education functions not only as a relaxation strategy but also as a catalyst for learning transformation, supporting the formation of meaningful, focused, and sustainable learning in elementary schools. Researchers provide suggestions for further research, namely that teachers are advised to use the Mindfulness-Based Learning approach as an innovative alternative in learning in elementary schools, because it has been proven effective in significantly improving self-regulation and student learning outcomes. Schools should support the Mindfulness-Based Learning approach by providing facilities and infrastructure that support the learning process. For future researchers, it is hoped that they can develop further research with different material coverage or broader student subjects to obtain a comprehensive picture of the effectiveness of the Mindfulness-Based Learning approach.

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