



The Impact of Adventure-Based Learning in Outdoor Education on Student SEL and Wellness

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Keywords

Adventure-Based Learning; Physical Fitness; Outdoor Education; Social-Emotional Learning

Abstract

This research is motivated by the monotony of conventional Physical Education learning at the junior high school level which triggers student boredom, decreases learning motivation, and has an impact on decreasing physical fitness and weakening students' social-emotional skills. This study aims to determine the effect of implementing the Adventure-Based Learning (ABL) model in outdoor education on improving students' Social-Emotional Learning (SEL) and physical fitness. Using a quantitative approach with a quasi-experimental method and a non-equivalent control group design, this study involved an experimental group (class VIII-C, n=30) who were given 8 sessions of ABL model treatment, and a control group (class VIII-F, n=30) with conventional learning. Data were collected through SEL questionnaires and Multistage Fitness Test (MFT), then analyzed using the Independent Sample T-Test in SPSS. The results of the hypothesis test showed a significance value of 0.000 ($p < 0.05$) for both variables. The average SEL score of the experimental group increased by 16.75 and physical fitness (VO_2 Max) increased by 6.40. In conclusion, the ABL model has a significant and effective influence in achieving the dual objectives of physical education, both in the psychological (mental) and biological (physical) aspects of students simultaneously.

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INTRODUCTION

Physical Education, Sports, and Health plays a crucial role in stimulating the comprehensive development of students, from physical aspects to emotional stability. In line with the current curriculum, physical education is also optimized as a strategic instrument to internalize the character values of the Pancasila Student Profile (Profil Pelajar Pancasila), particularly independence and mutual cooperation (Novita et al., 2025; Susanto, Imam Santosa Ciptaning Wahyu, 2025). However, the reality on the ground shows that learning at the junior high school level still predominantly uses monotonous conventional methods in limited school areas, thus triggering boredom and decreasing student active motivation (Nauli et al., 2025; Putra et al., 2022). This condition is exacerbated by the sedentary lifestyle of adolescents due to dependence on digital technology, which has an impact on decreased physical fitness (Nauli et al., 2025). In addition to physical challenges, students' socio-emotional aspects also face significant obstacles, such as the phenomenon of bullying, low self-confidence, and difficulty working together in groups (Hosokawa et al., 2024). Therefore, Social-Emotional Learning (SEL) is an urgent need to equip students with self-management and empathy skills (Hosokawa et al., 2024; Zieher, A. K., Cipriano, C., Meyer, J. L., & Strambler, 2022).

As an alternative solution to this problem, Outdoor Education, using the Adventure-Based Learning (ABL) model, can be implemented using adventure-based physical activities and natural challenges (Fathurohman & Kusuma, 2023). Theoretically, the ABL model is based on David Kolb's Experiential Learning, which emphasizes that the most effective learning occurs when students experience, reflect on, conclude, and retry a challenge (Gordon, 2022). This model innovatively encourages learning engagement through components of challenge, measured risk, and post-activity debriefing (Adhi et al., 2025). Through this model, students' affective domains, character, and teamwork can be strengthened (Gunawan, 2025); (Lee & Zhang, 2019) Furthermore, sustained outdoor physical activity has been shown to be effective in increasing cardiorespiratory endurance (VO2 Max) compared to routine indoor exercise (Bradbury et al., 2025).

Based on this situation, the problem in this study focuses on students' low levels of physical fitness, weak social-emotional skills such as empathy and cooperation, and the suboptimal use of the outdoor environment by physical education teachers. Referring to the problem's limitations, the subjects in this study focused on eighth-grade students at SMP Negeri 3 Boja, measuring SEL and cardiorespiratory endurance variables. The objectives of this study were to determine the effect of the Adventure-Based Learning model on improving students' Social-Emotional Learning (SEL), to determine the model's influence on students' physical fitness levels, and to analyze the effectiveness of outdoor education in achieving the dual objectives of physical education learning, which encompass both physical and mental aspects simultaneously.

METHODS

This study employed a quantitative approach with a Quasi-Experimental method. The chosen research design was a non-equivalent control group design, in which the subjects were divided into an experimental group and a control group without random selection. The study population was all eighth-grade students of SMP Negeri 3 Boja. Purposive sampling was used, based on the homogeneity of student characteristics. Two classes were selected: class VIII-C (n=30) as the experimental group and class VIII-F (n=30) as the control group. The experimental group received treatment in the form of the Adventure-Based Learning (ABL) model within the classroom for eight meetings (two months), while the control group used the conventional Physical Education learning model.

The variables measured in this study consisted of one independent variable, the Adventure-Based Learning model, and two dependent variables, Social-Emotional Learning (SEL) and Physical Fitness (cardio-respiratory endurance). Data collection was conducted in two stages: a pre-test (initial data before treatment) and a post-test (final data after treatment) for both groups. The instrument used to collect data on SEL variables was a Likert-scale questionnaire validated by expert judgment. Meanwhile, to measure physical fitness (VO2

Max), a 20-meter back-and-forth sprint using the Multistage Fitness Test (MFT) or Bleep Test was used.

Data analysis was performed using SPSS statistical software. Prior to hypothesis testing, the data were first subjected to prerequisite tests, including a normality test using the Shapiro-Wilk method and a homogeneity test using Levene's Test. The statistical models used for hypothesis testing were the Independent Sample T-Test to compare differences in improvement between the experimental and control groups, and the Paired Sample T-Test to analyze the pre- and post-treatment effects in each group at a significance level of $\alpha = 0.05$. Furthermore, the N-Gain test was also applied to determine the effectiveness of the learning model.

Table 1. Quasi-Experimental Design

Group	Pre-Test	Treatment	Post-Test
Experimental (E)	O ₁	X	O ₂
Control (C)	O ₃	-	O ₄

RESULTS AND DISCUSSION

Research data collected from the experimental group (grade VIII-C, n=30) and the control group (grade VIII-F, n=30) included pre-test and post-test scores for Social-Emotional Learning (SEL) and physical fitness (VO₂ Max) variables. A summary of the research data is presented in **Table 2**.

Table 2. Summary of Average SEL and Fitness (MFT) Scores

Variable	Group	Pre-test	Post-test	Gain
SEL (questionnaire)	Experimental	65.40	82.15	16.75
	Control	64.80	68.20	3.40
Fitness (VO₂Max)	Experimental	32.50	38.90	6.40
	Control	32.10	33.40	1.30

Based on **Table 2**, the experimental group that received the Adventure-Based Learning (ABL) model intervention showed a significantly higher average score increase compared to the control group in both variables. To confirm the significance of these changes, an Independent Sample T-Test was conducted using SPSS at a significance level of $\alpha = 0.05$. The results of the hypothesis testing are summarized in **Table 3**.

Table 3. Results of the Difference Test (T-Test)

Variables	t	p	Interpretation
Social-Emotional Learning	5.842	0.000	Significant
Physical Fitness	4.120	0.000	Significant

The analysis results in **Table 3** show a Sig. (2-tailed) value of 0.000 for both variables. Since the significance value is less than 0.05 ($p < 0.05$), the null hypothesis (H₀) is rejected and the alternative hypothesis (H_a) is accepted. This proves that the implementation of the ABL model in out-of-class education has a significant effect on improving SEL and physical fitness of junior high school students. A visual comparison of the final score achievement after treatment (post-test) is presented in **figure 1**.

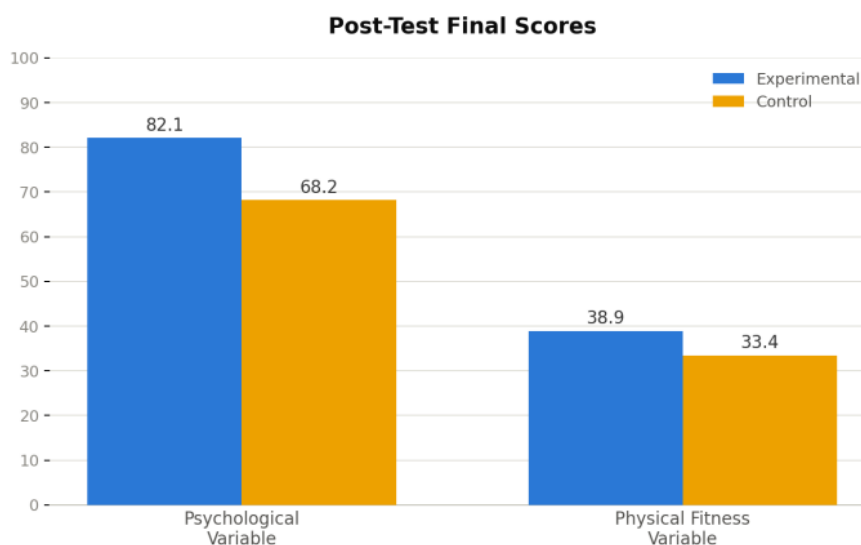


Figure 1. Comparison of Final Post-Test Scores for SEL and Physical Fitness Variables.

The significant improvement in SEL aspects in the experimental group was driven by the key characteristic of the ABL model, which places students outside their comfort zones through problem-solving games. Through these activities, students are required to suppress their individual egos, negotiate, empathize, and communicate tactically to overcome obstacles together as a group. This intensive interaction process aligns with the principles of experiential learning, where adventure-based learning and direct experience have been proven effective in fostering affective maturity, relationship skills, problem-solving, responsibility, and self-confidence in adolescents (Gunawan, 2025; Hosokawa et al., 2024; Lee & Zhang, 2019). This contrasts with the control group, which tended to be passive and experienced limited social interaction due to the dominance of conventional methods.

On the other hand, although the ABL model primarily focuses on psychosocial development, the varied and challenging physical activities in the outdoors indirectly trigger high motor engagement. Continuous activities such as icebreakers, orienteering, and moderate-intensity group dynamics can motivate students to be active without feeling overwhelmed or bored. Joyful learning encourages consistent physical participation, resulting in measurable increases in students' aerobic capacity and cardiorespiratory endurance (VO₂ Max). These findings confirm that stimulating outdoor environments provide a more dynamic exercise intensity that effectively maintains physical fitness while eliminating sedentary behavior in adolescents (Bradbury et al., 2025; Waruwu et al., 2025).

Comprehensively, the results of this study indicate a positive correlation between emotional maturity and students' physical performance. Mastering self-management competencies within the SEL component helps students manage fatigue and maintain psychological resilience when facing demanding physical exertion, including physical fitness tests. Overall, the integration of adventure activities into outdoor education has proven to be an innovative strategy that successfully realizes the dual goals of physical education learning: simultaneously strengthening mental character and improving students' physical fitness (Gunawan, 2025; Nahdlatul et al., 2021; Rubiyatno et al., 2023).

CONCLUSION

Based on the results of the data analysis and discussion in this study, it can be concluded that the implementation of the Adventure-Based Learning model in the context of outdoor education has a positive and significant influence on improving the Social-Emotional Learning of junior high school students. Structured adventure activities have proven effective in building students' psychosocial competencies, such as the ability to work together, empathy, self-control, and group responsibility. In addition, this learning model has also been proven to have a real effect in measurably improving students' physical fitness. A variety of challenging and enjoyable physical activities in the open air can trigger students' intrinsic motivation to move more actively, so that their cardio-respiratory endurance capacity experiences a significant increase. Thus, the Adventure-Based Learning model is a highly effective innovative strategy in realizing the dual objectives of Physical Education learning, because it is able to develop both the psychological aspects (mental character) and the biological aspects (physical fitness) of students simultaneously compared to conventional learning models.

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