

# The Benefits of Outdoor Activities Program Training for Kindergarten Teachers on Gross Motor Development and Visual Motor Integration

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## Abstract:-

### ➤ *Background:*

Scientific research recognizes outdoor activities as crucial for early childhood development, especially in fostering gross motor skills and visual- motor integration.

### ➤ *Objective:*

This study looked at how well a teacher training program affected for Kindergarten children's Gross Motor Development, and Visual-Motor Integration,

### ➤ *Method:*

The implementation of outdoor activities with 145 kindergarten children and 83 teachers from schools in the Colomadu sub-district in Karanganyar, Indonesia. It used a one-group pre-and post-test design.

### ➤ *Conclusion:*

The findings, assessed using the Test of Gross Motor Development-2 (TGMD-2) and the Beery Developmental Test of Visual-Motor Integration (Beery DT-VMI), revealed statistically significant improvements in gross motor skills and visual-motor integration ( $p < 0.000$ ). These results highlight the critical role of teacher training in enhancing children's developmental outcomes through structured outdoor activity programs.

**Keywords:-** *Outdoor Activities, Teacher Training, Gross Motor Development, Visual-Motor Integration, Early Childhood Education*

## I. INTRODUCTION

Research has linked physical outdoor activities to enhanced learning abilities and improved brain functions in primary school children and adolescents [1].

Moreover, outdoor activities guided by adults can enhance preschoolers' performance in executive functions, such as inhibitory control and attention. Lundy & Smith [6] found that engaging in outdoor activities before academic sessions results in improved performance in areas such as reading, writing, arithmetic, sports, arts, scouting, and playing with friends. To perform these activities effectively, children must mature in sensory, motor, perceptual, cognitive, emotional, and social development. According to Williams and Shellenberger [10], sensory-motor development forms

the foundation for subsequent developmental stages. Open spaces, often referred to as outdoor activities, can host sensory-motor activities.

Rochmah (2012) demonstrated that outdoor learning programs, such as outbound activities, offer direct experiential learning where children actively participate in all activities [8]. These programs integrate the concept of interaction between children and nature through outdoor simulations, providing a conducive environment to shape attitudes, thought processes, and creative, positive perceptions. Such activities also help foster leadership, teamwork, openness, tolerance, and deep sensitivity. Therefore, we anticipate that these programs will stimulate initiative and introduce innovative empowerment models in schools. Through outdoor simulation activities, children develop both individually (personal development) and as a group (team development) by engaging in effective communication, conflict management, competition, leadership, risk management, decision-making, and initiative-taking.

Sia et al., (2023) did research in Malaysia that supports this idea. They found that doing activities outside improves physical and cognitive skills, as well as social and emotional development and getting ready for school [9]. These activities also improve skills like visual-motor integration and large motor skills. Numerous studies emphasize the importance of incorporating outdoor activities into preschool education [3]. However, a study conducted in Turkey revealed that, while many kindergarten teachers acknowledge the benefits of children playing in playgrounds, they express concerns about playground safety. Such perceptions often result in limited outdoor stimulation for children.

We must address these misconceptions because outdoor activities offer immense benefits for children's holistic development. Teachers, as key educators in schools, need supplementary knowledge and skills to maximize the potential of outdoor activities. Understanding the types of outdoor activities that schools can develop, designing appropriate playgrounds, and identifying suitable locations for outdoor activities are all part of this. By addressing these aspects, educators can help children unlock their full potential through outdoor experiences.

Gross motor development and visual-motor integration are crucial aspects of children's development in early childhood, which have a major impact on their physical, mental, and social health. Gross motor skills, which involve the use of large muscles in activities such as running, jumping, and climbing, are essential for building physical fitness and provide a foundation for children to interact with the world around them [7]. In addition, visual-motor integration, which involves a combination of vision and fine motor skills, is crucial in activities such as writing, drawing, and moving around the environment [2]. For children, especially those in kindergarten, the importance of developing these skills lays the foundation for learning readiness and effective interaction with peers and their environment.

Children can enhance their gross motor skills and visual-motor integration through outdoor activities. Outdoor play encourages movement, imagination, and exploration of the senses, all of which are essential for motor development [5]. In addition, both organized and free outdoor activities stimulate children's motor coordination and problem-solving skills through the experience of interacting with different conditions and environments [3]. Given the importance of this aspect of development, early childhood educators have a key role in designing and implementing outdoor activity programs that support children's growth. However, many kindergarten teachers experience difficulties in understanding and implementing strategies to get the most out of outdoor activities.

This study discusses the effect of outdoor activity program training for kindergarten teachers on children's gross motor development and visual-motor integration. By

providing teachers with the knowledge and skills to create effective outdoor activity programs, educators can produce richer learning environments that support children's all-round development. The findings aim to emphasize the importance of professional training programs and their ability to improve child development outcomes.

## II. MATERIALS AND METHOD

The outdoor activities program training was given to 83 kindergarten teachers, and the research sample was 145 kindergarten children from Colomadu sub-district schools in Karanganyar, Central Java, Indonesia. This study is a pre-experimental one-group pre-and post-test design to analyze changes in the maturity of motor development and visual-motor integration of preschool-age children. The research instruments were the Test of Gross Motor, Development-2 (TGMD-2), and Beery DT-VMI. The data was analyzed using a paired samples t-test.

## III. RESULTS

The study was conducted for 2 months on 145 samples, with a pre-test research process, providing outdoor activities program training to students' interventions to kindergarten teachers, implementing outdoor activities programs by kindergarten teachers for 2 months, and at the end of the 2nd month, a post-test was conducted, and the results were as follows:

### ➤ Study Samples Characteristic:-

The distribution of research samples based on age, gender, and class grade is shown in Table 1.

Table 1 Sample Characteristic

Sample Characteristic	Frequency (n)	Percentage (%)
<b>Age (Year)</b>		
5	12	8.3
6	98	67.6
7	35	24.1
<b>Gender</b>		
Girl	64	44.1
Boy	81	55.9
<b>Class Grade</b>		
Pre-Kindergarten	71	49
Kindergarten	74	51

Source: Primary Data Processed, 2024.

Table 1. The sample characteristics of the study revealed that the majority of participants were 6 years old, comprising 98 individuals (67.6%). In terms of gender distribution, males constituted 81 participants (55.9%). Regarding grade levels, the sample was nearly evenly split, with 71 participants (49%) in Pre-Kindergarten and 72 participants (51%) in kindergarten. These balanced demographic distributions provide a representative basis for analyzing the study's outcomes.

### ➤ The Impact of Outdoor Activities Program Training for Kindergarten Teachers on Gross Motor Development:-

Based on the results of the pre-test and post-test for motor development maturity, as measured by the TGMD-2 tool, the data were initially tested for normality using the Kolmogorov-Smirnov test. The results indicated that the data were not normally distributed ( $p < 0.05$ ). Following data transformation, the normality of the data remained abnormal ( $p < 0.05$ ). Consequently, the Wilcoxon test, a non-parametric statistical analysis, was used to evaluate the results.

The findings, presented in Table 2, highlight the significance of changes in motor development maturity

following the intervention, as analyzed using this robust non-parametric method.

Table 2 The Impact of Outdoor Activities Program Training for Kindergarten Teachers on Gross Motor Development

Ranks				
		N	Mean Rank	Sum of Ranks
TGMD_Postest - TGMD_Pretest	Negative Ranks	3 <sup>a</sup>	23.67	71.00
	Positive Ranks	131 <sup>b</sup>	68.50	8974.00
	Ties	11 <sup>c</sup>		
	Total	145		
a. TGMD_Postest < TGMD_Pretest				
b. TGMD_Postest > TGMD_Pretest				
c. TGMD_Postest = TGMD_Pretest				
Test Statistics <sup>a</sup>		TGMD_Postest - TGMD_Pretest		
Z		-9.889 <sup>b</sup>		
Asymp. Sig. (2-tailed)		.000		
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				
Source: Primary Data Processed, 2024				

The results of the Wilcoxon test ( $p < 0.000$ ) indicate a significant impact of the Outdoor Activities Program Training for Kindergarten Teachers on the gross motor development of children. This finding highlights the effectiveness of the training program in enhancing motor skills, emphasizing the importance of outdoor activities in early childhood education.

➤ *The Impact of Outdoor Activities Program Training for Kindergarten Teachers on Visual Motor Integration:-*

The results of the pre-test and post-test using the Beery DT-VMI as a measurement tool for visual-motor integration maturity were analyzed for data normality using the Kolmogorov-Smirnov test. The findings showed that the data were not normally distributed ( $p < 0.05$ ). Even after data transformation, the normality criteria were not met ( $p < 0.05$ ). Consequently, the Wilcoxon test, a non-parametric statistical method, was employed for analysis. The results, detailed in Table 3, indicate significant changes in visual-motor integration maturity following the intervention.

Table 3. The Impact of Outdoor Activities Program Training for Kindergarten Teachers on Visual Motor Integration.

Ranks				
		N	Mean Rank	Sum of Ranks
VMI_Postest - VMI_Pretest	Negative Ranks	2 <sup>d</sup>	31.00	62.00
	Positive Ranks	138 <sup>e</sup>	71.07	9808.00
	Ties	5 <sup>f</sup>		
	Total	145		
d. VMI_Postest < VMI_Pretest				
e. VMI_Postest > VMI_Pretest				
f. VMI_Postest = VMI_Pretest				
Test Statistics <sup>a</sup>		VMI_Postest - VMI_Pretest		
Z		-9.751 <sup>b</sup>		
Asymp. Sig. (2-tailed)		.000		
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				
c. Source: Primary Data Processed, 2024.				

The results of the Wilcoxon test ( $p < 0.000$ ) indicate a significant impact of the Outdoor Activities Program Training for Kindergarten Teachers on visual-motor integration. This demonstrates that the training program effectively enhances children's ability to coordinate visual

perception with motor skills, emphasizing the importance of outdoor activities in supporting early developmental milestones.

#### IV. DISCUSSION

The results of this study show that kindergarten teachers' outdoor activity program training significantly affects their students' gross motor development and visual-motor integration. This result is consistent with previous research that highlights the importance of outdoor activities in developing kids' cognitive and motor skills [1,5]. The training programs work as a bridge to optimize children's developmental potential by giving teachers the tools they need to undertake both structured and unstructured outdoor activities.

The distinct chances for physical activity that outdoor settings offer is responsible for the noted enhancement in gross motor development. Activities that are naturally included in outdoor play, such as climbing, running, and balancing, help develop gross motor abilities, which entail the coordination of vast muscle groups [7]. Instructors who have received training in outdoor exercise programs are better equipped to provide spaces and activities that test kids' physical capabilities while maintaining inclusivity and safety. Children are encouraged to perform actions that improve their strength, coordination, and endurance through this dynamic yet disciplined method.

The ability to synchronize visual information with motor output, or visual-motor integration, is the unique factor responsible for the observed improvement in gross motor development. The outdoor activities led by qualified teachers also showed a notable improvement. Children must frequently maneuver across spatial surroundings, handle items, and do goal-directed activities that call for exact hand-eye coordination while playing outside [2]. Activities like tossing and catching a ball, sketching outside, or creating buildings out of natural materials are a few examples of how to improve these abilities. The results align with the findings of Lundy & Smith [6], who found that children who engaged in outdoor activities had enhanced executive functioning, which is directly linked to enhanced visual-motor skills. Opportunities for physical interaction are offered by outdoor settings.

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The training's emphasis on teacher competency is a major contributing factor to its efficacy. Teachers have a crucial role in mediating how children interact with their surroundings in addition to facilitating learning. Teachers can design engaging outdoor activities that are developmentally appropriate and in line with certain learning goals thanks to training programs. Children are immersed in an immersive learning environment that encourages creativity, problem-solving, and leadership abilities when teachers create outdoor

activities that incorporate simulation and interaction with nature, as noted by Rochmah [8].

The integration of theory and practice is the rationale underlying these programs' efficacy. Evidence-based tactics are incorporated into training programs to enable teachers to comprehend the gross motor and visual-motor skill growth milestones and convert this knowledge into practical exercises. Furthermore, by tackling typical obstacles like risk management and safety worries, the programs assist in easing instructor anxieties that may otherwise restrict chances for outdoor activities [4].

The results also emphasize how important it is for early childhood education to include outdoor activities. Outdoor activities improve cognitive, social-emotional, and school-ready skills in addition to motor development, as [9] showed. This all-encompassing advantage supports the claim that funding outdoor education for teachers is a long-term approach to supporting children's development.

In conclusion, the study's findings offer compelling proof that kindergarten instructors can improve their students' gross motor and visual-motor integration skills by participating in outdoor activities. These results highlight how crucial it is to equip educators with the know-how to design inclusive, safe, and developmentally stimulating outdoor learning environments. Future research could explore the long-term impacts of such training programs and their scalability across diverse educational settings.

#### V. LIMITATION OF STUDY

The study demonstrates the positive impact of the Outdoor Activities Program Training for Kindergarten Teachers on visual-motor integration and gross motor development, but several limitations must be acknowledged:

➤ *Sample Size and Generalizability:-*

The findings are limited to a specific sample and demographic, making it difficult to generalize the results to other populations or settings.

➤ *Short-Term Assessment:-*

The study assessed outcomes only immediately after the intervention, leaving the long-term effects of the program unexplored.

➤ *Control Variables:-*

Key factors like home environment, parental involvement, and prior exposure to outdoor activities were not fully controlled or evaluated, which may have influenced the results.

➤ *Self-Reporting Bias:-*

The reliance on self-reported data could introduce subjective bias, potentially affecting the accuracy of the findings.

## VI. CLINICAL IMPLICATION

The study's findings offer key insights for educators, policymakers, and practitioners in early childhood education, emphasizing the importance of teacher training to equip educators with the skills to design and implement safe, inclusive, and developmentally appropriate outdoor activities. Additionally, outdoor activities should be incorporated into early childhood curricula as a fundamental component to enhance motor, cognitive, and social-emotional development. Addressing teachers' concerns regarding playground safety through targeted training can mitigate barriers to implementing outdoor programs. Recognizing the holistic benefits of outdoor play, including its impact on motor skills, executive functioning, and school readiness, is essential for educators and caregivers. Finally, future research should explore scalable and sustainable outdoor activity programs, assessing their long-term effects on child development across diverse educational settings. Collaborative efforts among educators, parents, and policymakers are crucial to driving systemic improvements in early childhood education, ensuring children receive optimal developmental opportunities through outdoor activities.

## VII. CONCLUSION

This study demonstrates the significant impact of outdoor activity programs, facilitated by trained kindergarten teachers, on the enhancement of gross motor and visual-motor integration skills in children. By providing teachers with evidence-based strategies, the intervention effectively improved the quality of outdoor learning environments, leading to measurable developmental benefits. The findings underscore the essential role of outdoor activities in early childhood education, aligning with previous research that associates physical engagement in natural environments with enhanced cognitive, emotional, and social development. The integration of structured outdoor activity programs and professional teacher training is crucial for optimizing children's developmental potential.

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