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THE EFFECT OF TRADITIONAL GAMES *GOBAG SODOR* AND *BENTENGAN* ON THE LOCOMOTOR FUNDAMENTAL MOVEMENT SKILLS OF ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

This study aimed to examine the effect of the traditional games *Gobag Sodor* and *Bentengan* on improving the fundamental locomotor movement skills of elementary school students. A quasi-experimental design with a two-group pretest–posttest format was used with 40 third-grade students at SD Negeri 47 in Jambi City. One class participated in *Gobag Sodor* and the other in *Bentengan* over eight structured learning sessions. Data were collected using an adapted *Test of Gross Motor Development–2 (TGMD-2)* instrument and analyzed through paired and independent-sample t-tests with a significance level of 0.05. The results revealed significant improvements in both groups, with *Gobag Sodor* producing a greater effect (mean difference = 16.15; $p < 0.001$) than *Bentengan* (mean difference = 12.20; $p < 0.001$). The comparative test confirmed that *Gobag Sodor* was more effective ($p = 0.032$), with a large effect size (Cohen's d = 1.5). These findings demonstrate that integrating traditional games into physical education enhances students' motor competence, motivation, and social interaction while preserving cultural heritage.

Keywords: Traditional Games, *Gobag Sodor*, *Bentengan*, Locomotor Skills.

INTRODUCTION

Physical education plays a crucial role in fostering students' physical, mental, and social development through structured physical activities and games. At the elementary school level, physical education aims not only to develop physical fitness but also to build character, discipline, and social cooperation among students (Pangrazi & Beighle, 2019). One of the primary goals of physical education for lower-grade students is to help them master fundamental movement skills, locomotor, non-locomotor, and manipulative movements, which serve as the foundation for more complex physical activities. Without these basic skills, students may struggle with coordinated movements, balance, and participation in sports and daily activities.

However, current conditions in many elementary schools indicate that students often have limitations in performing basic locomotor skills such as running, jumping, and walking. Observations at SD Negeri 47 Jambi City indicate that many third-grade students still struggle with coordination and stability during locomotor tasks. This phenomenon may result from insufficient opportunities for physical play, limited variations in teaching approaches, and the dominance of theoretical learning. Such constraints reduce children's active engagement in movement, hindering both motor and cognitive development during their formative years.

The development of fundamental movement skills is strongly influenced by early and consistent motor experiences (Iivonen & Sääkslahti, 2014). Research has shown that children who frequently engage in varied physical activities demonstrate better balance, agility, and overall coordination. Therefore, it is essential to implement learning models that not only improve physical ability but also stimulate motivation, enjoyment, and social interaction. One promising approach to achieving these outcomes is to integrate traditional games into physical education activities (Maryani et al., 2025; Kusumawati, 2017).

Traditional games are cultural practices passed down through generations that involve both physical movement and social interaction. Unlike modern sports, which often focus on competition and formal rules, traditional games emphasize cooperation, creativity, and spontaneous play. These games offer natural opportunities for children to practice locomotor movements such as running, jumping, and dodging while fostering teamwork and cultural appreciation (Saputra et al., 2024). Thus, traditional games hold great potential as pedagogical tools for developing physical and social skills in elementary education.

Among the various traditional games in Indonesia, *Gobag Sodor* and *Bentengan* are two that particularly support the enhancement of locomotor skills (Prasetio & Praramdana, 2020). Both games require players to move dynamically, combining running, dodging, and strategic thinking to achieve goals. *Gobag Sodor* emphasizes agility, reaction speed, and teamwork in blocking and escaping opponents, while *Bentengan* focuses on strategic defense and offensive coordination that requires quick movement and endurance. These elements make the games ideal for improving students' fundamental movement patterns.

Despite their pedagogical potential, the integration of traditional games into formal physical education curricula remains limited. Many schools still rely on conventional teaching methods emphasizing repetitive drills rather than experiential and contextual learning. Consequently, the cultural and motor benefits of traditional games are often overlooked. Previous studies on locomotor skill development have tended to employ modern or structured physical activities, leaving a research gap regarding the impact of traditional, culturally rooted games such as *Gobag Sodor* and *Bentengan*.

Based on this gap, the present study seeks to examine the influence of the traditional games Gobag Sodor and Bentengan on the improvement of locomotor fundamental movement skills in third-grade students at SD Negeri 47 Jambi City. By comparing the effectiveness of the two games, this study aims to provide empirical evidence on how traditional, movement-based play can serve as an innovative approach to enhance children's physical education outcomes.

Moreover, the research is expected to contribute to the revitalization of traditional games as part of Indonesia's educational and cultural heritage.

Ultimately, this study highlights the importance of integrating cultural identity into physical education to foster holistic student development. Beyond improving motor skills, traditional games cultivate values of cooperation, sportsmanship, and perseverance that are essential to character education. Through this research, the integration of *Gobag Sodor* and *Bentengan* into the learning process is expected to enrich the pedagogical practices of physical education teachers and encourage the use of culturally relevant methods to promote active, joyful, and meaningful learning experiences in schools.

LITERATURE REVIEW

Fundamental Movement Skills (FMS) are the essential foundation for physical literacy and lifelong engagement in physical activity. These skills encompass locomotor, non-locomotor, and manipulative movements that enable children to participate confidently and efficiently in various physical contexts. Recent studies emphasize that mastery of FMS during the early school years contributes significantly to overall physical competence, coordination, and cognitive performance (Muhtar & Lengkana, 2021; Siregar et al., 2024; Mukti et al., 2025). Children who demonstrate greater proficiency in locomotor movements, such as running, jumping, and skipping, tend to participate more in physical activities and achieve better health outcomes later in development. Consequently, improving FMS at the elementary level has become a primary objective of physical education programs worldwide.

Despite its importance, numerous studies report that many elementary students still experience difficulties performing basic locomotor movements (Antoni & Bakhtiar, 2019). Insufficient physical engagement, limited exposure to structured activities, and monotonous learning approaches often lead to underdeveloped motor patterns. Meta-analytical evidence indicates that medium- to long-term school-based interventions (10–20 weeks) yield more substantial improvements in locomotor competence than short-term interventions. Furthermore, environmental and instructional factors, such as practice frequency and contextual variation, are recognized as critical determinants in optimizing FMS development. These findings suggest that movement instruction should integrate meaningful, playful, and socially engaging contexts to stimulate both motor and motivational outcomes.

Recent scholarship has increasingly recognized play-based learning and *active play* as practical approaches for enhancing FMS (Sofyan et al., 2022; Jefferson-Buchanan, 2022). Systematic reviews demonstrate that interventions incorporating playful physical activities produce measurable gains in children's locomotor and coordination abilities, although the degree of improvement varies across studies. This approach emphasizes natural movement

experiences and social interaction rather than repetitive drills. In the school setting, integrating playful physical tasks encourages intrinsic motivation and enjoyment, two psychological factors that are closely linked to sustained engagement in physical education. Therefore, a pedagogical framework grounded in active play aligns well with the developmental and affective needs of elementary students.

Within the Indonesian educational context, traditional games have emerged as culturally responsive and pedagogically valuable tools for physical education. Traditional games integrate the physical, social, and cultural dimensions of learning, offering both movement diversity and the transmission of moral values. Recent studies show that implementing traditional game-based learning significantly enhances children's motor coordination and motivation for physical activity (Wicaksono et al., 2024; Huda et al., 2025; Anggraini et al., 2025). Moreover, these games serve as a means of cultural preservation, fostering national identity while developing motor proficiency. By embedding traditional games into school curricula, educators can simultaneously promote physical development and cultural appreciation, creating an authentic and contextualized learning environment.

Among the many traditional games in Indonesia, *Gobag Sodor* and *Bentengan* are two that distinctly emphasize locomotor activities such as running, dodging, and jumping. *Gobag Sodor* requires agility, quick decision-making, and teamwork as players attempt to cross and defend territorial lines. At the same time, *Bentengan* combines strategy, endurance, and defensive movement in capturing the opponent's base. The movement patterns in both games naturally align with the key components of locomotor development: speed, coordination, balance, and reaction. Although empirical studies focusing specifically on these two games remain limited, theoretical frameworks on active play and motor learning indicate that such culturally embedded activities provide repetitive, meaningful practice that reinforces locomotor skill acquisition in an enjoyable context.

Overall, the reviewed literature underscores three significant insights. First, fundamental movement skills are crucial in early education and require intentional pedagogical intervention. Second, game-based and culturally relevant learning approaches, particularly through traditional games, have demonstrated effectiveness in enhancing motor development. Third, the scarcity of empirical research examining the impact of specific traditional games, such as Gobag Sodor and Bentengan, on locomotor abilities creates a clear research gap. Addressing this gap will contribute not only to the body of knowledge on motor learning but also to the revitalization of traditional Indonesian games as sustainable educational tools within modern physical education frameworks.

METHODOLOGY

This study employed a quasi-experimental, two-group pretest–posttest design to examine the effects of the traditional games *Gobag Sodor* and *Bentengan* on students' locomotor fundamental movement skills. The quasi-experimental approach was chosen because intact school classes could not be randomly assigned, making it appropriate for field-based educational research. This research was conducted at State Elementary School 47 in Jambi City during the odd semester of the 2025/2026 academic year, involving two third-grade classes selected through purposive sampling. Each class consisted of 20 students and was designated as the *Gobag Sodor* or the Bentengan group.

Data were collected using a locomotor skill test adapted from the *Test of Gross Motor Development–2 (TGMD-2)*, which assessed running, jumping, and walking abilities. Two experts in physical education reviewed the instrument to ensure content validity, and inter-rater reliability testing yielded a coefficient of 0.86, indicating high consistency. Prior to implementation, the researcher obtained ethical clearance and consent from the school and parents to ensure compliance with ethical standards for research involving children.

The research procedure consisted of three main stages: pretest, treatment, and posttest. Both groups completed the pretest to assess baseline locomotor abilities, followed by eight treatment sessions (2 × 35 minutes per session) conducted twice weekly. The *Gobag Sodor* group participated in structured learning through that game, while the *Bentengan* group engaged in the corresponding activity. After all sessions were completed, the posttest was administered using the same instrument to measure improvement in locomotor performance.

Data analysis was conducted using SPSS version 26.0. Descriptive statistics (mean and standard deviation) were used to summarize the data, and inferential analyses included paired-sample t-tests to examine within-group differences and independent-sample t-tests to compare between-group differences. Assumptions of normality (Shapiro–Wilk test) and homogeneity of variance (Levene's test) were verified prior to analysis. In addition to significance levels ($p < 0.05$), effect sizes (Cohen's d) were calculated to determine the magnitude of improvement resulting from each traditional game intervention.

RESULT AND DISCUSSION

The results of this quasi-experimental study demonstrate that both traditional games, *Gobag Sodor* and *Bentengan*, had a positive influence on improving students' fundamental locomotor movement skills. The descriptive statistics in Table 1 show a notable increase in posttest mean scores for both groups relative to the pretest. The *Gobag Sodor* group achieved

greater improvement, suggesting that this game's dynamic and intensive nature contributed more strongly to the development of basic locomotor abilities, such as running, jumping, and walking.

Table 1. Descriptive Statistics (Pretest and Posttest Results per Group)

Group	N	Mean Pretest	SD Pretest	Mean Posttest	SD Posttest	Mean Difference
Gobag Sodor	20	67.45	5.12	83.60	4.87	16.15
Bentengan	20	66.90	5.45	79.10	5.10	12.20

As indicated in Table 1, both groups experienced meaningful improvements after the intervention period. The *Gobag Sodor* group's mean increase of 16.15 points and the *Bentengan* group's increase of 12.20 points confirm that traditional games can serve as practical pedagogical tools in enhancing physical performance. These findings are consistent with previous studies that have asserted that culturally based play activities can facilitate the mastery of fundamental movement skills (Maryani et al., 2025; Wicaksono et al., 2024). The repetitive and varied movement patterns embedded in traditional games stimulate neuromotor coordination, balance, and agility, which are essential in early physical development (Iivonen & Sääkslahti, 2014).

To determine whether these improvements were statistically significant, a paired-sample t-test was applied to both groups. As shown in Table 2, both Gobag Sodor and Bentengan showed significant pretest–posttest differences ($p < 0.05$). This statistically supports the assumption that repeated, game-based physical activities promote measurable development in locomotor performance among elementary students. The *Gobag Sodor* game, characterized by continuous running, dodging, and quick directional shifts, provides high-intensity, varied motor stimulation that effectively enhances muscle coordination and movement precision.

Table 2. Results of Paired-Sample t-Test

Group	Mean Difference	t-value	df	Sig. (2-tailed)	Description
Gobag Sodor	16.15	9.84	19	0.000	Significant
Bentengan	12.20	7.15	19	0.000	Significant

These results align with Sutapa's (2022) findings, which emphasized that motor skills develop optimally when learning occurs through repetitive, meaningful, and enjoyable activities. In this study, both traditional games successfully fulfilled these criteria, as they combined physical exertion with elements of cooperation and competition, creating an engaging and motivating learning environment. The integration of movement, play, and social interaction

reflects the core philosophy of physical education, which fosters physical literacy and social growth simultaneously (Pangrazi & Beighle, 2019).

To further examine the difference in effectiveness between the two traditional games, an independent-sample t-test was conducted. As presented in Table 3, the posttest results showed a statistically significant difference between the *Gobag Sodor* and *Bentengan* groups ($t = 2.23$, $p = 0.032$). This indicates that the *Gobag Sodor* game had a greater effect on improving students' fundamental locomotor movement skills compared to *Bentengan*. The magnitude of the difference (mean gap = 4.50) suggests that the higher level of movement intensity and task variability in *Gobag Sodor* contributed more substantially to motor learning outcomes.

Table 3. Results of Independent-Sample t-Test

Variable	t-value	df	Sig. (2-tailed)	Mean Difference	Description
Posttest (*Gobag Sodor* vs. *Bentengan*)	2.23	38	0.032	4.50	Significant

The superiority of *Gobag Sodor* can be explained through the theoretical framework of motor learning, which posits that the acquisition of fundamental skills is influenced by the intensity, variability, and meaningfulness of physical practice (Satriawan et al., 2024; Holfelder & Schott, 2014). In *Gobag Sodor*, students are required to rush across boundaries, change directions, evade opponents, and coordinate group movements, thereby engaging multiple neuromotor systems simultaneously. This aligns with the concept of *distributed practice*, where dynamic and repetitive movements lead to more efficient motor pattern formation. Conversely, *Bentengan*, although involving running and strategic defense, contains longer passive intervals, which may limit the continuity of locomotor activation.

The results of this study reinforce the findings of Puspitasari et al. (2025), who reported that the integration of traditional games into physical education produces more significant improvements in motor ability compared to conventional teaching methods. Similarly, Yustiyati et al. (2024), Elfarita et al. (2025), and Nisa et al. (2025) found that *Gobag Sodor* and *Bentengan* not only enhance body coordination and reaction time but also strengthen students' motivation toward physical activity. These outcomes highlight the dual role of traditional games as both physical training and character-building media. The physical demands of the games are complemented by affective elements, cooperation, emotional regulation, and sportsmanship, which are essential components of holistic education.

From a pedagogical perspective, the effectiveness of *Gobag Sodor* in this research underscores the need for innovation in physical education instruction. Teachers should

prioritize learning experiences that are contextual, interactive, and rooted in local culture, as recommended by Adipat et al. (2021). Incorporating traditional games into lessons supports the principles of *Merdeka Belajar* by creating joyful, meaningful, and culturally relevant learning experiences. Moreover, such approaches promote inclusivity by engaging all students regardless of skill level through cooperative rather than competitive play. This aligns with Anisa and Holis (2020), who emphasized that traditional games represent an ideal medium for character cultivation through embodied cultural learning in primary education.

Beyond physical improvements, implementing *Gobag Sodor* and *Bentengan* also provided substantial social and emotional benefits to students. Throughout the observation period, students actively engaged, cooperated within teams, and demonstrated enthusiasm during each session. These behaviors reflect the social-learning dimension of physical education, where movement serves as a medium for interaction and collaboration. According to Lestari et al. (2025), traditional games promote empathy, perseverance, and emotional regulation through shared play experiences. Thus, the observed increase in engagement and teamwork not only enhanced locomotor proficiency but also fostered positive character traits aligned with the holistic goals of primary education.

The findings also reinforce the view that physical education should go beyond repetitive exercises and adopt approaches that are explorative and contextual. Teachers play a pivotal role in designing learning experiences that integrate movement with cultural and moral values. As Jahya et al. (2025) observed, traditional games encourage students to participate enthusiastically because the activities are inherently enjoyable and culturally familiar. By using these games as part of structured instruction, educators can bridge physical development with social learning and cultural preservation. The *Gobag Sodor* and *Bentengan* games, in particular, exemplify the potential of local traditions to serve as dynamic, inclusive, and pedagogically prosperous learning tools.

From an academic perspective, the strength of this research lies in its integration of cultural and pedagogical elements within a quantitative framework. The study provides empirical evidence that locally rooted play can be systematically implemented to improve students' fundamental movement skills. Furthermore, the use of pretest–posttest comparisons with validated instruments ensures that the findings are both measurable and replicable. The results thus extend the literature on movement-based learning by confirming that traditional games are not merely recreational but serve as structured, outcome-oriented activities that enhance physical and social competencies simultaneously (Huda et al., 2025; Wicaksono et al., 2024).

However, several limitations must be acknowledged. The intervention period lasted only eight sessions, which may not fully capture the long-term effects of traditional game–based learning. The sample was also limited to two classes from a single school, restricting the generalizability of findings. Additionally, although the study used quantitative methods to measure performance outcomes, qualitative aspects such as students' motivation and affective engagement were only documented descriptively. Future research is recommended to employ mixed-method designs, involving larger and more diverse samples, extended treatment durations, and in-depth qualitative analysis to understand better the cognitive and emotional dimensions of traditional play in physical education contexts.

CONCLUSION

This study concludes that traditional games *Gobag Sodor* and *Bentengan* significantly enhance the fundamental locomotor movement skills of elementary school students. Both games effectively improved students' running, jumping, and walking skills, demonstrating that integrating culturally rooted play into physical education supports physical literacy and holistic development. The *Gobag Sodor* game produced greater improvement than *Bentengan*, which can be attributed to its dynamic, repetitive, and high-intensity movement patterns that stimulate agility, coordination, and endurance. Beyond physical outcomes, the activities fostered cooperation, discipline, and emotional regulation, reflecting the broader educational value of traditional games in character building. Consequently, incorporating local games into school curricula represents an innovative and meaningful pedagogical strategy that not only enhances motor competence but also strengthens cultural identity. Future studies are encouraged to extend this research through longer interventions and broader participant samples to verify the sustainability of these effects.

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