

The Effect of Traditional Baseball Games on Improving Manipulative Movement Skills Among Children Aged 6–7 Years

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Abstract

Objectives: This study aimed to determine the effect of the traditional baseball game (bola kasti) on improving manipulative movement skills among children aged 6–7 years in Dusun Montong, Selat Village, Narmada District.

Materials and Methods: This study employed a pre-experimental method using a One Group Pretest–Posttest Design. The participants consisted of 15 children aged 6–7 years, including 11 boys and 4 girls, selected using a total sampling technique. The treatment was conducted through baseball game activities designed to stimulate manipulative movement abilities, including throwing, catching, and hitting skills. Data were collected using performance tests and documentation. The data analysis technique used a dependent t-test to examine differences between pre-test and post-test scores.

Results: The findings showed a significant improvement in children's manipulative movement abilities after participating in baseball game activities. The average pre-test score increased from 40 to 64 in the post-test. Statistical analysis revealed that the calculated t-value was higher than the t-table value ($14.32 > 1.76$) at the 5% significance level. In addition, the percentage increase in manipulative movement ability reached 60%.

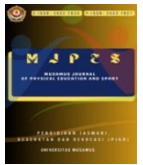
Conclusions: Traditional baseball games significantly improved manipulative movement skills among children aged 6–7 years. The activity effectively stimulated children's motor coordination through throwing, catching, and hitting movements, making it an appropriate physical activity approach for early childhood motor development.

Keywords: traditional games, manipulative movement, motor development, baseball game, early childhood

Introduction

Play activities are naturally enjoyable and spontaneous activities commonly performed by children. Through play, children can stimulate cognitive and motor development because repeated physical movement strengthens large muscle coordination and body control (Essiet et al., 2021; Hollis et al., 2017). Early childhood is considered an important phase for developing fundamental movement skills, including manipulative movements such as throwing, catching, and hitting objects.

Manipulative movement skills are complex motor abilities that develop progressively during childhood (Praditya et al., 2024; Usup et al., 2022). According to Umi Hasanah, children require structured stimulation and supervision from adults to optimize motor development outcomes. Manipulative movements are essential because they contribute to coordination, balance, and physical readiness for various sports and daily activities (Marquez et al., 2020; Roth et al., 2021; Solum et al.,



2020).

Technological developments have gradually shifted children's interests from traditional games to digital-based entertainment(Nadeem et al., 2023; Rahesti et al., 2023; Thrush, 2021). As a result, opportunities for direct social interaction and active physical movement have decreased. Traditional games that previously played an important role in children's physical and social development are increasingly being abandoned(Azlan et al., 2020; Sapri & Kurniah, 2018; Wang, 2022). One of the traditional games that can support children's motor development is bola kasti, a popular Indonesian small-ball game involving throwing, catching, running, and hitting skills.

Bola kasti is categorized as a physical activity-based game that stimulates children's motor coordination and physical fitness. The game also encourages cooperation, discipline, and active participation during play(Jaenudin, 2019; Pertiwi et al., 2017). Previous studies reported that ball games contribute positively to manipulative movement development in children(Usup et al., 2022). Research by Rina Andini Imani et al. demonstrated that ball-based activities improved manipulative movement skills among early childhood learners. Similarly, Eka Hidayati Tumuloto and Ruslan found that kasti games positively influenced students' basic motor movement abilities.

Based on these considerations, this study aimed to examine the effect of bola kasti games on improving manipulative movement skills among children aged 6–7 years.

Materials and Methods

Study Design

This study used a pre-experimental research design with a One Group Pretest–Posttest Design. The design was implemented to determine the effect of the treatment by comparing participants' manipulative movement abilities before and after the intervention.

Pre-test	Treatment	Post-test
O1	X	O2

Description:

O1 = Pre-test of manipulative movement ability

X = Baseball game treatment

O2 = Post-test of manipulative movement ability

Participants

The participants consisted of 15 children aged 6–7 years living in Dusun Montong, Selat Village, Narmada District. The sample included 11 boys and 4 girls. A total sampling technique was applied,

meaning all members of the population participated in the study.

Intervention Procedure

The treatment consisted of structured bola kasti game activities emphasizing manipulative movement components such as throwing, catching, and hitting. The activities were conducted systematically to stimulate children's motor coordination and active movement participation.

Data Collection

Data were collected using performance-based manipulative movement tests and documentation techniques. The assessment focused on children's abilities in throwing, catching, and hitting activities.

Statistical Analysis

The collected data were analyzed using a dependent t-test to identify significant differences between pre-test and post-test scores. The percentage increase in manipulative movement ability was also calculated.

Results

Manipulative Movement Test Results

Table 1 presents the comparison between pre-test and post-test scores of manipulative movement ability among participants.

Table 1. Pre-test and Post-test Scores of Manipulative Movement Ability

Variable	Pre-test Mean	Post-test Mean	Mean Difference	Percentage Increase
Manipulative Movement Ability	40	64	24	60%

The findings demonstrated that the average manipulative movement score increased from 40 during the pre-test to 64 during the post-test. The mean difference between the two tests was 24 points, indicating a substantial improvement after the implementation of the baseball game intervention.

Hypothesis Testing

The dependent t-test analysis showed that the calculated t-value was 14.32, while the t-table value at the 5% significance level with 14 degrees of freedom was 1.76.

**Table 2.** Dependent t-test Results

Variable	t-count	t-table	Decision
Manipulative Movement Ability	14.32	1.76	Significant

Because the t-count value was higher than the t-table value ($14.32 > 1.76$), the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted. These results indicate that bola kasti games significantly improved manipulative movement abilities among children aged 6–7 years.

Discussion

The results of this study demonstrated that bola kasti games significantly improved manipulative movement abilities among children aged 6–7 years. The improvement was evident from the increase in average scores between the pre-test and post-test, as well as the statistical test results showing significant differences after treatment.

The findings support the theory that traditional games can stimulate children's motor development through active physical engagement. Bola kasti involves various coordinated body movements such as throwing, catching, running, and hitting, which contribute to the development of manipulative movement skills. According to Rudolf Lutan, movement-based learning activities enhance children's motor coordination because children learn movement patterns through direct practice and repetition.

This study is consistent with previous research conducted by Rina Andini Imani et al., which reported that ball games positively affected manipulative movement development among children aged 4–5 years. Similarly, research by Eka Hidayati Tumuloto and Ruslan found that kasti games improved students' basic motor skills in elementary schools.

The improvement observed in this study may also be explained by the characteristics of traditional games that encourage active participation and social interaction. Children tend to feel more motivated and enthusiastic when learning activities are delivered through enjoyable games. This condition supports motor learning processes because children repeatedly perform movement tasks without feeling pressured.

Furthermore, manipulative movement skills developed during early childhood are essential for supporting future participation in sports and physical activities. Therefore, integrating traditional games such as bola kasti into physical education and early childhood learning programs can become an effective strategy for promoting children's motor development.



Conclusions

This study concluded that bola kasti games significantly improved manipulative movement abilities among children aged 6–7 years. The intervention enhanced children's throwing, catching, and hitting skills, as indicated by the increase in post-test scores and supported by the statistical analysis results ($14.32 > 1.76$). Therefore, bola kasti can be recommended as an effective traditional game-based activity for supporting early childhood motor development.

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