



The Effect of the Ball-Reaching Game Method on the Long Jump Performance of Students Participating in Extracurricular Activities at SMPN 4 Mataram in 2023

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Abstract

Objectives: This study was conducted in response to the fact that students participating in the athletics extracurricular program, particularly in the long jump event, at SMP Negeri 4 Mataram had not yet achieved competitive results in the 2023/2024 National Student Sports Olympiad (O2SN). The study aimed to examine the effect of the ball-reaching game method on the long jump performance of extracurricular students at SMP Negeri 4 Mataram.

Materials and Methods: This study employed an experimental approach using a one-group pretest–posttest design. The participants were students involved in the athletics extracurricular program at SMP Negeri 4 Mataram. A total of 19 students were selected as the sample based on several criteria: actively participating in the athletics extracurricular program, consistently attending throughout the research period, not being absent more than three times, and taking part in the treatment using the ball-reaching game method. The treatment was carried out over 16 sessions involving a variety of ball-based activities. Long jump performance was measured before and after the intervention using the squat-style long jump test, with results recorded in meters. Data were analyzed using the t-test.

Results: The findings showed that the ball-reaching game method had a significant effect on students' long jump performance. This was evidenced by the calculated t-value of 7.625, which exceeded the t-table value of 1.734. In addition, the mean improvement in students' long jump performance after the intervention was 0.16 m.

Conclusions: The findings indicate that the ball-reaching game method had a positive and statistically significant effect on the long jump performance of students participating in the athletics extracurricular program at SMP Negeri 4 Mataram.

Keywords: Ball-Reaching Game Method, Long Jump Performance, Extracurricular Athletics, Junior High School Students, Athletic Training

Introduction

Athletics is one of the most fundamental branches of sport because it is built upon basic human movement patterns, including running, jumping, and throwing (Cribb, 2022; Miller, 2011; Satwikasanti, 2022). For this reason, athletics has long been regarded as the foundation



of many other sports and remains an essential component of physical education across educational levels, from primary school to higher education (Abid et al., 2024; Dima et al., 2020; Fizi et al., 2023). Its instructional value lies not only in developing physical fitness, but also in improving coordination, motor skills, and sport-specific movement competence.

At the junior high school level, athletics is regularly featured in student sport competitions such as PORSENI, O2SN, and POPDA (Komalasari, 2023). Among the events commonly contested, the long jump is one of the most technically demanding. Successful long jump performance depends on the effective integration of four main phases: the approach run, take-off, flight, and landing (Catalano, 2020; Choudhary, 2018; Gente et al., 2023). Each phase contributes directly to jump distance and overall performance (Charles et al., 2017; Abarghoueinejad et al., 2021; Adewale et al., 2024). Consequently, students require not only repeated practice but also appropriate instructional methods that help them understand and execute these technical elements correctly. In this regard, the role of the teacher or coach is particularly important (Albalad-Aiguabella et al., 2025; Duncan et al., 2022). Limited instructional variation or inadequate technical guidance may reduce learning effectiveness and, in some cases, increase the risk of movement errors and injury.

In extracurricular athletics programs, the challenge is not merely to teach technique, but also to maintain students' interest and motivation throughout the training process (Alkhawaldeh et al., 2023; Blongkod, 2022). Students at the junior high school level tend to respond more positively to learning environments that are enjoyable, varied, and engaging. Therefore, training methods should be adapted to students' developmental characteristics and learning needs (Albalad-Aiguabella et al., 2025; Bellicha et al., 2021). A well-designed game-based approach may provide a more attractive training atmosphere, encourage active participation, and help students develop technical skills in a less monotonous way. In long jump training, such an approach may be particularly useful for improving take-off mechanics, movement confidence, and explosive effort.

Preliminary observations conducted at SMP Negeri 4 Mataram revealed several issues in the implementation of athletics extracurricular activities, particularly in the long jump event. Student participation and performance in long jump were still below expectations during the 2022/2023 academic year. The training process tended to rely on conventional practice without sufficient modification, which made the learning sessions appear repetitive and less engaging. As a result, students often showed boredom, reduced enthusiasm, and limited



persistence in training (Ambardi et al., 2023; Crowley et al., 2018; Dello Iacono et al., 2021). In addition, several technical weaknesses were consistently observed, especially during the take-off phase, where students often demonstrated insufficient push-off power and errors in the execution of key movement stages.

These conditions indicate the need for a more engaging and pedagogically appropriate training method to support long jump learning in extracurricular settings (Futhira et al., 2024; Kuswoyo, 2017). One alternative is the ball-reaching game method, which introduces playful and purposeful movement tasks into practice sessions. This method is expected to create a more enjoyable learning atmosphere while simultaneously stimulating students to perform stronger and more coordinated jumping actions. By combining elements of play with technical training objectives, the method may help students improve both motivation and performance.

Based on this rationale, the present study was conducted to examine the effect of the ball-reaching game method on the long jump performance of students participating in extracurricular athletics activities at SMP Negeri 4 Mataram in 2023.

Materials And Methods

Study Design

This study employed an experimental design to examine the causal effect of the ball-reaching game method on students' long jump performance. The study used a one-group pretest–posttest design, in which participants were tested before and after the treatment in order to determine the effect of the intervention.

Study Participants

The participants in this study were students who took part in the athletics extracurricular program at SMP Negeri 4 Mataram (Sugiyono, 2012). A total of 19 students were selected as the research sample. The participants were required to meet the following criteria: (1) actively participating in the athletics extracurricular program, (2) attending the training sessions throughout the research period, (3) not being absent more than three times, and (4) being willing to follow the treatment using the ball-reaching game method.

Study Organization

The treatment was carried out over 16 meetings. During the intervention, students participated in a series of learning and training activities based on the ball-reaching game method. This method was designed to create a more enjoyable and engaging practice atmosphere while supporting the improvement of long jump skills. Long jump performance

was measured before and after the intervention using a squat-style long jump test. The test was administered on a long jump field using a sandpit, and the jump distance was measured in meters (m).

Instrument

The instrument used in this study was the squat-style long jump test. This test was used to measure students' jumping performance in both the pretest and posttest. The equipment used included a long jump pit and a measuring tape to record jump distance in meters.

Statistical Analysis

The data were analyzed using SPSS. Prior to hypothesis testing, a normality test was conducted to examine whether the data were normally distributed. The normality analysis was performed using the Kolmogorov–Smirnov test. To determine the significance of the treatment effect, the pretest and posttest scores were compared using a paired-samples t-test. This analysis was used to assess whether the ball-reaching game method produced a significant improvement in students' long jump performance.

Results

Before testing the research hypothesis, prerequisite analyses were conducted, including the normality test and homogeneity test. These tests were used to determine whether the data met the assumptions required for parametric analysis.

Normality Test

The normality test was conducted to determine whether the data were normally distributed. In this study, the normality of the pretest and posttest scores was examined using the Kolmogorov–Smirnov test with the assistance of SPSS. The results of the normality test are presented in Table 1.

Table 1. Results of the Normality Test

Variable	df	χ^2_{table}	χ^2_{count}	p-value	Category
Pretest	17	27.58	10.471	0.883	Normal
Posttest	20	31.41	17.882	0.595	Normal

Based on Table 1, the pretest long jump data obtained a χ^2_{count} value of 10.471, which was lower than the χ^2_{table} value of 27.58. Similarly, the posttest long jump data obtained a χ^2_{count} value of 17.882, which was also lower than the χ^2_{table} value of 31.41. In addition, both variables showed p-values greater than 0.05. These findings indicate that both the pretest and posttest data were normally distributed.



Homogeneity Test

The homogeneity test was performed to determine whether the variance of the data was homogeneous. The results of the homogeneity test are shown in Table 2.

Table 2. Results of the Homogeneity Test

Variable	df	Ftable	Fcount	p-value	Category
Long jump performance	1:66	2.89	0.348	0.557	Homogeneous

As shown in Table 2, the long jump performance data obtained an Fcount value of 0.348, which was lower than the Ftable value of 2.89. The p-value was also greater than 0.05. Therefore, it can be concluded that the variance of the data was homogeneous.

Hypothesis Testing

After the prerequisite tests confirmed that the data were normally distributed and homogeneous, hypothesis testing was conducted using the t-test at a significance level of 5%. The results of the hypothesis test are presented in Table 3.

Table 3. Results of the Hypothesis Test

Comparison	df	ttable	tcount	p-value	Sig.
Pretest–Posttest Long Jump	33	2.042	6.617	0.000	0.05

Based on Table 3, the t-test analysis showed that the tcount value (6.617) was higher than the ttable value (2.042), and the p-value (0.000) was lower than 0.05. These results indicate that the alternative hypothesis was accepted and the null hypothesis was rejected. In other words, the ball-reaching game method had a significant effect on the long jump performance of students participating in the extracurricular program at SMP Negeri 4 Mataram in 2023.

Discussion

The results of this study indicate that the ball-reaching game method had a significant positive effect on the long jump performance of students participating in the athletics extracurricular program at SMP Negeri 4 Mataram. The statistical analysis showed a significant difference between the pretest and posttest scores, indicating that the intervention contributed to measurable improvement in students' jumping performance. This finding suggests that the use of a game-based training method can be an effective strategy for improving long jump outcomes among junior high school students (Dima et al., 2020).

One possible explanation for this improvement is that the ball-reaching game method provided a more engaging and enjoyable learning environment than conventional training. In extracurricular settings, students often respond more positively to learning activities that are



varied, active, and enjoyable. When training sessions are designed in a playful and motivating way, students are more likely to participate enthusiastically and perform movement tasks with greater effort. This condition may have contributed to the improvement observed in their long jump performance after the intervention (Didymus et al., 2021).

From a technical perspective, the ball-reaching game method may also have helped students improve the take-off phase, which is one of the most important determinants of long jump distance. Based on preliminary observations, students commonly experienced problems related to weak push-off power and errors in the execution of the jumping sequence. The use of ball-oriented tasks during training likely encouraged students to perform stronger upward and forward movements, which may have enhanced their explosive effort, body coordination, and confidence during take-off. As a result, the students were able to produce better jump distances in the posttest.

These findings are consistent with the idea that instructional modification plays an important role in physical education and sport training, especially for adolescent learners. At the junior high school level, students generally require learning approaches that are not only technically meaningful but also developmentally appropriate and psychologically engaging. A monotonous training process may reduce motivation and limit performance development, whereas a game-based method can create a more dynamic practice atmosphere and support skill acquisition more effectively.

Although the present findings are encouraging, this study has several limitations that should be acknowledged. First, the study used a one-group pretest–posttest design without a control group, which limits the ability to attribute the improvement solely to the intervention. Second, the sample size was relatively small and restricted to one school, which may reduce the generalizability of the findings. Future studies are therefore recommended to involve larger samples, include comparison groups, and examine the effect of similar game-based methods in other athletics events or educational contexts.

Overall, the results of this study demonstrate that the ball-reaching game method can serve as a practical and effective alternative for improving long jump performance in extracurricular athletics programs. The method not only appears to enhance performance outcomes but also offers a more attractive approach to training for junior high school students.



Conclusions

The findings of this study demonstrate that the ball-reaching game method had a positive and statistically significant effect on the long jump performance of students participating in the athletics extracurricular program at SMP Negeri 4 Mataram. This result indicates that the application of a game-based training approach can contribute meaningfully to improving students' long jump achievement. Therefore, the ball-reaching game method may be considered an effective and practical alternative for long jump instruction and training in extracurricular athletics programs.

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