



Mpa'a Gopa and Gross Motor Skills in Elementary School Students

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Abstract

Objectives: This study examined changes in elementary school students' gross motor skills after physical education lessons incorporating the traditional Mpa'a Gopa game.

Materials and Methods: A one-group pretest–posttest design was used with 20 purposively selected students. Gross motor skills were assessed before and after the lessons. Data were analyzed using descriptive statistics, the Shapiro–Wilk test, and a paired-samples *t*-test at a significance level of .05.

Results: The mean gross motor skill score increased from 59.20 at pretest to 78.05 at posttest, a gain of 18.85 points. The paired-samples test showed a statistically significant difference ($p < .001$).

Conclusions: Students' gross motor skill scores improved after lessons incorporating Mpa'a Gopa. The game may offer an engaging way to teach physical education while introducing students to Mbojo cultural heritage. Because the study had no comparison group, the improvement cannot be attributed solely to the game.

Keywords: Mpa'a Gopa; traditional games; gross motor skills; physical education; elementary school

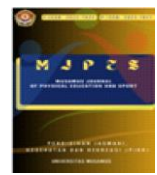
Introduction

Physical Education, Sports, and Health (PJOK) is a subject that plays a crucial role in developing students' overall potential through planned and systematic physical activities. At the elementary school level, PJOK learning not only aims to improve physical fitness but also develops motor skills, thinking skills, social attitudes, and character. In the implementation of the Independent Curriculum, PJOK learning is directed towards being more student-centered, requiring teachers to design active, contextual, innovative learning that is appropriate to children's developmental characteristics. However, the implementation of the Independent Curriculum in PJOK subjects in elementary schools still faces various obstacles, including teachers' limited ability to select learning models, methods, and media that can increase active student engagement (Iqbal, 2021).

One of the important achievements of Physical Education (PJOK) learning at the elementary school level is the development of students' gross motor skills. Gross motor skills encompass a variety of basic movement skills such as walking, running, jumping, throwing, catching, maintaining balance, and coordinating body movements that involve large muscles. Mastery of these skills lays the foundation for the development of sports skills at the next level and contributes to children's physical, social, and emotional development. Therefore, the PJOK learning process needs to provide students with ample opportunities to engage in varied and meaningful movement activities so that gross motor skills develop optimally (Hasibuan et al., 2026).

Ideally, physical education (PJOK) learning in elementary schools is implemented through play activities because play is a key characteristic of elementary school-aged children. Game-based learning allows students to learn while moving, exploring, collaborating, and solving problems in a fun atmosphere. One form of play that has great potential to be integrated into PJOK learning is traditional games. Research shows that the use of traditional games in PJOK learning can improve motor skills, learning motivation, and active student participation while also serving as a means of preserving local culture (Latifi & Mashud, 2025).

However, the current state of physical education (PJOK) learning in various elementary schools still shows that the use of traditional games as a learning medium has



not been optimal. Learning tends to be oriented towards practicing specific sports techniques, thus limiting students' opportunities to gain learning experiences through play activities. On the other hand, the development of digital technology has resulted in children playing traditional games less frequently and spending more time using gadgets. This situation has resulted in reduced physical activity in children, which has the potential to hinder the development of gross motor skills. A literature review conducted by (Khodari et al., 2026) shows that traditional games are an effective alternative for improving gross motor skills because they involve locomotor activity, balance, coordination, agility, and muscle strength in an integrated manner.

Based on these conditions, innovations in physical education (PJOK) learning are needed that not only improve students' gross motor skills but also integrate local cultural values into the learning process. One potential alternative is the use of traditional games as learning media. Besides being easy to implement in the school environment and suited to the characteristics of elementary school students, traditional games also possess educational, social, and cultural values that can support active, enjoyable learning while contributing to the preservation of regional cultural heritage (Hermansah et al., 2025) .

The development of information technology and digitalization in everyday life has brought changes to the play patterns of elementary school-aged children. Play activities that were previously dominated by traditional outdoor games have shifted to gadget-based games. This shift has resulted in a decrease in children's physical activity, thus reducing opportunities to develop basic motor skills, balance, coordination, and agility. The results of a literature review indicate that traditional games play a crucial role in improving gross motor skills because they involve integrated locomotor, non-locomotor, and manipulative activities. Therefore, integrating traditional games into school learning is a recommended strategy to increase children's physical activity while supporting their motor development (RP Sari et al., 2025) .

Traditional games not only serve as a means of recreation but also contain educational value that can be utilized in the learning process. Various studies have shown that traditional games can improve motor skills, thinking skills, cooperation, communication, sportsmanship, and character development in students. Furthermore, traditional games are part of local wisdom that needs to be preserved through education to prevent it from being eroded by the development of modern games. Integrating traditional games into learning provides dual benefits: improving the quality of the learning process while strengthening students' cultural identity (Dzakiyyah et al., 2024). (RP Sari et al., 2025) .

One of the traditional games originating from the Mbojo (Bima) culture is Mpa'a Gopa. This game is played using squares drawn on the ground or floor, then players jump over the squares using one foot while throwing or picking up stones according to the rules of the game. The characteristics of this game require balance, coordination of movement, precision, concentration, and leg muscle strength. Therefore, Mpa'a Gopa has great potential to be used as a learning medium that can stimulate the development of students' gross motor skills. In addition to the motor aspect, this game also contains local cultural values that can be a medium for preserving the cultural heritage of the Bima people through learning activities in schools.

The potential of Mpa'a Gopa as a learning medium has begun to receive attention in various studies. Wulandari et al. (2025) reported that the implementation of the STAD cooperative learning model based on the Mpa'a Gopa game had a positive influence on the motor skills and social skills of elementary school students. These findings indicate that the traditional game of Mpa'a Gopa is not only relevant as a medium for preserving local culture but also has pedagogical value in improving the quality of learning in elementary schools. On the other hand, research by Rahmawati et al. (2022) shows that



Mpa'a Gopa is also worthy of being developed as a learning medium based on local wisdom because it is considered valid, practical, and effective in supporting the learning process in elementary schools.

Traditional games are a form of physical activity that not only serve as entertainment but also have educational value that can be utilized in the learning process. In Physical Education, Sports, and Health (PJOK) lessons, traditional games can provide a fun learning experience because they involve active movement, interaction between students, cooperation, and the instilling of sportsmanship values. Furthermore, traditional games are also part of local wisdom that needs to be preserved through education so that they remain known and passed down to the younger generation.

One of the traditional games originating from the Mbojo (Bima) culture is Mpa'a Gopa. This game is played using squares drawn on the ground or floor, then players jump over the squares with one foot while throwing and picking up stones according to the rules of the game. This activity requires the ability of balance, coordination of movement, agility, precision, concentration, and leg muscle strength. The characteristics of these movements indicate that the game of Mpa'a Gopa has the potential to be used as one of the Physical Education learning activities that can stimulate the development of gross motor skills of elementary school students. In addition, the application of traditional games in learning is also an effort to preserve the local culture of the Mbojo community.

The potential of the Mpa'a Gopa game in education has begun to receive attention through several studies. (Wulandari et al., 2025) reported that the implementation of the Student Teams Achievement Division (STAD) cooperative learning model based on the Mpa'a Gopa game had a positive influence on the motor skills and social skills of elementary school students. The results of this study indicate that the Mpa'a Gopa game is not only relevant as a medium for preserving local culture but also has pedagogical value that can improve the quality of the learning process.

However, research on the Mpa'a Gopa game is still relatively limited. Most studies have integrated the game into specific learning models or examined its effects on aspects other than gross motor skills. Therefore, research is needed that specifically examines the effect of the traditional Mpa'a Gopa game as a primary activity in Physical Education (PJOK) learning on the gross motor skills of elementary school students. This research is expected to provide empirical evidence regarding the effectiveness of the Mpa'a Gopa game in improving gross motor skills while strengthening the implementation of local wisdom-based PJOK learning (Wulandari et al., 2025).

Research on the traditional game Mpa'a Gopa is still relatively limited. One study was conducted by Wulandari et al. (2025) who developed a Student Teams Achievement Division (STAD) cooperative learning model based on the game Mpa'a Gopa for elementary school students. The results showed that integrating the game Mpa'a Gopa into the learning model significantly improved students' motor skills and social skills compared to conventional learning. These findings indicate that traditional games typical of the Mbojo community have great potential as learning media that can enhance learning activities while integrating local cultural values.

Another study conducted by Satriawan & Irawan (2025) examined the influence of the traditional game Mpa'a Gopa on the interpersonal intelligence of elementary school students. The results showed that the implementation of the Mpa'a Gopa game had a positive influence on students' ability to work together, focus, and develop strategies during the learning process. These findings demonstrate that traditional games not only contribute to students' social aspects but also have the potential to support the development of various abilities through enjoyable learning activities.



Based on the review of these studies, it can be concluded that the traditional game Mpa'a Gopa has been proven to provide benefits in improving motor skills, social skills, and interpersonal intelligence of students. However, these studies have a different focus from this study. Wulandari et al. (2025) integrated the Mpa'a Gopa game into the STAD type of cooperative learning model, while (Satriawan & Irawan, 2025) focused more on the study of students' interpersonal intelligence aspects. Until now, there is still very limited research that specifically tests the effect of the traditional game Mpa'a Gopa as the main treatment in Physical Education learning on the gross motor skills of elementary school students. This condition indicates a research gap that needs further study.

Based on this research gap, the novelty of this study lies in the use of the traditional game Mpa'a Gopa as the main intervention in Physical Education (PJOK) learning to improve elementary school students' gross motor skills. Unlike previous studies that integrated this game into specific learning models or examined aspects of interpersonal intelligence, this study specifically examined the direct effect of Mpa'a Gopa game activities on students' gross motor skills. This study also strengthens the implementation of physical activity-based PJOK learning while supporting the preservation of the local culture of the Mbojo community.

The aim of this study is to analyze the influence of the traditional game Mpa'a Gopa on the gross motor skills of elementary school students and to describe its contribution as an alternative to local wisdom-based PJOK learning.

Materials and Methods

Study Design

This study uses a quantitative approach with a quasi-experimental method through the One Group Pretest–Posttest Design. This design was chosen to determine the effect of the implementation of the traditional game Mpa'a Gopa on the gross motor skills of elementary school students by comparing the conditions of students before (pretest) and after (posttest) being given treatment. According to John W. Creswell, the pretest–posttest design is an experimental design that allows researchers to measure changes that occur after an intervention is given (Creswell & Creswell, 2017). Meanwhile, Donald T. Campbell and Julian C. Stanley explain that a quasi-experimental design is used when researchers are unable to conduct full subject randomization, but can still identify the effect of treatment through measurements before and after the intervention (Campbell & Stanley, 1963).

Study Participants

The research was conducted at an elementary school in Bima Regency, West Nusa Tenggara. The subjects were elementary school students selected using purposive sampling, which involves selecting samples based on specific considerations, such as the suitability of the grade level to the physical education and health and health education materials and the school's readiness to conduct the research. The sample size was adjusted to reflect the number of students in the classes selected for the study.

The independent variable in this study was the traditional game Mpa'a Gopa, while the dependent variable was the gross motor skills of elementary school students. Treatment was provided through physical education (PJOK) learning activities that integrated the traditional game Mpa'a Gopa in several meetings. During the learning process, students engaged in movement activities involving locomotor, non-locomotor, and manipulative skills according to the game rules. These activities were designed to train balance, motor coordination, agility, accuracy, and leg muscle strength as indicators of gross motor skills.

Study Organization



Data collection was conducted using a gross motor skills test instrument administered before treatment (pretest) and after the entire learning process (posttest). The instrument was developed based on gross motor skills indicators, including balance, coordination, agility, movement accuracy, and mobility. Prior to use, the instrument was validated through expert judgment to ensure its suitability to the research objectives.

Statistical Analysis

The data obtained were analyzed quantitatively using descriptive and inferential statistics. Descriptive analysis was used to describe the mean, standard deviation, minimum, and maximum values of the pretest and posttest results. Furthermore, a prerequisite analysis test was conducted in the form of a data normality test using the Shapiro–Wilk test. If the data were normally distributed, hypothesis testing was conducted using a paired sample t-test with a significance level of 0.05 to determine differences in students' gross motor skills before and after the implementation of the traditional game Mpa'a Gopa. The entire data analysis process was carried out using statistical software.

Results

Descriptive Statistics .

Descriptive statistics were used to provide an overview of students' gross motor skills before (pretest) and after (posttest) participating in PJOK learning using the traditional game Mpa'a Gopa. The results of the descriptive statistical analysis are presented in Table 1.

Variables	Statistics	df	Sig.
Pretest	0.965	20	0.658
Posttest	0.972	20	0.792

Based on the results of the normality test in Table 2, a significance value (Sig.) of 0.658 was obtained for the pretest data and 0.792 for the posttest data. Both significance values are greater than the significance level used ($\alpha = 0.05$). Thus, the students' gross motor skills data before and after treatment were normally distributed.

Because the data meets the normality assumption, further analysis can be carried out using a paired sample t-test to determine whether there is a significant difference between students' gross motor skills before and after participating in learning using the traditional game Mpa'a Gopa.

Paired Sample t-test

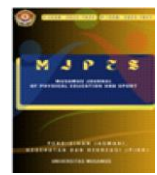
After the data was declared normally distributed based on the results of the normality test, the next step was to conduct a hypothesis test using a paired sample **t-test**. This test aims to determine whether there is a significant difference between students' gross motor skills before (pretest) and after (posttest) participating in PJOK learning using the traditional game *Mpa'a Gopa*. The results of the analysis using the *paired sample t-test* are presented in Table 3.

Table 3.

Paired Sample t-test Results

Variables	Mean	Mean Difference	t	df	Sig. (2-tailed)
Pretest	59.20				
Posttest	78.05	18.85	-60,820	19	0,000

Based on Table 3, it is known that the average value (**mean**) of students' gross motor skills before being given treatment was **59.20** , whereas after participating in learning using the traditional game *Mpa'a Gopa* it increased to **78.05** . The average difference (**mean difference**) between the pretest and posttest results was **18.85** points.



The results of the *paired sample t-test* showed a **t value of -60.820** with a degree of freedom (**df**) of **19** and a significance value (**Sig. 2-tailed**) of **0.000**. This significance value is smaller than the specified significance level (**0.05**), so **H₀ is rejected** and **H₁ is accepted**.

Thus, it can be concluded that there is a significant difference between students' gross motor skills before and after participating in PJOK learning using the traditional game *Mpa'a Gopa*. The increase in the average value from **59.20** to **78.05** indicates that the traditional game *Mpa'a Gopa* has a positive influence on improving the gross motor skills of elementary school students. These results indicate that game activities involving jumping movements, maintaining balance, body coordination, and agility are able to stimulate the development of students' gross motor skills optimally.

Discussion

This study aims to answer the problem formulation, namely whether there is an influence of the traditional game *Mpa'a Gopa* on the gross motor skills of elementary school students. Based on the results of statistical analysis, it is known that there is a significant difference between students' gross motor skills before and after participating in PJOK learning using the traditional game *Mpa'a Gopa*. The average value of gross motor skills increased from 59.20 at the pretest to 78.05 at the posttest. The results of the paired sample t-test showed a significance value of 0.000 ($p < 0.05$), so the research hypothesis was accepted. Thus, it can be concluded that the traditional game *Mpa'a Gopa* has a positive influence on improving the gross motor skills of elementary school students.

The improvement in gross motor skills occurred because the *Mpa'a Gopa* game involved various basic movement activities, such as jumping on one leg, maintaining body balance, changing positions, coordinating body movements, and controlling the accuracy of steps on each game square. These activities directly train locomotor skills, dynamic balance, coordination, agility, and body control, which are the main components of gross motor skills. These results are in line with motor learning theory which explains that motor skills develop through repeated practice (repetition), meaningful movement experiences, and active involvement of students in physical activities (Budiman, 2023; Setiawan, 2025).

The findings of this study can also be explained through Piaget's theory of cognitive development, which states that elementary school-aged children are in the concrete operational stage, a stage where students learn optimally through direct experience and real-life activities. Traditional games provide opportunities for students to build understanding and develop motor skills through contextual physical activity. Furthermore, Bandura's social learning theory explains that the processes of observation, imitation, practice, and feedback during play contribute to accelerating students' mastery of motor skills (Imanulhaq & Ichsan, 2022).

The results of this study support research conducted by (Kamadi et al., 2024; Prasetyo et al., 2025; Sibero et al., 2024) which showed that the use of traditional games in Physical Education learning can improve motor skills while increasing learning motivation and active participation of elementary school students. This improvement occurs because traditional games provide a more engaging learning experience than learning that focuses solely on technical practice. The findings of this study are also in line with the results of a literature review conducted by (Nariman et al., 2026) which concluded that traditional games consistently have a positive impact on children's gross motor development. Various traditional games train locomotor skills, balance, coordination, muscle strength, and agility in an integrated manner, making them effective as a medium for physical education learning.



Furthermore, research on the traditional game of Dampu also shows an increase in gross motor skills after students participate in structured game activities. This game provides opportunities for children to move actively, thereby improving coordination, balance, and agility (Alsaudi & Herminastiti, 2024) . Similar results were also reported in research on the traditional game Engklek, which was shown to improve balance, coordination, and gross motor skills through repeated jumping activities (GN Sari, 2025)

Although the results of this study are in line with various previous studies, there is a novelty that distinguishes this study from previous research. Most previous studies integrate traditional games into specific learning models, such as Student Teams Achievement Division (STAD), or develop traditional games as learning media or a means to increase learning motivation, kinesthetic abilities, and social skills. In contrast, this study places the traditional game Mpa'a Gopa as the main intervention in Physical Education (PJOK) learning to improve gross motor skills of elementary school students. Thus, the focus of this study is not on the effectiveness of a particular learning model, but rather on the effectiveness of the Mpa'a Gopa game activity itself as a physical activity-based PJOK learning strategy.

Another novelty of this research is the integration of the local wisdom of the Mbojo (Bima) community into physical education (PJOK) learning. Previously, the Mpa'a Gopa game was largely viewed as a cultural heritage that served as a means of community entertainment. This research demonstrates that the game has high pedagogical value because it can be an effective learning medium while also supporting the preservation of local culture. Thus, this research contributes to the development of local culture-based PJOK learning that is relevant to the implementation of the Independent Curriculum, which emphasizes contextual learning and utilizing environmental potential as a learning resource.

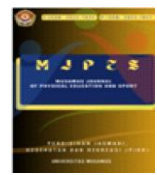
Practically, the results of this study provide implications that physical education teachers can utilize the traditional game Mpa'a Gopa as an alternative learning method that is easy to implement, does not require expensive equipment, and can create an active, fun, and meaningful learning atmosphere. In addition to improving gross motor skills, the use of traditional games also has the potential to foster attitudes of cooperation, sportsmanship, responsibility, and a love of local culture in students.

This study still has several limitations. The sample size, consisting of only one class with 20 students, means the results cannot be widely generalized. Furthermore, the One Group Pretest–Posttest design was unable to control for all external factors that might influence the results. Therefore, further research is recommended to use an experimental design involving a control group, a larger sample size, and a standardized gross motor development measurement instrument, such as the Test of Gross Motor Development-3 (TGMD-3), so that the effectiveness of the traditional game Mpa'a Gopa can be tested more comprehensively.

Conclusions

Based on the results of the study, it can be concluded that the traditional game Mpa'a Gopa has a positive and significant effect on the gross motor skills of elementary school students. The increase in the average value of gross motor skills from 59.20 in the pretest to 78.05 in the posttest, as well as the results of the paired sample t-test with a significance value of 0.000 ($p < 0.05$), indicates that the application of the Mpa'a Gopa game is effective in improving students' gross motor skills.

The results of this study prove that the traditional game *Mpa'a Gopa* can be used as an alternative to physical education (PJOK) learning that can improve students' physical activity, balance, coordination, agility, and motor skills in a fun way. In addition to providing benefits for motor development, the implementation of this game also

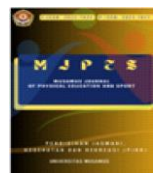


contributes to preserving the local culture of the Mbojo community through the learning process at school.

Further research is recommended to use an experimental design involving a control group, a larger sample size, and a standardized gross motor ability measurement instrument so that the effectiveness of the traditional game *Mpa'a Gopa* can be proven more comprehensively.

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