**Musamus Journal of Physical Education and Sport (MJPES)**
http://ejournal.unmus.ac.id/index.php/physical
Volume 7, No. 3, July 2025, Pg. 376-383
DOI: 10.35724/mjpes.v7i3.7166

# Development of a Physical Education Learning Model Based on Play Activities for Madrasah Ibtidaiyah Students at Nurul Ulum Private School

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**Abstract**

**Objectives.** The objective of this study was to develop a physical education learning model based on play activities for students at Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum. The research also aimed to gain a comprehensive understanding of the implementation of the model among elementary-aged children and to assess its effectiveness, efficiency, and attractiveness. Specifically, the model was designed for fourth- and fifth-grade students to enhance their engagement and learning outcomes in physical education.

**Materials and Methods.** The study involved 32 students from grades IV and V at MIS Nurul Ulum. A research and development approach was used, including several stages: needs analysis, expert evaluation, small group trials, and large group testing. Data collection was conducted using questionnaires to assess initial needs, gather expert feedback, and evaluate student responses during the trial phases. The effectiveness of the model was measured by comparing learning outcomes before and after the implementation of the developed model. Statistical analysis was carried out to calculate the improvement in student performance.

**Results.** The results indicated a significant improvement in students' physical education learning outcomes. The average score increased from 68.06% before the model implementation to 86.22% after applying the play-based learning model. These findings demonstrate that the developed model was not only effective in improving educational outcomes but also efficient and well-received by students, as observed in both small-scale and large-scale trials.

**Conclusions.** This study concluded that the play-based physical education learning model developed for MIS Nurul Ulum is both effective and efficient in enhancing student learning outcomes. The model successfully engaged fourth- and fifth-grade students, as evidenced by significant improvements in their academic performance. The findings support the integration of play-based strategies in physical education, particularly within Islamic elementary school contexts, as a means to improve motivation, participation, and learning achievements.

**Keywords: Physical Education, Learning Model, Play-Based Activities, Madrasah Ibtidaiyah**

## Introduction

Physical education (PE) is formally recognized in the Indonesian *Law on the National Sports System*, Chapter 1, Article 1, Paragraph 11, which defines it as an organized and continuous educational process aimed at developing knowledge, personality, skills, health,

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and physical fitness. In primary schools, the objectives of PE are aligned with the Management Information System (MIS) approach, which emphasizes the development of cognitive, psychomotor, and affective domains through physical activity and the promotion of a healthy lifestyle. The curriculum is structured in a semester-based system, with content outlined in syllabi from grades one through six.

One effective approach in achieving these educational goals is through play-based learning. Play is a fundamental need for children, as essential as food, warmth, and love. Scholars such as Brown & Ferrara (2018), Johnson & Ward (2022), and Miller & Almon (2021) have emphasized the cognitive, emotional, and social development benefits of play. Activities involving traditional games provide both physical refreshment and psychological satisfaction, particularly when students are fully engaged (Smith & Jones, 2021). In the context of elementary education, learning through play is not only enjoyable but also a crucial pedagogical strategy to internalize values and enhance learning experiences.

Preliminary observations and interviews conducted at *Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum* in Talang Pauh, Pondok Kelapa District, revealed several instructional challenges. Physical education at this school was heavily reliant on outdated materials and conventional teaching methods. The teacher, Mr. Muhammad Jaiz, primarily used printed textbooks, many of which were insufficient in quantity and quality. Consequently, students displayed low engagement, frequent distractions, and limited physical activity participation. Although the school had adopted the 2013 PE curriculum, its implementation remained superficial, with many instructional practices still rooted in the older KTSP framework.

Moreover, cultural background played a significant role in shaping student behavior and preferences. Most students came from the Lembak ethnic group, whose parents are predominantly farmers. These students tended to favor traditional games such as *kelereng* (marbles), which are deeply ingrained in their daily routines and cultural identity. Introducing unfamiliar sports or games was met with resistance, highlighting the need for culturally responsive pedagogy. The teacher's limited training in physical education further compounded the issue, resulting in ineffective and uninspired instruction.

Given these circumstances, the development of a culturally relevant and engaging physical education model based on traditional play activities becomes essential. This study proposes the creation of such a model to address the gap in current instructional methods and to align learning with the students' socio-cultural context. The model integrates traditional games commonly played in the local environment into the structured phases of a PE lesson, including stretching, dynamic warm-up, core activities, and cool-down. For instance, instead

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of standard jogging, students would engage in culturally familiar traditional games such as *benteng*, which incorporates running and team dynamics.

The study adopts a research and development approach, beginning with preliminary field research in several elementary schools in Bengkulu City to gather insights. These findings inform the design of several alternative teaching models, which are then tested and refined through application in the learning process at MIS Nurul Ulum. The final product—a validated play-based PE learning model will be compiled into a practical instructional guide, validated by subject-matter and media experts.

Therefore, this study aims to develop a physical education learning model based on play activities for students at Madrasah Ibtidaiyah Swasta Nurul Ulum. The hypothesis underlying this study is that the developed model will enhance student engagement, motivation, and learning outcomes by incorporating culturally appropriate and enjoyable physical activities into the learning process.

## Materials and Methods

### Study Participants.

The participants in this study were 32 students from grades IV and V at *Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum,* located in Talang Pauh Village, Pondok Kelapa District, Central Bengkulu Regency. The research was conducted over a two-month period, from September to October 2024. A total sampling technique was employed, meaning all students in the selected grades participated in the study. The students, aged approximately 10 to 11 years, came from predominantly agricultural backgrounds, reflecting the socioeconomic characteristics of the rural Lembak ethnic community. Inclusion criteria required that students be actively enrolled in the physical education program and physically able to participate in all activities. No exclusion criteria were applied, as the study aimed to reflect the real classroom context.

### Study organization.

This study employed a Research and Development (R&D) approach using the ADDIE instructional design model, which consists of five systematic phases: Analysis, Design, Development, Implementation, and Evaluation (Molenda, 2013). The primary objective was to develop a physical education learning model based on play activities, specifically tailored to the needs of students at Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum, a rural Islamic elementary school. In the Analysis phase, a needs assessment was conducted through direct observation and interviews with teachers and students to identify gaps in the existing learning approach. The Design phase involved formulating a prototype learning model that integrated culturally familiar traditional games into the physical education curriculum. During the

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Development phase, the model was translated into practical teaching tools, including a teacher's manual and a student activity guide. In the Implementation phase, the model was tested in a real classroom setting with 32 students, encompassing structured lesson stages such as warm-up, core activity, and cool-down. Finally, the Evaluation phase involved comparing student learning outcomes through pre-test and post-test measures to assess the model's effectiveness. The study produced two key outputs: (1) a printed instructional book detailing the developed play-based physical education model for MIS Nurul Ulum, and (2) supplementary teaching materials designed to support educators in implementing the model effectively in daily classroom instruction.

**Statistical analysis.**

To evaluate the effectiveness of the developed model, **quantitative data** were analyzed using **inferential statistical methods**, specifically the **paired-sample t-test**. The experimental design included a **pre-test (O1)** administered before implementation and a **post-test (O2)** conducted after the learning model had been applied.

The analysis process included:

1. Calculating the **mean scores** of the pre-test and post-test results.
2. Determining the **mean difference** between both test scores.
3. Applying the **t-test** to assess whether the observed improvement was statistically significant ($p < 0.05$).

This analysis aimed to test the hypothesis that the play-based learning model would produce a measurable improvement in students' physical education outcomes. The statistical procedures ensured the rigor and validity of the results, allowing the findings to contribute meaningfully to pedagogical research and practice in elementary physical education.

**Results**

The effectiveness of the developed play-based physical education learning model was evaluated through a large-scale trial involving 32 students. Descriptive statistical analysis was conducted to compare the students' learning outcomes before and after the implementation of the model. As shown in the table below, the average (mean) score of the **pre-test** was **68.06** with a standard deviation of **3.41**, while the average **post-test** score increased significantly to **86.22** with a standard deviation of **3.00**.

**Table. 1** Group Statistics Table

| Group | N | Mean | Std.Deviation | Std. Error Mean |
|---|---|---|---|---|
| Pre-test | 32 | 68.06 | 3.41 | 0.60 |
| Post-test | 32 | 86.22 | 3.00 | 0.53 |

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The statistical results clearly indicate an improvement in learning outcomes following the application of the play-based learning model. The increase in the mean score from the pre-test to the post-test demonstrates the positive impact of the model on student performance in physical education.

As depicted in the figure, the mean score of students' physical education learning outcomes improved from **68.06** before the application of the model to **86.22** after the model was implemented. This substantial increase places the post-test performance in the "good" category, affirming the success of the model in enhancing students' engagement and academic achievement in physical education.

These findings confirm that the developed model significantly improves the effectiveness of physical education learning and supports its implementation in similar educational contexts.

**Discussion**

The findings of this study confirm the effectiveness of a play-based physical education learning model in enhancing student engagement and learning outcomes at Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum. The significant increase in average scores from **68.06** (pre-test) to **86.22** (post-test) indicates that the integration of structured play into physical education lessons offers a meaningful improvement in students' active participation and understanding of basic motor skills.

These results align with previous research by Brown and Ferrara (2018), Johnson and Ward (2022), and Miller and Almon (2021), which emphasized the cognitive, emotional, and social benefits of play in childhood education. In the context of MIS Nurul Ulum, where cultural factors play a significant role in shaping student preferences and behaviors, the use of traditional games proved particularly effective. Students were more motivated and engaged when learning activities mirrored their daily experiences and cultural background.

The model also addressed several pedagogical challenges faced by physical education teachers, especially those related to limited resources and student disengagement. By offering a flexible and culturally responsive teaching tool, the model allowed educators to deliver lessons more interactively and efficiently. Furthermore, the structured yet enjoyable nature of the activities fostered positive values such as honesty, courage, and teamwork, supporting not only physical development but also character education.

Despite its success, the study acknowledges several limitations. The sample was limited to a single school with 32 students, which may restrict the generalizability of the results. Additionally, the implementation period was relatively short, and the long-term

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impact of the model on physical and psychosocial development remains to be studied. Future research should explore the model's application across broader and more diverse school populations and consider longitudinal designs to assess its sustainability over time.

Overall, the discussion highlights that the play-based physical education model developed in this study offers a valuable contribution to the field of elementary school pedagogy. It bridges the gap between curriculum demands and student-centered learning, particularly in rural and culturally distinct educational settings. The findings encourage further innovation in localized PE instructional models that prioritize enjoyment, inclusivity, and student well-being.

**Conclusions**

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This study proposed and validated a physical education learning model based on play activities, specifically designed for use in Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum, Talang Pauh Dalam. The underlying hypothesis—that a play-based instructional model could significantly enhance student engagement and physical activity—was supported by empirical findings. The average score from the pre-test was **68.06**, which increased to **86.22** in the post-test, indicating a substantial improvement in students' active participation and learning outcomes.

Compared to previous studies discussed in the introduction, these results reinforce the growing consensus on the importance of integrating culturally familiar and developmentally appropriate activities in elementary physical education. The model demonstrated several advantages: it enhanced students' motor understanding, increased enthusiasm and motivation, made physical education more engaging, fostered honesty and courage, and facilitated more effective instruction by PE teachers. Additionally, the progression from simple to complex activities encouraged students to think quickly and act appropriately, while optimizing the use of instructional time.

Given these benefits, the model holds strong practical value for schools with similar student demographics and cultural contexts. It is particularly well-suited for educators aiming to implement joyful and meaningful physical education through traditional games.

Future research is recommended to expand the application of this model across diverse educational settings, evaluate its long-term impact on student development, and refine the model further based on larger and more varied samples. Continued exploration in this area could contribute significantly to the innovation and localization of physical education practices in Indonesian primary schools.

**Acknowledgment**

The author extends sincere gratitude to all parties at Madrasah Ibtidaiyah Swasta (MIS) Nurul Ulum Talang Pauh for their support and cooperation throughout the research process. Appreciation is also given to everyone who contributed directly or indirectly to the successful completion of this article.

**Conflict of interest**

The author declares no conflict of interest.

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