



Development of a Softball Game Learning Model to Improve the Manipulative Skills of Elementary School

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Abstract

Manipulative motor skills are a fundamental component of physical education learning at the elementary school level, as they support students' physical, cognitive, and social development. However, observations at Sumur 03 Public Elementary School Pati Regency, indicated that students' manipulative skills learning were still low, particularly in hitting, throwing, and catching. This study aims to develop a softball learning model through the modification of the simpleball game to improve the basic manipulative motor skills of phase C (11-12years) students Sumur 03 Public Elementary School. This study uses the Research and Development (R&D) method with the following stages: needs analysis, product design, initial product development, expert validation, small-scale field testing, product revision, and large-scale field testing. The research subjects consisted of fifth and sixth grade students. Data collection techniques included observation, manipulative skill tests (pre-test and post-test), and student response questionnaires. The data were analyzed using quantitative and qualitative descriptive analysis. The results of the learning and game expert validation showed that the Simpleball learning model was very feasible for use. The effectiveness test results showed an increase in students' basic manipulative motor skills in the aspects of hitting, throwing and catching at a distance, as well as catching a bouncing ball after the implementation of the Simpleball learning model. Student responses to the use of the Simpleball learning model also showed a very good category, which indicated high interest, involvement, and acceptance of students in learning. Based on the research results, it can be concluded that the softball learning model through the Simpleball game modification is feasible and effective for improving the basic manipulative motor skills of Phase C elementary school students.

How to Cite

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INTRODUCTION

Physical education is an integral part of the overall educational process and is an effort to develop the physical, mental, emotional, and social aspects of the entire community through selected physical activities in order to achieve these goals (Jones, Ratten, and Hayduk 2020; Mustafa 2022). Mastery of basic motor skills is a fundamental aspect of PE learning at the elementary school level because it is a major factor in forming a positive attitude towards sports (Martinus & Kesumawati, 2020). One of the main components of basic motor skills is manipulative skills, which is the ability to control objects through hitting, catching, throwing, kicking, and rolling movements (Imani et al., 2020). These skills play an important role in various small ball games and team sports, including softball, and contribute to the development of coordination, balance, muscle strength, and self-confidence in students (Raharjo et al., 2023).

According to Mirawati & Rahmawati, (2017) manipulative skills develop gradually from an early age and require stimulation that is appropriate to the characteristics of child development. Optimal mastery of manipulative skills not only has an impact on psychomotor aspects, but also on the cognitive, social, and emotional development of students (Imani et al., 2020). Students with low manipulative skills tend to lack confidence and have difficulty adapting to group activities (Susanti & Irsyada, 2023). In the long term, this condition will affect the low participation of students in physical activities and cause obstacles in social adjustment (Irsyada, 2016).

The development of manipulative skills in elementary school learning practices has not been optimal. Initial observations conducted at Sumur 03 Public Elementary School, show that the manipulative skills of students in phase C (11-12years) of the softball game are still relatively low. Students have difficulty performing the basic movements in softball, namely throwing, catching, and hitting effectively and safely. Throwing movements are performed without good coordination, hitting the ball with an incorrect body position, and control when catching the ball is inadequate. These conditions lead to ineffective development and have the potential to reduce students' interest and activity in participating in learning activities.

Poor manipulative skills are influenced by several factors, including limited experience playing softball, a lack of variety in learning

models, and the use of rules and game equipment that are not tailored to the characteristics of elementary school students. As a small ball game, softball is rarely used in elementary school learning, so students do not have adequate basic understanding and skills. Learning that tends to use conventional and less contextual approaches makes it difficult for students to optimally master manipulative skills (Akbar et al., 2024). The play approach is one of the relevant strategies because it can create an active, safe, and meaningful learning atmosphere. Through play activities, students can naturally develop their gross and fine motor skills while increasing their motivation, creativity, and social interaction. One form of play-based approach recommended in learning is the use of modified games.

Modified games are adaptations of the original games through simplification of rules, equipment, playing field, and number of players to suit the abilities and needs of students, so that learning becomes safer, easier, and more inclusive (Irsyada et al., 2018)(Simanungkalit et al., 2026). This modification aims to provide broader opportunities for students to be actively involved, while reducing the level of difficulty without eliminating the learning objectives (Irsyada et al., 2018). Various studies show that modified games are effective in improving basic motor skills, particularly manipulative skills, and are able to increase students' interest, participation, and involvement in PE learning (Aureliya & Parlindungan, 2025)(Irsyada et al., 2024).

Based on these issues, it is necessary to develop a learning model that bridges the needs of students with the characteristics of softball. One alternative that has been found is the development of simpleball, which is a modified form of softball that is designed to be simpler and easier for elementary school students to understand. Simpleball emphasizes the mastery of manipulative skills. This study aimed to develop and evaluate a modified softball learning model called Simpleball to improve the manipulative motor skills of Phase C elementary school students.

METHOD

section of the method contains a penel-
tarian This research is a research and development (R&D) study. According to Marlina, (2021) , R&D research is a research model used for new products and rules, followed by systematic, evaluated, and structured field trials so that researchers can find specific criteria according to effective-

ness, quality, or similar standards. The product developed in this study is a softball learning model that has been modified into a simpleball game to improve the manipulative skills of elementary school students in phase C (11-12years).

The development model used adapts simplified research and development steps from Brog and Gall that have been tailored to the needs of the research (Zakariah et al., 2020). The development stages include: (1) needs analysis, (2) product design, (3) initial product development, (4) expert validation, (5) limited trial testing, and (6) product revision. These stages were chosen to ensure that the final product is theoretically and practically feasible before being implemented more widely.

The needs analysis stage was conducted through observation of physical education lessons, interviews with physical education teachers, and relevant literature studies. The results of the needs analysis showed that softball lessons at Sumur 03 Public Elementary School, were not yet optimal due to limitations in the introduction of softball material, low manipulative skills among students, and the use of complex game rules.

Based on the needs analysis, the researchers developed an initial version of the simpleball game, which is a modified version of softball with simplified rules, equipment, and number of players. The initial product was developed with a focus on basic manipulative skills, namely throwing, catching, and hitting. The product was then validated by physical education experts and

PE learning experts to assess the suitability of the content, safety, clarity of the rules, and suitability for learning objectives.

The field trial stage was conducted in stages, namely small group trials and large group trials. Small group trials were conducted on fifth grade students at Sumur 03 Public Elementary School to determine the feasibility of the game, implementation constraints, and initial responses of students to the Simpleball game model. The results of the small group trials involving 22 fifth grade students were used as the basis for product revisions before being applied in large group trials. The large group trial was conducted on 41 fifth and sixth grade students at Sumur 03 Public Elementary School, consisting of

20 boys and 21 girls. The purpose of the large-scale field trial was to see whether the Simpleball game was effective, efficient, and suitable for widespread use.

The final result of the development product from large-scale field trials was a modification of the simpleball game model. The data

analysis technique used in this development study was descriptive analysis in the form of percentages. Meanwhile, data in the form of suggestions and reasons for choosing answers were analyzed using qualitative analysis techniques.

RESULTS AND DISCUSSION

The product developed in this study is a softball learning model through the modification of the simpleball game, which has been adapted to the characteristics of students in phase C (11-12years) at Sumur 03 Public Elementary School. Product development was carried out through a research and development (R&D) process based on Borg and Gall's 5-step model, which includes needs analysis, planning, product development, large-scale field testing, and final product. Product development was carried out in stages through small-scale field trials, product revisions, and large-scale field trials to obtain a final product that was feasible and effective for use in learning.

The development resulted in a learning model called simpleball, with modifications to the rules, equipment, number of players, and field size to make it simpler and easier for elementary school students to understand. The basic movements developed in the simpleball game include hitting, throwing, and catching, which are part of the skills.

Product Specifications for the Simpleball Game Learning Model

The final product of this research and development is the Simpleball learning model, which is packaged in the form of a Physical Education learning guidebook. The Simpleball model is the result of modifications to the game of softball, developed based on needs analysis and stages of research and development (R&D).

The Simpleball learning model consists of several main components, including the design of the playing field, facilities and infrastructure, game rules, and learning implementation procedures. The facilities and infrastructure used are tailored to the characteristics of phase C (11-12years) students and elementary school conditions, including the use of soft balls to ensure safety, lightweight plastic or wooden bats, and mats as a substitute for bases. The size of the field is reduced and adjusted to the availability of school land so that all students can be actively involved in learning activities.

The Simpleball playing field consists of two main parts: the infield and the outfield. The infield is square-shaped with a distance of about

10 meters between bases, while the outfield is semicircular, extending about 25 meters from home plate. There are four bases at each corner of the infield: home base, first base, second base, and third base. The field is also equipped with foul lines that demarcate the legal and illegal playing areas. The following image shows the design of a Simpleball playing field.

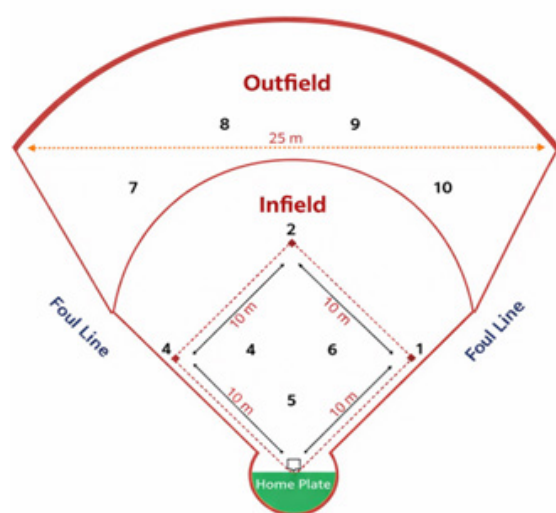


Figure 1. Simpleball Field Layout

The final product resulting from this research and development effort is the Simpleball game-based learning model, presented in the form of a physical education instructional guide. The Simpleball model is a modified version of softball developed based on needs analysis and the research and development (R&D) process. Modifications were made to the field dimensions, game equipment, number of players, and game rules to make the game simpler and more suitable for the characteristics of elementary school students in phase C (ages 11–12).

The Simpleball game uses equipment adapted to elementary school conditions to ensure it is safe and easy for students to use. The equipment used includes softballs or plastic balls to reduce the risk of injury, bats made of plastic or lightweight wood, and bases that can be marked with small mats or field markers. The playing field can be set up on the school grounds or an open field with simplified dimensions, allowing all students to actively participate in the learning activity.

A Simpleball game consists of two opposing teams, each with ten players. There are two main roles in this game: the batting team and the fielding team. The batting team's task is to hit the ball and run to the bases in order until they re-

turn to home base, while the fielding team's task is to catch the ball and stop the runners' progress. Players on the fielding team take positions in the infield and outfield to anticipate the direction of the batted ball. The rules of Simpleball are simplified compared to softball to make the game easier for elementary school students to understand. The game is played by two teams that take turns being the batting and fielding teams. After the ball is hit, players must run to the bases in sequence until they return to home base to score a point. The fielding team tries to catch the ball and throw it to the base to tag out the runner. A player is declared out if the hit ball is caught directly by a fielder or if the runner is touched by the ball before reaching the base.

The game is played in several rounds tailored to the lesson time. In its implementation during Physical Education classes, the Simpleball game is conducted through several stages of activity, including a warm-up, an explanation of the rules, the game itself, and an evaluation and reflection phase. Through this game activity, students have the opportunity to repeatedly practice manipulative movements in a fun, game-based setting. This activity is expected to improve students' basic manipulative skills, particularly in hitting, throwing, and catching a ball.

A small-scale trial of the Simpleball learning model product was conducted to obtain an initial picture of the product's feasibility, identify implementation obstacles, and assess the initial effectiveness of the model's application. The trial involved 22 fifth-grade students from Sumur 03 Public Elementary School Pati Regency, with data collection techniques in the form of observation sheets and student response questionnaires. The trial results showed a feasibility score of 84.6% in the excellent category. However, several aspects still needed improvement, particularly in activity management and clarity of game instructions during transitions between stages. These improvements were made through product revisions, and the revised results were then used as the final product in a large-scale trial.

Table 1. Feasibility Classification

Percentage	Category
81% - 100%	Very Good/Highly Eligible
61% - 80	Fair/Acceptable
41% - 60	Fairly Good/Fairly Acceptable
21% - 40	Poor/Poorly Acceptable
0% - 20	Very Poor/Very Poorly Suitable

Product feasibility testing was conducted

through evaluation by PE learning experts and two game experts using a 1-5 Likert scale questionnaire consisting of 20 questions. The assessment results from the learning experts showed that the feasibility score was 96%, which is in the very suitable category. This assessment shows that the simpleball learning model is in line with the learning objectives and characteristics of Phase C (11-12 years) students and has the principles of physical education learning.

The first game expert gave a score of 96%, while the second game expert gave a score of 98%, both of which are considered very good. These results show that simpleball is suitable in terms of game rules, facility and infrastructure suitability, as well as the safety and effectiveness of game activities in learning.

After revising the product based on small group trials, the Simpleball learning model was then tested in a large-scale field trial. This trial aimed to determine the effectiveness of the Simpleball learning model in improving students' basic manipulative motor skills.

Table 2. Results of the Pre-test and Post-test of Manipulative Skills of Fifth Grade

Skill Aspect	Pre-test Average	Posttest Average
Hitting	2.95	4.18
Long Throw and Catch	2.64	3.73
Catch a Flying Ball	2.14	3.68

Table 3. Results of the Pre-test and Post-test of Manipulative Skills of Sixth Grade Students

Skill Aspect	Pre-test Average	Posttest Average
Hitting	2.53	4.11
Long Throw and Catch	2.16	3.6
Catch a Flying Ball	2.26	3.58

The effectiveness of the simpleball learning model was tested through pretest and posttest of manipulative motor skills in fifth and sixth grade students at Sumur 03 Public Elementary School. The skills test included hitting the ball, throwing and catching at a distance, and catching a floating ball. The pretest results showed that the initial manipulative skill abilities of fifth-grade students had an average skill score of 2.95 for hitting, 2.64 for throwing and catching at a distance, and 2.14 for catching a floating ball.

After implementing the simpleball learning model, the posttest results showed an improvement in the students' manipulative skills. The average posttest scores for hitting skills increased

to 4.18, throwing and catching at a distance to 3.73, and catching a floating ball to 3.68.

The pretest results showed that the initial manipulative skills of sixth grade students were still in the adequate category. The average pretest scores for hitting skills were 2.53, throwing and catching at a distance were 2.16, and catching a floating ball were 2.26. After being taught using the Simpleball game model, the posttest results showed a significant improvement. The average posttest scores for hitting skills increased to 4.11, throwing and catching at a distance to 3.68, and catching a bouncing ball to 3.58.

The highest score improvement was seen in hitting skills, followed by throwing and catching at a distance, and catching bouncing balls. This finding indicates that Simpleball activities provide more frequent and targeted movement opportunities for the development of key manipulative skills. Previous studies have shown that structured and game-based physical activity programs can significantly improve manipulative skills such as throwing, catching, and striking because students are given repeated practice (Yan et al., 2023; Nur Sita Utami et al., 2025).

Student responses to the use of the Simpleball learning model were obtained through a student response questionnaire. The questionnaire results showed that fifth-grade students gave a positive response with a percentage of 84.09%, while sixth-grade students obtained a percentage of 84.74%. Both results are in the very good category, indicating that the Simpleball game was well received by students and was able to increase their interest and involvement in PE learning. These results are in line with previous studies that stated that a game-based learning approach can increase student motivation, enjoyment, and active participation in physical education learning (Camacho-Sánchez et al., 2023; Mo et al., 2024). Interesting and enjoyable physical activities contribute to increased self-confidence, understanding of movement concepts, and overall learning outcomes in physical education (Reigal et al., 2024).

Based on a series of small-scale field trials, product revisions, and large-scale field trials, the results of the study show that the softball learning model through simpleball modification is feasible and effective for improving the basic manipulative motor skills of phase C (11-12 years) students. This is evidenced by expert validation results, an increase in pretest to posttest scores, and positive responses from students. The improvement in manipulative skills in the aspects of hitting, throwing, and catching shows that modified game-based learning is able to provide a meaningful

learning experience (Pratiwi et al., 2024). The Simpleball game is designed with simplified rules and equipment, so that students can focus more on mastering basic movements without being burdened by the complexity of the actual softball rules.

These findings are in line with the opinion of which states that manipulative skills can develop optimally through activities that involve hand- eye coordination and repeated movement opportunities Wahjoedi, (2016). In addition, the use of modified games also supports the view of that physical education learning must involve motor responses, social interaction, and enjoyable learning experiences Sari et al., (2024). These findings are also consistent with previous research showing that modifying small ball games can significantly improve the manipulative skills of elementary school students (Putri et al., 2012).

The positive response from students shows that Simpleball can boost motivation and active participation in learning. This reinforces the idea that games that are modified and tailored to kids' developmental stages can be an effective and innovative alternative for physical education. So, developing the Simpleball learning model isn't just theoretically and practically sound, but also effective in improving the basic manipulative motor skills of Phase C (11-12years) students at Sumur 03 Public Elementary School Pati Regency.

CONCLUSION

The Simpleball learning model developed through modifications to the softball game has been proven to be feasible and effective in improving the basic manipulative motor skills of Phase C (11-12years) students at Sumur 03 Public Elementary School. This effectiveness was demonstrated through field trial results, as indicated by increases in students' manipulative skill scores in hitting, throwing, and catching from the pretest to the posttest, as well as positive student responses to the learning process. The Simpleball game creates a more active, safe, and enjoyable physical education learning environment, making it a viable alternative learning model for improving elementary school students' manipulative skills.

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