

# Enhancing Gross Motor Skills of Early Childhood through the Giant Snake and Ladder Game

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## Abstract

The purpose of this study is to improve the gross motor skills of early childhood in a local kindergarten in East Java, Indonesia. The participants were ten students from Group A in the 2024/2025 school year, consisting of four boys and six girls, involved in two cycles of classroom action research. Documentation and observation were used to collect data, which were analyzed quantitatively. The findings show that early childhood gross motor skills can be improved through the big snake and ladder game. In the first stage, 60% of children demonstrated development in accordance with the not yet developed criteria; after the first cycle of action, this shifted to 40% of children meeting the developing as expected criteria in the second cycle.

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## 1. Introduction

Education is a pivotal element in the cultivation of human capital. The process of education, through the mechanisms of teaching and training, plays a role in altering the attitudes and behaviors of individuals and groups, thereby facilitating the attainment of maturity. Education has been shown to promote self-improvement among individuals. Education can be carried out in a variety of settings, at different times, and with a variety of participants. Education has been identified as a critical factor in the development and cultivation of human capabilities, allowing individuals to align their actions with the values imparted through education. This alignment of personal values with those of the nation is believed to contribute to the enhancement of national service and the betterment of the country. Early Childhood Education constitutes the initial phase of formal education that children are required to complete. The primary objective of Early Childhood Education is to maximize early stimulation, positioning it as the foundational educational framework for children aged 0–6 years. Early childhood education is of paramount importance in fostering the development of children's personalities and preparing them for success in higher education (Ellinawati et al., 2021).

Early Childhood Education aims to inculcate moral and religious values in addition to developing physical, cognitive, linguistic, social-emotional, and artistic skills. Early childhood progress and growth are highly dependent on motor aspects. Better motor development allows children to move their bodies more proficiently. There are two categories of motor development: subtle and rough. Simple muscle movements involving specific parts of the body are a component of fine motor development (Wardani et al., 2021). Early education is given to children from birth to the age of six to accelerate their mental and physical development so that they are ready to enter the formal and informal education level (Azzahra et al., 2024).

Early childhood, which includes the age range of 0-8 years, experiences very rapid development in all aspects, which is strongly influenced by the characteristics of this developmental period. Childhood is a crucial period in a person's life, as the foundations and foundations of personality begin to form, which will influence the child's future experience. Children in this phase experience various significant changes in aspects of their growth and development (Nersa et al., 2024)

Children learn gross motor skills before fine motor skills because they cannot cut or string. In general, children hold larger objects first. Motor skills increase confidence in children, which promotes their social-emotional development. Children's motor skills can increase creativity and imagination (Rismadani et al., 2022). Since early childhood gross motor skills are directly related to the strength of their primary muscles, they must be developed through adequate stimulation. Therefore, childhood is a critical period for the development of a child's gross motor skills. A child is most likely to experience decreased muscle function due to certain

circumstances if his gross motor abilities do not develop normally during childhood. However, gross motor skills vary from child to child and are influenced by hereditary and environmental factors (Alvan Hazhari et al., 2021).

Early childhood education is a field that places significant emphasis on the growth and development of children, utilizing a variety of learning methods that engage all five senses. Given that an individual's initial sensory experiences serve as the foundation for all subsequent learning, this pedagogical approach is regarded as the most efficacious (Cindi Marhayati Yusra, 2024). The enhancement of physical growth and gross motor skills can be facilitated through active play. Examples of such activities include running and jumping. According to Papalia (2008), children employ their large muscles to fortify their gross motor skills, which encompass running and jumping. The physical development of the child is instrumental in facilitating the coordination of their skills and preferences. As asserted by Nisa, Alim, and Syahril (2022), the possession of healthy bones by children has been demonstrated to facilitate enhanced physical capabilities, including increased speed and distance traversed during locomotive activities such as running and jumping.

The right use of media in the learning process is very important, because it can attract children's attention. Research shows that children often have difficulty keeping up with learning due to a lack of practice in gross motor skills. For example, children who do not practice jumping, running, and throwing well are less likely to be able to stand on one leg for long periods of time and fall easily. This can be seen in children's daily activities during the learning process, where the lack of activities that stimulate gross motor skills and teachers' motivation in these activities can cause children to be less involved and feel bored (Vike Septiani, 2023).

In this regard, educational games are among the most widely used and effective teaching methods for children. The educational game "giant snake ladder" has been identified as a valuable tool for enhancing children's motor skills development. Hani and Hibana's (2022) research revealed that the physical-motor skills of children exhibited significant enhancement when engaging in the game of snakes and ladders. Based on research by Ellinawati (2021) demonstrated that engaging in the game of snake and ladder can enhance the gross motor abilities of newborns by up to 20%. However, extant research has primarily centered on concrete assessments of the influence of snake and ladder games on motor development, while research on the effectiveness of these games on children's motor development remains limited (Ramahwanti et al., 2025).

Since the time of our ancestors, traditional games have been played and have become part of the cultural heritage that has been passed down from generation to generation. This game is rooted in traditional games that have developed in various ethnic groups and tribes in Indonesia. In the context of early childhood education, traditional games are an excellent source of learning. This is because of the many benefits that the game has, which can help children to prepare themselves for life in the real world. Thus, traditional games can improve early childhood education (Ramdani et al., 2021).

The Snake Ladder game resources, which are based on classic games, have been modified to meet the needs of students and achieve learning objectives. According to Rifki Afandi (2015), the utilization of snakes and ladders in educational resources has been demonstrated to enhance student achievement by up to 45%. This study posits that the comprehension of pedagogical materials employing the metaphor of "snakes and ladders" can be enhanced. As asserted by Rahina (2017) and Wati (2021), snake and ladder learning has been demonstrated to facilitate students' comprehension and retention of course material.

The snake and ladder game have been identified as a potent educational instrument that fosters active engagement among children and facilitates a more profound comprehension of the subject matter. The utilization of color in the packaging is a distinctive attribute of the design of snake and ladder games intended for early childhood, with the objective of capturing children's attention. The game of snake and ladder can serve as an educational tool, enabling children to develop an understanding of counting and numeracy.

The configuration of the image and the developmental stage of the child are pivotal in the classification of snake and ladder games. It is evident that given the absence of a conventional game board, the game exhibits a high degree of variability in its form and function. To capture the interest of children, individuals are encouraged to devise their own snake and ladder game board, ensuring its design is both engaging and original. Typically, the kindergarten version of the snake and ladder game board contains a greater number of pictures and graphics compared to the elementary school version. The integration of snake and ladder games in the educational process allows for active engagement, thereby enhancing the learning experience. Furthermore, the game fosters a robust pattern of interaction during learning activities, thereby fostering children's enthusiasm for the game (Atika Setiawati & Suyadi, 2021).

A primary benefit of giant snake and ladder games is their capacity to enhance children's balance and coordination skills. In order to successfully transition from one box to another, children must maintain their equilibrium to avoid falling. This activity has been shown to effectively train the muscles of the lower body, enhancing their capacity to regulate movement. Furthermore, the game entails a coordination between visual perception and motor movement, requiring children to maintain situational awareness and adapt their footwork

accordingly. Consequently, this game serves as an effective medium for developing fundamental motor abilities in children.

It has been demonstrated that, in addition to the physical benefits, giant snake and ladder games have a positive impact on the social and cognitive aspects of children. The game fosters the development of skills such as recognizing the value of turns, adhering to the established rules, and engaging with peers. This process fosters the development of crucial social skills, including communication and collaborative work, which are essential for personal and professional growth. From a cognitive perspective, children are instructed in the calculation of steps to be taken based on the number of dice, in addition to problem-solving techniques to determine the most effective strategy for achieving a given goal. Consequently, these games promote physical, social, and cognitive development in children.

Kurniawaty's (2022) study revealed that snakes and ladders can serve as an engaging learning tool, effectively maintaining children's attention. It is important to note that all games are subject to a set of guidelines, including snake and ladder. Giant snake ladder rules: 1) Participation consists of a minimum of two children and a maximum of four children; 2) The instructor or parent is responsible for identifying the tools used; 3) Teachers or parents provide explanations about the rules of the game; 4) To determine who will roll the first dice, it is done by means of *sweet or hompimpah*; 5) The child who gets the first turn will roll the dice and shuffle them; 6) The child rolls the dice according to the numbers that appear on the dice; for example, if the number two appears, the child will take two steps to the right from the START point; 7) The game is done in turn; 8) The next phase of rolling the dice begins after the previous phase is completed; 9) The player who first manages to roll the dice and reaches the number 42 is safely declared the winner; and 10) The winner will receive a prize.

Educators and parents should organize giant snake and ladder games to optimize their benefits. These games are fun and can be used in early childhood education. To improve communication and strengthen their bond with their children, parents can also host play sessions at home. Safety considerations must be taken when implementing them, such as ensuring the playground is free of obstructions and using safe materials. Giant snake and ladder games can help children develop socially and physically if played correctly.

Based on the explanation above, it can be concluded that the snake and ladder game is one of the educational media that is useful to increase children's ability to catch in the learning process and actively involve them in order to help them understand the concept of the subject matter. In an effort to attract children's attention, snake and ladder games for early childhood have a more attractive design. Furthermore, according to (Atika Setiawati & Suyadi, 2021), this game helps children in recognizing the numbers on the snake and ladder board and the dice used in the game.

The impetus for this research was the recognition that certain aspects of children's growth remain below average and have not progressed in accordance with their respective ages. In order to enhance gross motor skills, it is essential that educators utilize games as an integral component of their instructional methodology. Furthermore, instructional games and learning exercises have been demonstrated to facilitate the development of these skills in children. Researchers hypothesize that games can increase children's curiosity, excitement, and confidence. This phenomenon can be attributed to the significant benefits that snakes offer, as well as the inherent limitations of gross motor skills in children. It is estimated that this research will contribute to the development of children's gross motor skills. The prevalence of general motor development in children remains a subject of ongoing observation and research. A number of factors have been identified as contributing to the issue of children lacking adequate gross motor skills. Among these factors are the challenges faced by teachers in motivating their students to apply themselves fully, the limited opportunities for children to engage in creative play, and the paucity of educational game tools designed to support the development of gross motor skills.

## 2. Method

In the even semester of the 2024-2025 school year, this research was carried out at one of Kindergarten in East Java, Indonesia. The Kemmis and McTaggart Class Action Research paradigm was applied in this study. This study looked at how well group A students and early childhood developed their gross motor skills using the medium of large snake and ladder games. This research was carried out on June 19, 2025, during the 2024-2025 school year. Ten students formed group A, four of which were boys and six of them were girls. Documentation and observation techniques are used as data collection methods in this investigation. According to Arikunto (2010), the percentage method is also used to check data.

$$P = \frac{N \times 100\%}{S} \quad (1)$$

Information:

P = Percentage

N = Number of children who improve motor skills

S = Total children's grades

According to Kemmis and McTaggart, classroom action research is a spiral cycle that involves planning, implementation, monitoring, and reflection before proceeding. Through several action cycles, the four-component Kemmis and McTaggart spiral model was used in this study. This study started its first activity with reflection exercises because it already had a series of data. To begin the immediate action stage, the study has a series of action plans for its implementation. The four components of Kemmis and McTaggart's spiral model—planning, action, observation, and reflection—were used in this study through a number of activity cycles. According to Arikunto (2010), the classroom action research model in question explains the existence of four steps that are presented sequentially based on the data collected. The steps can be shown in Figure 1.

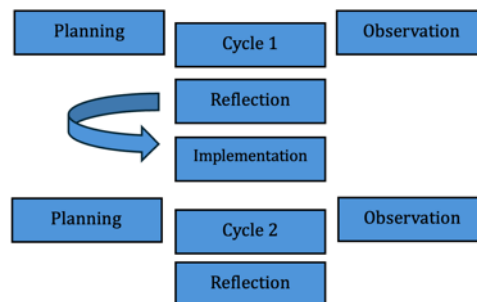


Figure 1. Step Classroom Action Research Model

### 3. Results and Discussion

The improvement in the gross motor skills of children at kindergarten is an indication of their improved gross motor development, according to observational data. Six youngsters in the not yet developed category, two in the beginning to develop category, one in the developing as expected category, and one in the well developed category showed progress in the initial presentation before the action. Three not yet developed children, two MB children, four developing as expected children, and one well developed child were among the children who showed improvement in cycle 1. In addition, the early childhood gross motor development of cycle 2 revealed that 70% of the seven children in the well developed category experienced improvement, 10% of one child in the beginning to develop category, 20% of two children in the developing as expected category, and there are no children in the not yet developed category. This allows the achievement of success indicators. The final research findings on the influence of snake and ladder games on children's gross motor development are summarized in Table 1.

Table 1. Final Research Results Recapitulation (Child Development Observation)

No	Result	Information					
		Pre-Actions		Cycle 1		Cycle 2	
		Child	Percentage	Child	Percentage	Child	Percentage
1.	Not yet developed	6	60%	3	30%	0	0%
2.	Beginning to develop	2	20%	2	20%	1	10%
3.	Developing as expected	1	10%	4	40%	2	20%
4.	Well developed	1	10%	1	10%	7	70%
Sum		10 Children	100%	10 Children	100%	10 Children	100%

Children who meet the completion criteria, specifically developing as expected and well developed, and have achieved success markers such as jumping, walking, and running are classified as having completed; while those that have not been completed are those that meet the criteria of not yet developed and beginning to develop.



**Figure 2. Giant Ladder Snake**

### 3.1. Cycle 1

According to the findings of the study that calculated the gross motor development of children in cycle 1, 1 was still in the "poor" group. This indicates that the percentage of complete learning remains less than 50% of the basic needs, which is 75%. This phenomenon can be attributed to the fact that children are typically instructed by their teachers to engage in activities such as snakes and ladders, which necessitate a degree of mastery that can only be achieved through consistent practice.

Based to the available data, it can be posited that, in the initial cycle, a minimum of 50% of the children have successfully completed gross motor learning by engaging in the activity of playing snakes and ladders. This suggests that the learning activities currently in place require refinement to ensure their effectiveness in subsequent stages. The success of cycles 1 and 2 can be attributed to the children's increased interest in various activities. Children who meet the completion criteria, in particular developing as expected and well developed, and have achieved success markers such as jumping, walking, and running are classified as having completed. Teachers have been observed to be more willing to help and encourage children, accompany and pay attention to those who have learning difficulties, and provide more interesting lessons.

Children who had difficulty meeting anticipated indications received encouragement from researchers in the form of incentives. If instructors can't encourage the use of large snake and ladder activities to help children develop their gross motor skills, children's passion for learning will also increase. It is clear from cycle 1 that children's gross motor skills have not improved much when playing giant snake and ladder games because many of them still lack confidence in their talents. The success rate of Cycle 1 did not reach the anticipated metrics.

### 3.2. Cycle 2

Based on the results of the examination of the calculation of children's gross motor development in cycle II, these results are included in the increased group, especially with a learning completion rate of 90% for the development of child summation. It has managed to achieve the set minimum completion rate, which is greater than the minimum completion threshold of 75%.

Based on the data, it was determined that 90% of children in cycle 2 completed learning activities related to their gross motor development through snake and ladder games. This shows that the learning activities have been completed and no further improvement is needed in the next cycle. The people in the study who played the snake and ladder game saw their gross motor skills development improve. From cycle 1 to cycle 2, children's gross motor skills get much better. Only 50% of children in cycle 1 had strong skills, compared to 80% in cycle 2. This suggests that if children follow the plan and receive additional help, they can develop their motor skills more quickly and easily.

Early childhood gross motor development increased during pre-action, when six children experienced not yet developed; in the first cycle, there was an increase in developing as expected by four children, and in the second cycle, there was an increase in well developed by seven children. In order for Group B to meet the success criteria, the game of Snake and Ladder must effectively improve their gross motor development.

## 4. Conclusion

The findings indicate that children's gross motor skills, particularly coordination, balance, and muscle strength improved significantly through the giant snake and ladder game over two cycles of classroom action research. The game also enhanced social and cognitive abilities, including rule-following, teamwork, communication, and problem-solving through counting and strategic movement. Observation results showed that prior to the intervention, 65% of children were at the beginning to develop stage and had difficulty following movement instructions. By the end of cycle 1, 55% had reached the developing as expected and well developed stages, and this increased to 80% by cycle 2. These outcomes suggest that the giant snake and ladder game is an

effective, engaging, and practical tool for promoting gross motor development in early childhood education, while also fostering enthusiasm, responsibility, and confidence. Collaboration between teachers and parents is recommended to provide safe, playful environments that support sustained physical and social growth.

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