



Managing Traditional 'Cat and Mouse' Play to Optimize Gross Motor Development in Early Childhood

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ABSTRACT

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This study aimed to enhance young children's gross motor skills through the traditional "Cat and Mouse" game, which fosters agility, balance, speed, and coordination. Adopting the Kemmis and McTaggart Classroom Action Research model, the intervention was implemented over two cycles with 18 participants (8 girls and 10 boys). Data were gathered through structured observation and systematic note-taking. Results demonstrated marked improvement in gross motor performance, increasing from 44% before the intervention to 66% in the first cycle and 88% in the second cycle. These findings highlight the effectiveness of traditional games as pedagogical tools for physical development in early childhood. From a management perspective, incorporating culturally rooted, low-cost, and easily organized activities into curriculum planning not only enhances developmental outcomes but also improves efficiency in program implementation, resource allocation, and engagement strategies. This approach offers an adaptable model for educators and administrators seeking to balance developmental objectives with practical management considerations.

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INTRODUCTION

Early childhood is a critical stage where individuals undergo rapid development that significantly influences their future growth. According to the National Association for the Education of Young Children (NAEYC), early childhood, from birth to age eight, is a pivotal period for learning, involving the brain, nerves, and muscles working in coordination. This phase is marked by curiosity, exploration, and the rapid formation of physical, mental, emotional, and social foundations (Ummah et al., 2024:3). In this context, gross motor development plays a vital role, as children must gain control over large muscle movements to function independently. Activities like running, jumping, and balancing are not just physical skills—they are integral to social interaction, confidence-building, and overall well-being (Anggraini, 2022:34). However,

with the growing influence of sedentary lifestyles and technology, children's opportunities for active, movement-based play have declined. Strengthening gross motor skills through engaging and culturally relevant activities is therefore essential, not only for individual child development but also for building a healthier and more socially connected society.

Despite the importance of gross motor skill development, many children today have limited opportunities to engage in physical activities that promote agility, coordination, and balance. Modern lifestyles, coupled with increased screen time, have shifted children's play from active outdoor activities to more passive, indoor entertainment (Sriandila, 2021:5). This shift has contributed to lower physical fitness levels, reduced social interaction, and weaker motor coordination among young children. In educational settings, especially in early childhood programs, physical activities are often limited to fixed playground equipment such as swings, slides, and seesaws, which do not fully stimulate a variety of gross motor skills (Bonita Mahmud, 2018:77). Furthermore, in some early childhood classrooms, educators may lack the specialized training needed to integrate motor development exercises effectively into daily routines. This situation has created a gap between developmental needs and educational practices. Addressing this gap requires interventions that are developmentally appropriate, low-cost, and engaging—while also fostering social interaction and cultural values within the learning process.

In many early childhood education centers, traditional games that once formed a staple of children's physical play have become increasingly rare. Observations in local kindergartens reveal that children's gross motor activities are often repetitive and limited, focusing on pre-set playground structures rather than dynamic movement games. For example, in one particular kindergarten, teachers primarily facilitate static play activities, resulting in children lacking opportunities to develop agility, balance, and coordination. The principal recommended focusing on one class where the teacher had specialized training in early childhood education (PIAUD), while the other two classes were taught by high school graduates without such expertise. This class provided a more favorable environment for implementing a structured intervention. Among various traditional games, the "Cat and Mouse" game was selected due to its simplicity, lack of equipment requirements, and inherent appeal to children aged five to seven (Yulianty, 2023:25). This game offers rich opportunities for running, jumping, and quick directional changes—movements that directly support gross motor development in a fun, socially engaging way.

Several studies have demonstrated the potential of traditional games to enhance gross motor skills in early childhood education. Research by Halimatus

Zahroh et al. (2022) found that the “Cat and Mouse” game significantly improved gross motor skills in Group A children, particularly in agility, balance, and coordination. Similarly, Indrawati (2018) reported that implementing the game in Group B of TK RT 17 Kejuron led to marked improvements in speed, agility, and balance across two research cycles. Another study conducted in TK Gudep, Desa 926 Saentis, also confirmed the game’s effectiveness in enhancing these motor skills during both the first and second cycles of research. These findings collectively highlight the game’s consistent positive impact across different educational contexts. However, most previous studies have focused primarily on outcomes without exploring structured, theory-based assessments that connect the game’s elements to established motor development indicators, such as those proposed by Gallahue & Ozmun—namely balance, coordination, agility, and muscular strength. This lack of theoretical integration represents a significant research opportunity.

While existing research supports the general effectiveness of the “Cat and Mouse” game, methodological limitations remain. Many prior studies have used simple observational scoring without adopting a structured classroom action research (CAR) framework that allows iterative improvement over multiple cycles. Furthermore, these studies have not sufficiently addressed the management aspect of integrating such activities into formal early childhood curricula, including considerations of resource allocation, teacher training, and class organization. This is particularly relevant in contexts where schools operate with limited budgets and varying teacher qualifications. The absence of a management-focused perspective limits the applicability of previous findings in broader educational planning. Therefore, there is a need for research that not only validates the game’s effectiveness in motor skill development but also examines its feasibility and scalability as a managed educational intervention. By addressing both pedagogical and administrative dimensions, such research can contribute more holistically to the field of early childhood education.

The novelty of this study lies in combining the traditional “Cat and Mouse” game with a structured, theory-based assessment aligned with Gallahue & Ozmun’s four key indicators of gross motor skills: balance, coordination, agility, and muscular strength. Unlike earlier research, this study applies the Kemmis and McTaggart Classroom Action Research model, enabling systematic observation, reflection, and refinement across two cycles. Additionally, it positions the intervention within a management framework, examining how culturally relevant, cost-free, and equipment-light activities can be integrated into early childhood programs for maximum developmental benefit. This dual emphasis on pedagogical effectiveness and practical implementation responds directly to the gaps in previous literature. The

research is particularly important in addressing modern challenges such as reduced physical activity, declining social interaction, and increasing dependence on digital devices in young children's lives. By revitalizing traditional games in structured educational settings, the study offers a sustainable, culturally rooted solution to a pressing developmental concern.

Based on the identified issues and gaps, the central research problem can be stated as follows: How can the traditional "Cat and Mouse" game, when implemented through a structured classroom action research approach, effectively improve the gross motor skills of early childhood learners? The study hypothesizes that integrating this game into classroom activities will lead to measurable improvements in balance, coordination, agility, and muscular strength, as defined by Gallahue & Ozmun's framework. The intervention also aims to demonstrate the feasibility of using low-cost, culturally relevant games as a sustainable strategy in early childhood education. This approach is expected not only to enhance physical development but also to foster social skills, emotional regulation, and cooperative learning. The research addresses both educational and managerial considerations, offering insights into how such interventions can be systematically planned, monitored, and adapted to fit diverse early childhood contexts.

This research argues that the structured use of traditional games like "Cat and Mouse" can significantly advance gross motor skill development while promoting broader social and emotional growth in young children. By embedding the activity within a formal classroom action research model, the study ensures continuous evaluation and iterative improvement. The findings are expected to contribute to the field in three key ways: first, by providing empirical evidence that supports the integration of traditional games into early childhood curricula; second, by offering a practical management framework for implementation in resource-limited educational settings; and third, by demonstrating a culturally responsive approach that aligns with local traditions while addressing contemporary developmental challenges. Ultimately, this research advocates for a balanced educational model that values both innovation and cultural heritage, ensuring that physical development remains a core focus in the holistic growth of early learners.

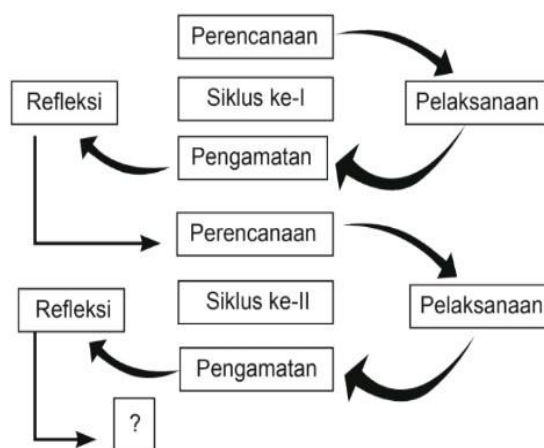
METHOD

This study employed a Classroom Action Research (CAR) approach, which allows educators to systematically address learning challenges by implementing, observing, and refining instructional strategies. As noted by Utomo et al. (2024), CAR is an essential tool for teachers because it enables them to iteratively improve classroom practices, thereby enhancing both teaching

effectiveness and student learning outcomes. Data were collected through structured observation and detailed field notes, focusing on the progression of children’s gross motor skills as they engaged in the traditional “Cat and Mouse” game at TK Gudep, Ds 926 Saentis. To enrich the documentation process, photographs were taken during play sessions, capturing the children’s actions, expressions, and interactions for further qualitative analysis.

The research took place at TK Gudep, located at Jl. Musyawarah No.E, Sampali, Kec. Percut Sei Tuan, Kabupaten Deli Serdang, Sumatera Utara 20371, over a two-week period. This specific timeframe was chosen to allow for close observation of skill development within the natural flow of kindergarten activities. The action plan followed the steps outlined in Kemmis and McTaggart’s (1997) model, conducted over two cycles: planning, action, observation, and reflection. If the research objectives were not met during the first cycle, modifications were implemented and the process was repeated in the second cycle to achieve the desired outcomes. This iterative design ensured that each stage built upon the previous one, fostering continuous improvement in both teaching strategies and student engagement.

Figure 1. PTK Flowchart (Utomo et al., 2024).



The subjects of the study were children of Class B of Gudep Kindergarten, Ds 926 Saentis. There were 10 boys and 8 girls, all aged between 5 and 6 years. The study began on May 26 and ended on June 7, 2025. To collect information, the researcher used observation and recorded everything. Observations were made by observing and writing down all the activities carried out by children while playing the cat and mouse game.

FINDINGS AND DISCUSSION

Findings

This study aimed to support young children at TK Guddep, Ds 926 Saentis, in improving their gross motor skills through the traditional “Cat and Mouse” game. The intervention was conducted in three stages—pre-cycle, Cycle I, and Cycle II—based on Gallahue and Ozmun’s framework, which emphasizes four key indicators: muscular strength, balance, agility, and coordination.

Pre-Cycle

During the pre-cycle stage, learning activities did not yet incorporate active play designed to stimulate gross motor skills. Most children engaged in passive activities such as using swings, seesaws, and slides available at the school. Observation revealed that only six children (33%) achieved the Berkembang Sesuai Harapan (BSH, Developing as Expected) category, while the majority were in the Mulai Berkembang (MB, Beginning to Develop) or Belum Berkembang (BB, Not Yet Developed) categories. Many children showed limited ability in running, jumping, evading, and chasing, indicating a lack of gross motor stimulation. This condition provided the basis for introducing a more dynamic and enjoyable activity—the “Cat and Mouse” game.

Cycle I

In Cycle I, children were introduced to the “Cat and Mouse” game, which involved physical activities such as running, chasing, and dodging—directly stimulating balance, coordination, agility, and muscular strength. Conducted in groups, children took turns as the cat, mouse, and “fence.” Observations showed clear improvement in physical activity compared to the pre-cycle. Twelve children (66%) reached the BSH category, while the remainder stayed at the MB level. Children displayed better running balance, improved coordination when dodging, and more active participation. However, some challenges remained: a few children struggled to understand the game’s rules, others were hesitant due to low confidence, and role changes were still disorganized. Reflection from this stage led to three adjustments for Cycle II: (1) clearer explanation of roles and rules, (2) more equitable role distribution, and (3) encouragement and positive reinforcement to boost confidence and enthusiasm.

Cycle II

In Cycle II, teaching strategies were enhanced. The teacher provided clearer instructions, demonstrated the game’s flow, and allowed children repeated practice to solidify their understanding of each role. The results showed substantial improvement: only two children remained in the

“Developing Very Well” category, while sixteen children (88%) achieved the BSH category. Children demonstrated greater confidence in running, jumping, dodging, and chasing, with more integrated hand–foot coordination. They could change direction quickly and maintain balance during fast movement. Overall participation increased, with previously passive children now actively involved. Social interaction also strengthened, as the game required teamwork and peer communication.

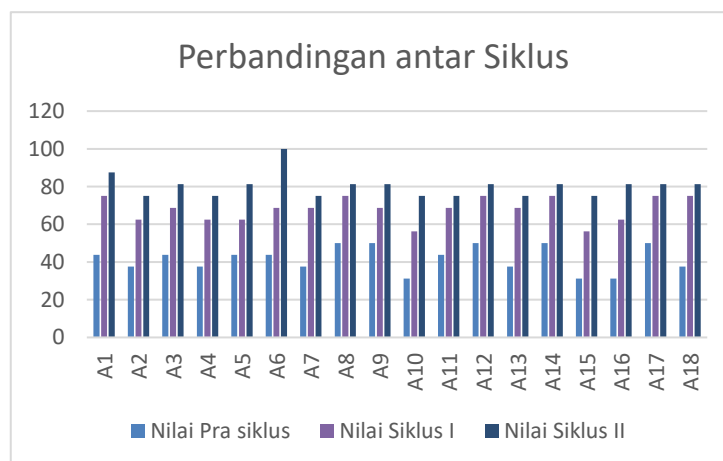


Table 1. Comparison between Pre-Cycle, Cycle 1, and Cycle 2 in improving gross motor skills of early childhood through the traditional cat and mouse game.

Based on the data, there was an increase in children's gross motor skills at three stages: pre-cycle, cycle I, and cycle II. Observations were conducted on 18 children at Gudep Kindergarten, Ds 926 Saentis. The four main aspects observed were: balance, coordination, agility, and muscle strength, as referred to from Gallahue & Ozmun's theory.

Before the traditional game intervention was introduced, children primarily engaged in passive activities such as using swings and seesaws. Physical involvement was minimal, and active stimulation to develop gross motor skills was lacking. Observations showed that only 44% of the children demonstrated progress in gross motor development, with just six children (33%) falling into the Berkembang Sesuai Harapan (BSH, Developing as Expected) category. Many struggled with running, jumping, and dodging, and both coordination and self-confidence remained low.

During the first cycle, the children were introduced to the “Cat and Mouse” game. Physical involvement increased noticeably as they began running, chasing, and evading with greater enthusiasm. The proportion of children showing improved gross motor skills rose to 66%, with twelve children reaching the BSH category and the remainder still at the Mulai Berkembang (MB, Beginning to Develop) stage. Some challenges persisted, including difficulty understanding the rules, low participation among less

confident children, and inefficient time management due to uneven role distribution.

In the second cycle, instructional strategies were refined. The teacher provided clearer explanations, demonstrated the game sequence, and offered motivational support. Physical engagement reached a high level, with 88% of the children now demonstrating excellent gross motor skills (Berkembang Sangat Baik—BSB). Sixteen children entered the BSB category, while the rest achieved BSH. Children displayed faster directional changes, balanced running, and improved overall coordination. Previously passive children became more active and confident, and social interaction increased as the game encouraged cooperation and teamwork. If presented in a bar chart, the progression would be visually evident: the pre-cycle at 44%, the first cycle rising to 66%, and the second cycle peaking at 88%, illustrating a clear upward trend in gross motor skill development following the systematic “Cat and Mouse” intervention.

The findings of this study reveal a compelling and consistent impact of the traditional “Cat and Mouse” game on the enhancement of children’s gross motor skills. In the pre-cycle stage, only 44% of the children met the expected developmental benchmarks for gross motor abilities. Following the introduction of the game in the first cycle, this figure rose sharply to 66%, reflecting significant initial gains. By the conclusion of the second cycle, the percentage had climbed to an impressive 88%, indicating that the vast majority of children had achieved a high level of proficiency. This progressive improvement underscores the effectiveness of incorporating traditional games as a dynamic and engaging medium for physical development in early childhood education. The “Cat and Mouse” game not only stimulated agility, balance, coordination, and muscular strength but also fostered enthusiasm, cooperation, and social interaction among participants. These results suggest that culturally rooted, movement-rich activities can serve as powerful tools for promoting holistic development while revitalizing traditional play in modern educational settings.

Discussion

The results of this study align closely with established theoretical perspectives on motor development. Gesell (1972) and Gallagher (2005) emphasize that children’s gross motor skills evolve through the interaction between nervous system maturation and appropriate environmental stimulation. The “Cat and Mouse” game offers precisely such stimulation, engaging children in activities like running, dodging, balancing, and integrating both visual and kinesthetic coordination. This also resonates with Piaget’s

(1952) assertion that early childhood learning is best facilitated through play-based experiences tailored to the child's developmental stage. By embedding physical challenges within a playful and familiar cultural context, this game naturally supports developmental growth in a manner that theory predicts.

The findings also align with Pica's (2014) argument that gross motor activities—those involving large muscle groups such as running and jumping—are essential for strengthening children's musculoskeletal systems and enhancing agility and coordination. In this study, these benefits were clearly observed, as children demonstrated improved speed, balance, and movement control after repeated engagement with the game. Beyond the physical domain, the game encouraged social skills such as cooperation, turn-taking, and self-regulation, illustrating how motor development is intertwined with social-emotional growth. This reinforces the notion that physical and social competencies can develop simultaneously through well-designed group activities.

Previous research further validates these outcomes. Setiawan (2020) found that traditional games effectively improve gross motor skills because they are active, enjoyable, and culturally relevant for children. Similarly, Nurwahidah et al. (2021) reported that such games significantly enhance coordination in children aged 5–6 years, while Darmawati and Widyasari (2022) noted that incorporating traditional play into kindergarten learning increases motivation, physical involvement, and the preservation of local cultural values. The current findings not only confirm these earlier studies but also extend them by demonstrating a clear, progressive improvement over two structured action research cycles, providing stronger evidence of the game's long-term developmental benefits.

Theoretically, these results strengthen the argument for integrating culturally rooted, movement-based activities into early childhood curricula. By confirming that traditional games can meet developmental benchmarks outlined in motor development theories, this study supports a framework where cultural heritage and developmental psychology intersect. The "Cat and Mouse" game serves as a practical example of how culturally relevant play can operationalize theoretical principles, making them tangible within a real classroom setting. This integration of theory and practice offers a model for designing early childhood programs that are both evidence-based and culturally meaningful.

Practically, the implications are significant for early childhood educators and policymakers. Traditional games like "Cat and Mouse" require minimal resources, are easy to organize, and are adaptable to various classroom environments, making them particularly valuable for resource-limited schools.

They simultaneously address physical, social, and cultural objectives, thereby maximizing educational impact without added costs. As Ismako (2023) suggests, such games provide a form of stimulation that naturally blends learning with culture and environment, making the experience more accessible and impactful for children. Based on these findings, “Cat and Mouse” and similar traditional games should be considered integral to early childhood education strategies, both as a means of fostering gross motor skills and as a way to preserve cultural heritage in a modern learning context.

CONCLUSION

The study conducted at TK Gudup Ds 926 Saentis demonstrates that early childhood gross motor skills—such as coordination, agility, balance, and muscular strength—can be most effectively developed through active, culturally rooted traditional games like “Cat and Mouse.” By applying the Kemmis and McTaggart Classroom Action Research model, teachers were able to systematically evaluate and refine the learning process, leading to substantial progress: from 44% in the pre-cycle stage, to 66% in Cycle I, and ultimately to 88% in Cycle II. These outcomes highlight not only the physical benefits but also the capacity of traditional play to create structured, enjoyable, and impactful learning experiences.

One of the key lessons from this research is that when learning is embedded in playful, culturally familiar activities, children respond with heightened enthusiasm, deeper engagement, and improved confidence. Even those who were initially passive became active participants, benefiting from both the physical stimulation and the social interactions inherent in the game. The findings reinforce the value of integrating traditional games into early childhood education as a holistic approach that nurtures physical, social, emotional, and moral development.

The scholarly contribution of this study lies in bridging developmental theory, cultural preservation, and practical pedagogy. It offers empirical evidence that traditional games can serve as effective, low-cost educational tools while aligning with established theories of motor skill development. By documenting measurable improvement across structured cycles, this research adds methodological rigor to the discussion and provides a replicable model for other educators.

However, the study is not without limitations. The sample size was limited to a single kindergarten, which may affect the generalizability of the findings. The observation period was relatively short, covering only two weeks, leaving questions about the long-term sustainability of these skill gains. Additionally, external factors such as children’s home environment and prior

physical activity levels were not controlled, which could influence outcomes.

Future research should explore longer intervention periods, larger and more diverse participant groups, and comparative analyses between different types of traditional games. Studies could also examine how integrating physical play with cognitive and creative learning activities might further enhance developmental outcomes. Such investigations would strengthen the evidence base and provide deeper insights into how traditional games can be optimally adapted for modern educational contexts.

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