



## Enhancing gross motor skills through tari piring: a classroom action research in early childhood education

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### Abstract

**Background:** Gross motor development is a crucial component of early childhood education, as it supports children's balance, coordination, and overall physical readiness for learning. In practice, gross motor stimulation often relies on repetitive physical exercises that may not fully engage children. Movement-based arts, particularly traditional dance, offer an alternative learning approach that integrates physical activity, rhythm, cultural meaning, and emotional engagement. However, empirical studies examining traditional dance as a structured learning strategy for gross motor development in early childhood classrooms remain limited.

**Aims:** This study aims to enhance the gross motor skills of early childhood learners through the implementation of the Traditional Plate Dance (Tari Piring) using a classroom action research approach.

**Method:** This study employed Classroom Action Research based on the Kemmis and McTaggart model, conducted in two cycles. The participants were 10 children aged 5–6 years enrolled at PAUD Kartini Jatimulyo, South Lampung. Data were collected through observation, interviews, and documentation, and analyzed using a combination of quantitative developmental achievement analysis and qualitative descriptive interpretation.

**Results:** The findings demonstrate a substantial improvement in children's gross motor skills across research cycles. The proportion of children categorized as Very Well Developed increased from 40 percent in Cycle I to 80 percent in Cycle II, while no children remained in the not yet developed category. Children showed improved balance, coordination, rhythmic movement, and active participation during dance activities.

**Conclusion:** The implementation of Tari Piring as a movement-based learning strategy effectively improves gross motor skills in early childhood education. Traditional dance provides meaningful, engaging, and culturally contextualized learning experiences that support children's physical development.

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## INTRODUCTION

Early Childhood Education represents a fundamental stage in the human developmental cycle, as it serves as the foundation for children's physical, cognitive, social, emotional, and moral development (Papalia & Martorell, 2021; Hirsh-Pasek et al., 2015). International professional organizations such as the National Association for the Education of Young Children (NAEYC) define early childhood as encompassing individuals aged 0–8 years. In contrast, within the Indonesian context, early childhood is limited to the age range of 0–6 years, as stipulated in Law Number 20 of 2003 on the National Education System. This regulation emphasizes that early childhood development is implemented through formal, nonformal, and informal education

pathways to provide planned and systematic stimulation that prepares children to enter subsequent levels of education (Christianti, 2012; Fauziddin & Mufarizuddin, 2018).

Early childhood is widely regarded as a crucial period characterized by high developmental plasticity, particularly in physical and motor domains. Developmental literature refers to this phase as the golden age, a strategic period during which environmental stimulation exerts long-term effects on children's adaptive capacity, character formation, and skill development (Hirsh-Pasek et al., 2015; Putri, 2023). The interaction between motor experiences, cognitive processing, and emotional engagement during this stage forms the foundation for the development of motor and social competencies in later developmental stages (Papalia & Martorell, 2021).

National education policy emphasizes that Early Childhood Education aims to optimize six developmental domains, namely religious and moral values, cognitive development, social-emotional development, language, physical-motor development, and the arts (Fauziddin & Mufarizuddin, 2018). The physical-motor domain, particularly gross motor skills, plays a critical role because it is directly related to children's ability to coordinate large muscle groups, maintain balance, and control body movements in various functional activities (Djuanda & Agustiani, 2022; Gebel et al., 2018).

A growing body of international research over the past decade indicates that children's gross motor development does not progress optimally without planned and meaningful physical stimulation. Low levels of physical activity and monotonous instructional approaches may hinder the development of coordination, balance, and movement control (Logan et al., 2015; Barnett et al., 2016; Gebel et al., 2018; Sansone et al., 2019; Webster et al., 2020). These findings underscore that structured, engaging, and contextual movement-based learning is an essential prerequisite for supporting gross motor development in early childhood.

Movement-based arts activities, particularly dance, are considered effective pedagogical approaches because they simultaneously engage body coordination, balance, rhythm, and large muscle control (Lakes et al., 2016; Lenes et al., 2020). Recent studies further demonstrate that dance-based learning not only influences motor development but also contributes to emotional regulation, self-confidence, and children's engagement in learning activities (Pamungkas & Rahmawati, 2025; Koch et al., 2019).

Tari Piring is a traditional Minangkabau dance that uses plates as its primary props and requires a high level of movement coordination, balance, and rhythmic precision. Movements adapted from traditional Minangkabau silek footwork have strong pedagogical potential for developing gross motor skills through activities such as swinging, jumping, and coordinating hand and body movements (Fauziyyah et al., 2026; Anggraini & Astuti, 2021). Within the context of early childhood education, traditional dance functions not only as a medium for cultural preservation but also as a meaningful and contextual movement-based learning strategy (Lenes et al., 2020).

National studies indicate that dance activities and traditional dance practices have a positive impact on the gross motor development of children aged 5–6 years. Research by Haida et al. (2023) and Utami et al. (2023) reported significant improvements in children's gross motor coordination following the implementation of dance activities. Other findings also suggest that dance activities contribute to children's psychosocial development, including self-confidence and self-expression (Mufidah, 2022).

Despite these findings, the literature reveals notable research gaps. Most studies continue to focus primarily on final gross motor outcomes without sufficiently examining learning processes, children's movement dynamics, or the integration of specific traditional dances as pedagogical strategies (Logan et al., 2015; Gebel et al., 2018; Lenes et al., 2020). Moreover, studies

that systematically implement Tari Piring within a Classroom Action Research design in early childhood education contexts, particularly in South Lampung, remain very limited.

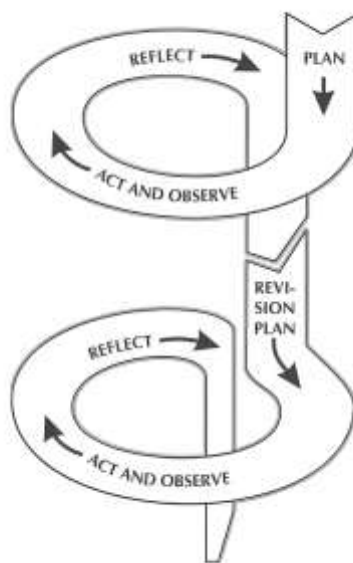
Based on these gaps, this study aims to improve the gross motor skills of young children through the implementation of the Traditional Plate Dance (Tari Piring) method at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. This study adopts a Classroom Action Research approach to systematically examine both the process and outcomes of applying traditional dance as a learning strategy for gross motor development.

This study is expected to provide empirical contributions by strengthening evidence on the effectiveness of traditional dance as movement-based learning, theoretical contributions through the integration of motor development and arts education in early childhood contexts, and practical contributions for educators in designing gross motor learning activities that are varied, contextual, and grounded in local cultural heritage.

## METHOD

This study employed a Classroom Action Research (CAR) approach. CAR is a form of action research conducted by teachers in classroom settings with the aim of continuously improving and enhancing the quality of the learning process. This approach is categorized as qualitative research, although the data collected may include both quantitative and qualitative data (Arung et al., 2010). Classroom Action Research is considered relevant because it allows teachers and researchers to reflect on ongoing instructional practices and to design improvement actions based on real classroom conditions.

The research design followed the Kemmis and McTaggart model, which was developed from the foundational concept of action research introduced by Kurt Lewin. This model consists of four main stages: planning, action, observation, and reflection. In this model, the action and observation stages are integrated into a single phase because instructional implementation and observation occur simultaneously and cannot be separated. Each research cycle was conducted iteratively until improvements in children's gross motor skills were achieved in accordance with the predetermined indicators. The flow of the Classroom Action Research process based on the Kemmis and McTaggart model used in this study is presented in Figure 1.



**Figure 1.** Kemmis & MC Taggart's Action Research Model

The subjects of this study were the classroom teacher and early childhood learners from Group B at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. A total of 10 female children participated in the study. The selection of participants was based on initial observations indicating that children's gross motor skills had not yet developed optimally, particularly in terms of movement coordination, body balance, and the ability to follow rhythmic movement. In this study, the classroom teacher acted as the implementer of the instructional actions, while the researcher served as an observer and reflection partner in each action cycle.

Data were collected through observation, interviews, and documentation. Observation was used to obtain primary data on the development of children's gross motor skills during the implementation of the Traditional Plate Dance (Tari Piring) method, with a focus on indicators such as jumping in rhythm, expressing hand and foot movements, swinging the arms while holding plates, and coordinating hand movements with dance props. Interviews were conducted with the teacher and school representatives to obtain supporting data regarding initial learning conditions, children's responses to dance activities, and changes in behavior and motor abilities during the implementation of the actions. Documentation was used to record the learning process in the form of photographs and field notes, serving to strengthen the observational and interview data.

Data analysis was conducted by combining quantitative analysis and qualitative descriptive analysis. Quantitative data from gross motor development assessments were analyzed to examine changes in children's performance before and after the implementation of actions in each cycle. Meanwhile, data from observations, interviews, and documentation were analyzed qualitatively through the stages of data reduction, data presentation, and conclusion drawing. This analysis process aimed to identify patterns of improvement in children's gross motor skills and to evaluate the effectiveness of implementing the Traditional Plate Dance (Tari Piring) method in the learning process. The data analysis flow for this study is presented in Figure 2 (Asmuddin et al., 2022).

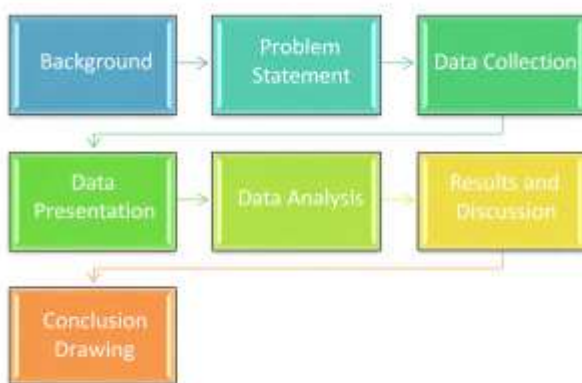


Figure 2. Stages of the Research Process

## RESULT AND DISCUSSION

The results of this study indicate that the implementation of the Traditional Plate Dance (Tari Piring) activities had a positive impact on improving the gross motor skills of early childhood learners at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. Improvements in gross motor skills were observed progressively from the pre-cycle stage through Cycle I and Cycle II. These findings demonstrate that dance activities involving whole-body movement provide

stimulation that is well aligned with the gross motor developmental needs of children aged 5–6 years.

Based on observations conducted during the pre-cycle stage, children’s gross motor skills were still at a relatively low level. Of the 10 children observed, 50% were categorized as Not Yet Developed (NYD), 40% as Beginning to Develop (BD), and only 10% had reached the Developing as Expected (DE) category. This condition indicates that most children were not yet able to perform movements requiring balance, coordination, and agility optimally when participating in dance movement activities.

The implementation of actions in Cycle I showed positive changes. The percentage of children in the Not Yet Developed (NYD) category decreased to 10%, while the Beginning to Develop (BD) category declined to 20%. At the same time, there was an increase in the Developing as Expected (DE) category to 30% and the Very Well Developed (VWD) category to 40%. These results indicate that traditional dance activities began to influence children’s ability to coordinate body movements, maintain balance, and follow rhythmic patterns in a more structured manner.

More substantial improvement was observed in Cycle II. At this stage, no children remained in the Not Yet Developed (NYD) or Beginning to Develop (BD) categories. A total of 20% of children were categorized as Developing as Expected (DE), while 80% had reached the Very Well Developed (VWD) category. These findings indicate that most children were able to perform dance movements with good coordination, balance, and body control. In addition, during Cycle II, children appeared more confident, active, and enthusiastic in participating in dance-based learning activities. Consequently, the research success indicators were achieved, and the actions were concluded at this cycle.

A summary of the percentage distribution of children’s gross motor development in Cycle I and Cycle II is presented in Table 1.

**Table 1.** Recapitulation of the Percentage of Children's Gross Motor Development through Traditional Dance in Cycle I and Cycle II

Siklus	BB (%)	MB (%)	BSH (%)	BSB (%)
Cycle I	10	20	30	40
Cycle II	0	0	20	80
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Based on Table 1, a clear shift in children’s gross motor development toward higher developmental categories can be observed from Cycle I to Cycle II. The absence of the Not Yet Developed (NYD) and Beginning to Develop (BD) categories in Cycle II indicates that the Traditional Plate Dance (Tari Piring) activities provided effective and sustained motor stimulation. The dominance of the Very Well Developed (VWD) category at 80% suggests that most children had reached a level of gross motor development appropriate for their age group of 5–6 years. therefore, at the same time that illustrates a consistent upward trend in children’s gross motor abilities from the initial to the final stage of the study. This trend indicates that the more frequently children engaged in structured dance movement activities, the better their coordination, balance, and body agility became.

Thus, the data presented in the table confirm that the Traditional Plate Dance (Tari Piring) functions not only as an artistic activity but also as an effective movement-based learning medium for enhancing gross motor development in early childhood.

Overall, the findings demonstrate that the implementation of the Traditional Plate Dance (Tari Piring) through a Classroom Action Research design had a significant impact on improving

the gross motor skills of children aged 5–6 years. The gradual improvement from the pre-cycle stage to Cycle II, particularly the dominant shift from the Not Yet Developed and Beginning to Develop categories toward Very Well Developed, indicates that structured and meaningful movement-based learning can optimize large muscle coordination, balance, and motor control. These findings reinforce the view that gross motor development in early childhood is strongly influenced by the quality of physical stimulation provided within the learning environment (Barnett et al., 2016; Gebel et al., 2018; Webster et al., 2020).

Consistent with child development perspectives, the improvement in gross motor skills achieved through Tari Piring activities can be understood within the golden age framework, in which children's motor system plasticity is at an optimal level, allowing for faster and more sustainable responses to movement stimulation (Papalia & Martorell, 2021; Hirsh-Pasek et al., 2015). Dance activities involving swinging, jumping, maintaining balance, and coordinating hand and body movements enable children to build motor skills through direct and repeated experiences. This condition supports previous research findings emphasizing that gross motor skills do not develop naturally without planned and contextual physical practice (Logan et al., 2015; Sansone et al., 2019).

The findings of this study also strengthen the argument that dance, as a movement-based art activity, has broader pedagogical value compared to conventional physical activities. Dance requires not only physical engagement but also the integration of rhythm, spatial awareness, and emotional regulation, thereby providing holistic learning experiences for young children (Lakes et al., 2016; Pamungkas & Rahmawati, 2025; Koch et al., 2019). In this study, Tari Piring required children to maintain body balance while coordinating hand movements with musical rhythms, which directly trained gross motor control and movement concentration. This aligns with the findings of Lenés et al. (2020), who reported that dance-based learning enhances active engagement and the quality of movement experiences in early childhood.

Specifically, the use of Tari Piring as a medium for gross motor learning offers distinct contextual and cultural advantages. Movements adapted from Minangkabau *silek* emphasize rhythmic precision, large muscle strength, and postural stability, all of which are highly relevant for the development of gross motor skills in young children (Fauziyyah et al., 2026; Anggraini & Astuti, 2021). These findings are in line with the results of a study by Mikaresti et al. (2024), which shows that the development of arts education by early childhood teachers contributes significantly to improving the motor development of young children through structured, expressive movement activities that are appropriate for the developmental characteristics of children. The integration of local cultural elements into learning activities also contributes to increased motivation and engagement, as learning becomes more meaningful and closely connected to children's socio-cultural contexts (Lenés et al., 2020).

The results of this study are consistent with previous national research reporting that traditional dance activities positively influence the gross motor development of children aged 5–6 years (Haida et al., 2023; Utami et al., 2023). In addition, the increased engagement and self-expression observed during dance activities support the findings of Mufidah (2022), which indicate that dancing contributes to psychosocial aspects of development, such as self-confidence and expressive ability. Thus, Tari Piring serves not only as a medium for gross motor development but also as a learning tool that supports children's social-emotional development.

From a methodological perspective, the more substantial improvement observed in Cycle II highlights the effectiveness of reflection and continuous improvement inherent in Classroom Action Research. Adjustments in instructional strategies, strengthened classroom management, and refined implementation of dance movements enabled children to participate more

consistently and optimally. These findings reinforce the view that Classroom Action Research is a relevant approach for developing gross motor learning practices that are adaptive to children's needs and classroom contexts.

In conclusion, this discussion confirms that the implementation of the Traditional Plate Dance (Tari Piring) as a movement-based learning strategy effectively addresses the research gap identified in the introduction. The study not only confirms the effectiveness of traditional dance in improving children's gross motor outcomes but also highlights the importance of learning processes, movement dynamics, and children's active engagement within early childhood education contexts. Accordingly, Tari Piring can be positioned as a relevant, contextual, and sustainable pedagogical approach for supporting gross motor development in early childhood.

## **CONCLUSIONS**

This study concludes that the systematic implementation of the Traditional Plate Dance (Tari Piring) method through a Classroom Action Research approach was effective in improving the gross motor skills of young children at PAUD Kartini Jatimulyo, Jatiagung District, South Lampung. The improvement in developmental outcomes was clearly reflected in the shift of children's developmental categories, particularly the increase in the proportion of children classified as Very Well Developed from 40% in Cycle I to 80% in Cycle II. This finding indicates that dance activities based on rhythm and coordinated movement are able to optimally stimulate children's balance, coordination, and body control. These results suggest that the Traditional Plate Dance (Tari Piring) can be utilized as an alternative gross motor learning strategy that is contextual, enjoyable, and aligned with the developmental characteristics of early childhood, while simultaneously supporting the preservation of local cultural heritage. Nevertheless, this study has limitations related to the relatively small number of participants and the research context being confined to a single early childhood education institution, which requires cautious generalization of the findings. Therefore, future research is recommended to involve larger and more diverse participant groups, varied institutional contexts, and to examine long-term impacts as well as the integration of traditional dance with other developmental domains, in order to obtain a more comprehensive understanding of the effectiveness of movement-based arts learning in early childhood education.

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## **AUTHOR CONTRIBUTION STATEMENT**

HW contributed to the planning and implementation of classroom action research, data collection, and initial manuscript preparation. JKS contributed to research design, data analysis, interpretation of findings, and manuscript revision. Both authors reviewed and approved the final version of the manuscript.

## **CONFLICTS OF INTEREST**

The authors declare that the research was conducted independently and that there were no financial or personal interests that could have influenced the research process or the interpretation of the findings.

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