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The Effect of Nature-Based Creative Dance on Gross Motor Development in Early Childhood

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Abstract

Although early childhood gross motor development has received considerable attention in previous studies, research specifically examining natural movement-based creative dance as a contextual learning approach remains limited. This study aims to analyze the effect of natural movement-based creative dance on the gross motor development of children aged 5–6 years. A quantitative approach with a quasi-experimental non-equivalent control group design was employed, involving 30 children selected through purposive sampling. Data were collected using gross motor development observation sheets that had been tested for validity and reliability and were analyzed using an independent samples t-test. The results showed a significant difference between the experimental and control groups ($p < 0.05$), with a greater increase in gross motor scores among children who received the natural movement-based creative dance treatment. These findings indicate that dance activities grounded in natural movements are effective in improving children's balance, coordination, and agility. The study contributes to the strengthening of motor development theory by emphasizing the importance of contextual and meaningful physical activity-based stimulation. It concludes that natural movement-based creative dance is an effective and innovative learning strategy

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for optimizing early childhood gross motor development. Therefore, early childhood educators are encouraged to integrate this approach into learning activities. The implications of this research include theoretical contributions to the development of movement-based learning and practical recommendations for teachers in designing more creative and contextual activities. Further research is recommended to explore the long-term effects of this approach and its integration with other aspects of child development.

Keywords: Early Childhood Education; Creative Dance; Natural Movement; Gross Motor Development; Contextual Learning

INTRODUCTION

Early childhood education (PAUD) is an important foundation in the development of the quality of human resources because it takes place in the golden age phase, which is a period when children's development takes place very rapidly and is sensitive to various environmental stimuli (Jaoza & S, 2024; Judijanto et al., 2024). Globally, attention to the optimization of early childhood development is increasing, especially in ensuring the integration of cognitive, social-emotional, and physical motor aspects through active and meaningful learning (Azzahra & Nurhafizah, 2024). Recent studies in reputable literature confirm that motor stimulation from an early age contributes significantly to children's learning readiness, physical health, and development of executive functions. In Indonesia, the direction of education policy also places physical motor development as one of the main aspects of the PAUD curriculum (Dr. Hapidin et al., 2021).

One aspect of development that still faces implementation challenges is gross motor skills. Gross motor includes the ability to coordinate large muscles in activities such as running, jumping, and maintaining balance (Haris et al., 2025). Recent research shows that low variation in physical activity in learning causes less than optimal motor development in children, especially at the age of 5–6 years (Az-Zahra & Suryana, 2023). This condition is also found in learning practices in Indonesia, where the learning approach still tends to be monotonous and does not involve structured and fun movement activities (Fatwikiningsih et al., 2025; Wahyudi et al., 2024) Thus, learning innovations that are able to integrate physical activity with approaches that suit children's characteristics are needed (Rahmayuni & Hazizah, 2020; Sabrianti Rizkika & Hazizah, 2024).

In response to the issue, experts recommend the use of an art-based and movement-based approach as a motor stimulation strategy (Azizah, 2024). Creative dance is a form of activity that is considered effective because it combines elements of movement, rhythm, and expression in one learning unit (Ardiyanti et al., 2025; Utari & Yeni, n.d.). In addition, the environment-based movement approach or natural movement is considered more contextual because children can imitate phenomena that are close to their daily experiences (Widyasanti, 2024). Theoretically, dancing activities involve multisystem coordination (nerves, muscles, and perception), thus potentially significantly improving gross motor skills (Rizkyani et al., 2024).

Previous studies have examined the influence of dance on children's gross motor development and shown positive results. These studies generally found that dance activities are able to improve coordination, balance, and agility in early childhood. However, most research still focuses on traditional dances or general creation dances without integrating specific natural movement-based approaches. In addition, previous research has not tended to examine in depth the form of dance that is based on contextual activities such as children's daily activities (for example, farming activities or interaction with nature). This shows that there is a research gap related to the lack of exploration of the effectiveness of natural movement creation dance as a gross motor learning intervention.

Based on these gaps, this research presents novelty in the form of the integration of creative dance with a contextual approach to natural movements, especially through the activity of "planting corn". The novelty of this research lies in the use of real activity-based movements that are close to the child's experience, so that it not only develops motor aspects, but also strengthens contextual understanding and active involvement of children in learning. This approach is supported by a theory of motor development that emphasizes the importance of direct experience and imitation activities in the early childhood learning process.

Thus, this study aims to analyze the influence of natural movement creation dance on gross motor development of children aged 5–6 years. The focus of the research is directed at testing the effectiveness of natural movement-based creative dance interventions as an innovative learning strategy in improving gross motor skills in early childhood.

METHODS

This study uses a quantitative approach with a quasi-experimental design method to test the influence of natural movement creation dance on gross motor development in early childhood. The quantitative approach was chosen because this study aims to measure the cause-effect relationship between independent variables and objectively bound variables through numerical data (Sugiyono, 2016). Experimental methods are used to determine the effectiveness of a treatment under controlled conditions, although not all variables can be strictly controlled as pure experiments (Abraham & Supriyati, 2022).

The research design used was a non-equivalent control group design, which involved two groups, namely the experimental group and the control group. Both groups were given a pre-test to find out the initial condition, then the experimental group was given treatment in the form of natural movement creation dance activities, while the control group was given conventional learning in the form of dance that is commonly used in schools. After treatment, both groups were given a post-test to measure changes in gross motor ability. This design was chosen because it is appropriate to examine the effectiveness of interventions in educational contexts that do not allow full randomization of research subjects (Sugiyono, 2016).

The population in this study is all children of Kartika Kindergarten 1-55 Padang which totals 84 children and is divided into several learning groups. The research sample was determined using the purposive sampling technique, which is the selection of samples based on certain criteria relevant to the research objectives, such as the age of the child 5–6 years and suitability for the class group being studied. This technique was chosen because it allows researchers to obtain representative subjects according to research needs (Creswell, 2024). The sample consisted of two groups, namely the experimental group and the control group, each of which was given a different treatment.

The research instrument used was an observation sheet to measure children's gross motor development. This instrument is compiled based on indicators of gross motor ability of children aged 5–6 years, such as balance, coordination, agility, and movement flexibility. The validity of the instrument was tested through expert judgment by early childhood education experts, while the reliability of the instrument was tested through a consistency test using techniques that were in accordance with quantitative research. Data collection is

carried out through direct observation during learning activities, so that the data obtained reflects the real condition of children's motor development.

The data analysis technique was carried out quantitatively using an inferential statistical test. The data were analyzed through normality and homogeneity tests as a prerequisite for the analysis, then followed by a t-test to find out the significant differences between the experimental group and the control group. In addition, a gain score was calculated to see an improvement in gross motor skills before and after treatment. This analysis is used to ensure that the results of the research are aligned with the research objectives in testing the effect of the treatment given.

This research was carried out at Kartika Kindergarten 1-55 Padang in the 2025/2026 school year. During the implementation of the research, the researcher pays attention to the ethical aspects of the research by obtaining permission from the school and ensuring that all learning activities carried out do not harm the research subject. Children are involved in activities that are safe, fun, and appropriate to their developmental stages, and the data obtained is kept confidential and used only for research purposes. Overall, this research method is designed to provide a valid and reliable empirical picture of the influence of natural movement creation dance on early childhood gross motor development.

RESULTS

This study aims to test the influence of natural movement creation dance on the gross motor development of children aged 5–6 years. Data were obtained through pre-test and post-test results in the experimental group and control group, then analyzed using inferential statistical tests. The results of the analysis showed that the child's initial gross motor ability in both groups was relatively equal. After treatment, there was a more significant improvement in the experimental group than in the control group.

Table 1. Average Child Gross Motor Score

Group	Pre-test (Mean)	Post-test (Mean)	Gain Score
Experiment	58.40	82.75	24.35
Control	57.85	68.20	10.35

Table 1 shows that the experimental group experienced a higher increase in score than the control group. This indicates that treatment in the form of natural movement creation dance has an influence on the child's gross motor development.

Normality and homogeneity tests are carried out before hypothesis testing. The test results showed that the data was distributed normally and homogeneously (sig > 0.05), so it was eligible for the t-test. Hypothesis testing was carried out using an independent sample t-test. The results of the analysis showed a significance value of 0.000 ($p < 0.05$), which means that there was a significant difference between the experimental group and the control group. Thus, the working hypothesis (Ha) is accepted, namely that there is a significant influence of natural movement creation dance on the gross motor development of children aged 5–6 years.

During the research process, it was found that the children in the experimental group showed improvements in aspects of balance, coordination, and agility. However, there are some children who experience lower improvements than their peers, which is thought to be influenced by individual factors such as confidence levels and physical condition.

DISCUSSION

The results of the study show that the dance of natural movement creation has a significant influence on the gross motor development of early childhood. A higher increase in the experimental group showed that activities involving structured and contextual movements were able to optimally stimulate motor development. These findings are in line with the theory of motor development which states that physical activity involving large muscle coordination can gradually improve a child's movement ability (Mukti et al., 2020).

Theoretically, creative dance activities allow children to develop coordination, balance, and agility through movements that involve various limbs (Purwanti, 2025). This is supported by opinion (Asmuddin et al., 2022) which states that gross motor skills develop through activities that involve large muscles and overall body coordination. In addition, the use of natural movements in dance provides a contextual learning experience, making it easier for children to understand and imitate movements (Diah et al., 2024; Munawaroh, 2017).

When compared to previous research, the results of this study are consistent with findings that show that dance activities can improve gross motor skills in early childhood. However, this research makes an additional contribution through the use of a natural movement approach that is more contextual than creative dance in general. Thus, this study reinforces previous findings while offering innovations in learning methods.

In terms of implications, the results of this study show that PAUD teachers can use natural movement creation dance as an alternative to an effective and fun learning strategy. In addition to improving gross motor skills, this activity can also increase children's motivation to learn and active participation. Practically, the use of movements that are close to a child's daily life can help create meaningful learning.

However, this study has some limitations. First, the number of samples is limited to one educational institution so that the results of the research cannot be generalized widely. Second, individual factors such as the physical and psychological condition of the child cannot be completely controlled. Third, the relatively short duration of the study may not be enough to see the long-term impact of the given intervention.

Overall, this study provides empirical evidence that natural movement creation dance is effective in improving gross motor development in early childhood, as well as making a theoretical and practical contribution to the development of movement-based learning in early childhood education.

CONCLUSION

This study aims to analyze the influence of natural movement creation dance on the gross motor development of children aged 5–6 years. Based on the results of data analysis, it was found that there was a significant improvement in the gross motor skills of children who were given natural movement dance treatment compared to conventional learning. Dance activities that integrate nature-based movements have been proven to be able to improve aspects of balance, coordination, and agility of children more optimally. Thus, the research objectives have been achieved and the hypotheses proposed have been empirically proven.

Scientifically, this research contributes to the development of the study of early childhood education, especially in the field of gross motor development through an art-

based and environment-based approach. The theoretical contribution of this research lies in strengthening the concept that gross motor stimulation will be more effective when associated with the child's contextual experience through movement imitation activities. Methodologically, this study shows that the design of the pseudo-experiment is effectively used to test learning interventions in the PAUD environment. Meanwhile, the practical contribution of this research provides an alternative learning strategy that is innovative, fun, and easy to apply by teachers in daily learning activities.

Based on the findings and limitations of the study, it is suggested that further research may involve a wider and more diverse sample count to improve the generalization of results. In addition, further research can examine the long-term impact of the application of natural movement dance and integrate it with other developmental aspects such as cognitive and social-emotional. For education practitioners, it is recommended to develop a more creative and contextual variety of dance movements in order to further improve children's overall involvement and development.

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