Implementation of the Traditional Game 'Ular Naga' for Locomotor Movement of 4-5 Year Old Children

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Abstract
The purpose of this study was to examine of implementation the traditional game of the 'ular naga' in improving the locomotor movement of kindergarten children aged 4-5 years. This type of research is a quasi-experimental with pretest-posttest. Then the sample consisted of 64 children aged 4-5 years from kindergartens in Paguyangan District, Brebes, Indonesia. There are 32 children who receive treatment using the traditional game 'ular naga' or the experimental group (EG) and 32 children with games that are played freely or the control group (CG). The intervention was carried out for 8 weeks with 2 meetings each week, on Tuesday and Friday, starting at 07.30 - 09.00. Locomotor movement assessment using a validated rubik (table 1). The results of the t-test are EG and CG have an effect on locomotor movement (EG = sig. 0,000 and CG = sig. 0,037). However, the independent t-test showed sig. 0.000 which means that the experimental group (EG) using the traditional 'ular naga' game is recommended to improve locomotor skills in kindergarten children aged 4-5 years. Future research can explore the influence of other traditional games, utilize technology to measure motor development in more detail, and expand the duration of observation to see long-term effects.
Keywords: children's games, game modification, motor skills, early childhood

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INTRODUCTION

Locomotor movement is a basic ability that involves moving the body from one place to another. Locomotor movements include walking, trotting, jumping, and trotting (Fajarwati & Arini, 2023). In children aged 4-5 years, the development of locomotor movements is very important because it plays a role in their physical growth and motor skills (Damayanti et al., 2020 & Wardani et al., 2021). This ability not only affects physical fitness, but also supports children's cognitive, social and emotional development (Farida et al., 2023). Through active physical activity, children aged 4-5 years can learn to recognize their environment, improve coordination, and develop social skills when interacting with peers.

Factors that influence the development of locomotor movements in children aged 4-5 years include physical factors, such as muscle strength, coordination and balance (Rahman et

al., 2020). Then there are environmental factors, such as the opportunity to move freely and participate in physical activity, as well as support from parents and educators (Arridho, 2023). In addition, sufficient motivation and stimulation also play an important role in encouraging children to be active (Fajriyah et al., 2023). Therefore, appropriate stimulation can come from various play activities designed to stimulate children's motor skills.

One way to improve locomotor movement in children aged 4-5 years is through the method of traditional games that are fun and educational. Like the traditional game 'engklek' can affect locomotor movement in children aged 4-5 years with a presentation of 85.34% (Hambali et al., 2022). Then, in children of the same age, the traditional game of 'ular tangga' can have a positive influence on locomotor movement by 86.6% (Farida et al., 2023). However, so far we have only found two traditional games that have a positive impact on the motor skills of children aged 4-5 years.

In addition, there are also other types of traditional games in Indonesia, such as the ular naga which can provide opportunities for children to learn and practice various motor skills. This game combines no elements of free movement, running, and social interaction, all of which play a role in improving children's motor skills (Pramudyani, 2020 & Sitorus, 2023). In addition, traditional games also contain cultural values that can enrich children's learning. (Anggita, 2019). Therefore, further scientific studies are needed to analyze the influence of the traditional game 'ular naga' on the scope of locomotor movements in children aged 4-5 years.

However, the problem of this study arises from the lack of use of interactive and fun learning methods to improve children's locomotor movements in early childhood education. The purpose of this study was to examine the effectiveness of the implementation of the traditional game of the 'ular naga' in improving the locomotor movements of kindergarten children aged 4-5 years. With this study, it is hoped that effective strategies can be found to support children's motor development through fun and educational methods, while preserving the culture of traditional Indonesian games.

METHOD

Study Organization

This study uses a quasi-experimental research type, which aims to measure the impact of an intervention or treatment by comparing the results between different groups. This approach was chosen because it allows researchers to observe the effects of independent variation ('ular naga' game) on dependent variation (children's locomotor movement) in real field conditions without random placement.

The subjects in this study were divided into two groups using the ordinal pairing technique. This division was based on the results of the pre-test to ensure a uniform distribution of basic locomotor movement abilities between the groups after that. sharing, participants Discuss into the experimental group (EG), which will receive intervention through the ular naga game by Modifying movements such as walking, running, jumping, hopping, and sideways movements. Meanwhile, the control group (CG) will undergo free play that is not specifically Structured.

The 'ular naga' game intervention was carried out for 8 weeks with an intensity of two meetings each week. Training sessions are held every Tuesday and Friday, starting at 07.30 to 09.00 am, where each session accommodates modifications of this traditional game to maximize the development of locomotor movements. Then the place where the game was held was at the Muhammadiyah University of Brebes which has a spacious, comfortable, and clean room.

Study Participants

The population of this study included 3 Kindergartens (TK) in Paguyangan District, Brebes Regency, Indonesia. The total number of students who participated in the study was 64 children, with an age range of 4 to 5 years. All children participating in the study were certainly in good health, both physically and mentally. And have obtained consent from their parents to participate in this study.

Instrument

The instrument used in this study was a questionnaire that had been specifically designed to reflect on locomotor movement abilities in the pre-test and post-test, and had been validated. This instrument was used by 6 teachers who had previously received training and measurement of correct movements. This questionnaire covers aspects of walking, running, jumping, hopping, and galloping, with each skill having five assessment indicators. The results of this measurement were assessed using a 4-point scale, 1 'very poor', 2 'poor', 3 'good', 4 'very good'. Then, some equipment used such as cones, safety tape, mats, meters, chalk, stationery.

Table 1. Locomotor movement assessment rubric

Walking	
1.	Maintaining Balance while moving on various surfaces
2.	Hand and foot coordination (synchronization of hand and foot movements)
3.	Stride consistency (length and rhythm) of a stable stride)
4.	Ability to change direction smoothly without losing balance
5.	Courage and confidence in moving independently
Running	

1.	Speed (ability) to increase and maintain running speed)
2.	Coordination of arms and legs while running for movement efficiency
3.	Ability to change direction and stop with control
4.	Stability of body posture when running to prevent falls or injury.
5.	Endurance running in a reasonable time for age

Jumping	
1.	Glide height and distance
2.	Use of arms to help glide
3.	The ability to land in balance after jumping
4.	Flexibility in transitioning to and from coasting without losing control
5.	Language Courage tries to jump objects with good judgment

Leaping	
1.	Height of jumping on one leg
2.	Balance when landing after a jump
3.	Control during the jump to maintain the flow of movement
4.	Accuracy and direction of jump according to goal
5.	Endurance to perform repeated jumps without losing energy

Galloping	
1.	Use of front and back legs to initiate movement
2.	Rhythm and continuity in the breaking movement
3.	Body coordination while moving forward in a smooth manner
4.	Ability to maintain steady movement on uneven surfaces
5.	Compliance with instructions when performing a break-in correctly

Sliding	
1.	Speed and control while gliding
2.	Body coordination in maintaining direction of movement without losing control
3.	The ability to stop and change direction without losing balance.
4.	Fluidity in Moving from one position to another
5.	Courage and confidence in sliding in various situations

Statistical Analysis

The t-test (paired t-test) was used to analyze the differences in results between the pre-test and post-test in each group. This test determines whether there is a significant change in the child's locomotor ability after undergoing treatment, with the level of significance set at $p < 0.05$. The independent t-test, was used to compare the effect of treatment between the experimental group that played the ular naga game and the control group that played free play. This test helps determine the specific effects of the 'ular naga' game on the development of children's gross motor skills.

RESULTS AND DISCUSSION

Results

In this results section is the reporting of pretest scores and posttest scores after students are given the first analysis is to conduct a normality test of the pretest scores and posttest scores given by the teacher based on kindergarten students aged 4-5 years who took the locomotor movement test. The following are the results of the normality test (table 2).

Table 2. Normality Test using Shapiro-Wilk

	Kolmogorov-Smirnov dan			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test EG	0,185	36	0,083	0,925	36	0,088
Pre-Test CG	0,172	36	0,079	0,939	36	0,077
Post-Test EG	0,171	36	0,089	0,920	36	0,083
Post-Test CG	0,232	36	0,070	0,879	36	0,071

Based on the results of table 2, the results of the normality test using the Shapiro-Wilk reference which shows the significance value of the pretest and posttest based on the experimental group and the group is more than 0,05. So all the data are normally distributed and worthy to be continued to the next analysis. The second analysis is to conduct a paired t-test (table 3) to test the difference after being given treatment through the traditional game 'ular naga'.

Table 3. Pretest and posttest results for each treatment group.

	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pre Test– Post Test (EG)	-5.222	1.290	0,215	-24.294	35	0,000
Pre Test – Post Test (CG)	-0,417	1.156	0,193	-2.163	35	0,037

Based on the results table 3, in the experimental group is the traditional game 'ular naga' shows a sig 0,000<0,05 then there is an influence of the traditional game 'ular naga' on locomotor movements in kindergarten children aged 4-5 years. Then in the control group is free play, indicating a sig 0,037<0,05 then there is an influence of free play on locomotor movements of kindergarten children aged 4-5 years. Therefore, an independent t-test is needed (table 4) to analyze group differences, in order to obtain more accurate results.

Table 4. Test of differences between experimental and control groups

		Levene's Test For Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Locomotor Movement	Equal variances assumed	1.784	0,286	16.952	70	0,000	5.194
	Equal variances not assumed			16.952	66.487	0,000	5.194

Based on the results of table 4, the independent t-test based on the same variance value is assumed to show a sig. 0,000 < 0,05 so that there is a real difference between the experimental group using the traditional game 'ular naga' and the control group with free play. Therefore, the experimental group using the traditional game 'ular naga' is more recommended to improve the locomotor skills of kindergarten children aged 4-5 years.

Discussion

The results of the study showed that the traditional game 'ular naga' has a significant impact on improving the locomotor skills of children aged 4-5 years. The group of children involved in this game showed a better increase in ability compared to the group that played freely. This indicates the importance of the traditional game 'ular naga' in supporting the development of children's motor, social, and emotional skills. Because in the traditional game 'ular naga' there are running, jumping, jumping movements, which means that the game combines no elements of free movement, running, and social interaction, all of which play a role in improving children's motor skills, especially those aged 4-5 years (Pramudyani , 2020 & Sitorus, 2023).

This game involves various aspects of locomotor movement. While playing, children learn to maintain balance, coordinate hand and foot movements, and move with confidence. Based on the results of previous literature, the form of walking, running, jumping, jumping, galloping, and sliding activities in the game can help children develop speed, agility, and the ability to change direction and stop with control (Mukarromah et al., 2022 & Fitriani et al., 2023). The results of previous studies also showed through clog games that the combination of locomotor movements improves balance, leg strength and agility in children aged 4-5 years

(Denok et al., 2021). Therefore, this game is one of the effective methods in stimulating various motor skills.

However, children aged 4-5 years also face several challenges in this game, such as limited coordination, balance, and self-confidence. The development of fine and gross motor skills that are not fully mature can make it difficult for them to run movements that require precision and balance (Ali et al., 2022). In addition, the fear of trying new movements can also be a challenge. Therefore, teachers should provide more intensive support and guidance to help children develop coordination and balance by directing and demonstrating movements clearly (Roostin et al., 2022 & Fransiska, 2022). Teachers should also create a safe and supportive environment so that children feel comfortable trying new movements without fear, and provide encouragement and praise to build their confidence (Fasha & Hibana, 2023).

Variations in traditional games are very important to improve children's locomotor skills. With various forms of play, children can receive various motor stimulations, maintain interest and motivation, and develop creativity and social skills (Mashuri et al., 2022). Development research conducted by Riswandi, (2021) also produced variations of games such as jumping, cat and mouse, clogs, moving flags which have an effect on locomotor movement and together can increase sports motivation and teamwork between friends. This variation also provides children with opportunities to interact more richly with peers, building communication and teamwork skills. Through this approach, traditional games are not only beneficial for physical development, but also for the social and cognitive aspects of children at a crucial age of development (Fitriana, 2022).

Teachers also play a crucial role in facilitating and optimizing children's locomotor movement outcomes. Teachers who are proactive and skilled in providing instructions can influence how children participate and develop in traditional games, by involving educational play tools (Fasha & Hibana, 2023). By providing clear directions and demonstrations of movements, teachers help children understand and execute movement techniques more effectively. Positive support and reinforcement from teachers not only help improve children's coordination and balance but also build their confidence when trying new movements (Sit, 2022). In addition, teachers can create a safe and enjoyable play atmosphere, so that children can feel the maximum benefits from the motor and social activities they do (Khadijah et al., 2022). Thus, the active involvement of teachers greatly influences the improvement of early childhood locomotor movement abilities.

Limitations of this study may include the sample size being limited to one age group or location, so the results may not be generalizable to a wider population. In addition, external

factors such as environmental conditions of play and individual variations in motor skills may not have been fully controlled. Future research should aim to conduct a more diverse and larger sample to obtain more representative results. Further research could also explore the effects of other traditional games, utilize technology to measure motor development in greater detail, and extend the observation period to see long-term effects.

CONCLUSION

The conclusion of this study confirms that the traditional game 'ular naga' has a significant positive influence on improving the locomotor skills of children aged 4-5 years. Children who participated in this game showed better motor, social, and emotional skills compared to the group that played freely. This game includes locomotor movements such as running, jumping, and hopping, which effectively stimulate the development of motor and balance. However, the challenges of limited coordination and fear of trying new movements require guidance and encouragement from teachers to create a safe and supportive play environment. The importance of variation in traditional games is also recognized to maintain children's interest, develop creativity, and enrich social interactions. The limitations of this study, such as limited samples and external control variations, indicate the need for further research with larger and more diverse examples, as well as exploration of the use of technology for more detailed analysis in the future.

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