

Motivation and Play Activities for Children's Basic Movements Actividades de motivación y juego para los movimientos básicos de los niños

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Abstract. Delays in basic movements during early childhood represent a challenge that must be addressed by sports professionals. This research aims to describe how play and motivation relate to children's basic movements, implementing an experimental model approach. The sample participants were children who were still in primary school, with an average age of 11.09 ± 0.73 years. Data were collected using a training motivation questionnaire and the Scott motor ability test, which consisted of basketball throw, 4-second run, wall pass, and long jump. Data were analyzed using a two-way factorial ANOVA test. The research results show that the kasiti ball training model is more effective than fortification training. Furthermore, there is an interaction between the form of training and motivation: the basic movements performed in the kasiti ball training are superior to the strengthening ones for children with high training motivation, while the baseball training is better than the of strength for those with low motivation. This finding is important as it informs children's basic movement skills through specific exercises.

Keywords: Children, basic movements, motivation, forms of play.

Resumen. Los retrasos en los movimientos básicos durante la primera infancia representan un desafío que debe ser abordado por los profesionales del deporte. Esta investigación tiene como objetivo describir cómo el juego y la motivación se relacionan con los movimientos básicos de los niños, implementando un enfoque de modelo experimental. Los participantes de la muestra fueron niños que aún cursaban la escuela primaria, con una edad promedio de 11.09 ± 0.73 años. Los datos se recopilaron mediante un cuestionario de motivación para el entrenamiento y la prueba de capacidad motora de Scott, que consistió en lanzamiento de baloncesto, carrera de 4 segundos, pase contra la pared y salto de longitud. Los datos se analizaron utilizando una prueba ANOVA factorial de dos vías. Los resultados de la investigación muestran que el modelo de entrenamiento con pelota kasiti es más efectivo que el entrenamiento de fortificación. Además, existe una interacción entre la forma de entrenamiento y la motivación: los movimientos básicos realizados en el entrenamiento con pelota kasiti son superiores a los de fortalecimiento para los niños con alta motivación en el entrenamiento, mientras que el entrenamiento de béisbol es mejor que el de fuerza para aquellos con baja motivación. Este hallazgo es importante, ya que informa sobre las habilidades de movimiento básicas de los niños a través de ejercicios específicos.

Palabras clave: Niños, movimientos básicos, motivación, formas de juego.

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Introduction

Basic movement skills are the foundation for sports and physical activity skills (Liu et al. 2023; Pienaar, Gericke, and du Plessis 2021), which consist of locomotor control and object control. Children's basic movement skills grow in the early years of childhood and continue to develop until the end of childhood (Pratiwi et al. 2024), these basic movement skills play an important role in almost every aspect of daily life (Gandotra et al. 2020; Jang and Hong 2022; O'Hagan et al. 2022). Basic movements need to be taught to children from two to seven years (Kavanagh, Issartel, and Moran 2020). At this age they also need to be given different types of movement patterns (Arnando et al. 2023; Chen et al. 2022) because basic movements do not develop naturally therefore basic movements must be taught and given assignments that are appropriate to their status. child development (Lawson et al. 2021; Wang et al. 2020; Wick et al. 2017) Basic movements themselves are influenced by various factors such as economic, biological and environmental determinants as obstacles to children's basic movements (Pienaar et al. 2021)

Basic movement itself contributes to health and personality such as fitness, nutritional status, physical and mental academic achievement (Chen et al. 2022; Yendrizal et al. 2023), although in the world reports

among children and adolescents of basic movement skills are still low (Bahtra et al. 2022; Lawson et al. 2021), such as in England and Ireland Children's basic movement skills are still low due to lack of physical activity in children and adolescents (Edmizal et al. 2023; Rainer, Jarvis, and Ganesh 2023). Previous research states that 6-13% of children have poor basic motor skills (Katagiri et al. 2021)

If a child's basic movements are not understood and addressed in the early stages of development, this will have an impact on delays in the child's future movements (Chen et al. 2022), which must be understood as motivation, children have low motivation to learn and children have high motivation, a teacher must see and understand children who experience these obstacles. and the right approach for this child is the approach to play activities such as playing using tools and playing without using tools, games using tools are games that many children enjoy, such as throwing, catching and playing without tools, usually running and jumping (Suryadi et al. 2024).

By conducting this research, the aim is to describe children's basic movement skills which can be influenced by play activities and motivation, and how influential play activities and motivation are on children's basic movements. This is the basis for researchers to carry out this research.

Method

This research is an experimental research with a two-way factorial ANOVA test. The training method (A) consists of two training groups, namely the baseball training group (A1) and the fortification training group (A2). Meanwhile, training motivation (B) consists of high (B1) and low (B2) training motivation groups. As presented in table 1, the research involved 4 treatment groups, baseball training groups with high and low training motivation (A1B1 and A1B2). Then, fortification training groups with high and low training motivation (A2B1 and A2B2).

Table 1.
Two-Way Factorial Anova Design

Motivation to Practice (B)	Practice Group (A)	
	Kasti ball (A1)	Fortification (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2
Total	A1	A2

A total of 32 male students participated in this study, who were recruited randomly. These participants were class V students at State Elementary School 112 Rejang Lebong using a purposive sampling technique. Participants are at the concrete operational stage and already understand the instructions given by the teacher. Participants have stated that they comply with the rules and participate voluntarily through a written agreement. Participants were 11.09 ± 0.73 years old, weight 26.50 ± 2.16 kg, height 112 ± 6.79 cm, and BMI 21.21 ± 2.07 .

The children's basic motor skills test was carried out by dividing groups using a two-way factorial ANOVA design. This test is carried out before baseball practice and fortification practice. The initial test consisted of 290 participants, after that considering their level of thinking at the concrete operational stage and already understanding the instructions given by the teacher, therefore the researchers chose students who were in class V. Next, from these 32 samples they were given a practice motivation test to divide into high and low motivation groups after that divided into 4 groups consisting of 8 people. As presented in figure 1 and table 2.

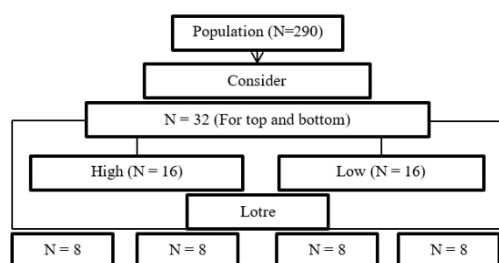


Figure 1. Procedure for dividing treatment groups

Operational definition

In order for this research to have the same interpretation of the terms used, it is necessary to provide explanations and limitations of terms. These terms can be stated as

follows: 1). Children's basic movement skills are students' performance in doing basketball throws, 4 sec dashes, wall passes and standing broad jumps which are measured in their respective units. 2). Motivation to practice is the score of students' answers to the motivation to practice questionnaire using a Likert scale. 3). The training approach is a learning approach that uses baseball and fortification games. Baseball is a sport that is included in the small ball game and has 1 hitting team and 1 guard team playing it. Then fortification is a game that competes or competes by attacking and taking on the opponent's fortress.

Table 2.
Number of participants for each treatment group

Motivation to Practice (B)	Practice Group (A)				N Total (n)
	Kasti Ball (A1)	N	Fortification (A2)	N	
High (B1)	A1B1	8	A2B1	8	16
Low (B2)	A1B2	8	A2B2	8	16
Total	A1	16	A2	16	32

Research Instrument

The instrument for this research is to use a training motivation questionnaire and a Scott motor ability test which consists of basketball throw, 4 sec dash, wall pass and standing broad jump (Gusril 2013). Basketball throw is used to measure arm muscle power, 4 sec dash is used to measure running speed, wall pass is used to measure hand-eye coordination, standing broad jump is used to measure a person's leg muscle power.

Statistic analysis

Descriptive analysis was used to determine the data characteristics of each treatment group. While the normality test is analyzed based on standard residual values, homogeneity is analyzed using Levene's test. Then, a two-way factorial ANOVA test was used to analyze the differences in effects. This study also carried out a Tukey follow-up test to analyze groups that had significantly different or better results on motor skills. All data in this study were analyzed using the IBM SPSS statistical program

Results

This research obtained average results of basic movement skills for children in groups A1 and A2 of 8.00 and 8.01 respectively. For groups B1 and B2 the averages are 8.05 and 7.97. The average motor ability results for groups A1B1 and A2B1 were 8.07 and 7.93. Furthermore, the averages for groups A1B2 and A2B2 are 8.02 and 8.00. This shows that on average the A1B1 group is better than the other treatment groups (see table 3 and figure 2). Table 4 and figure 3 also show that the normality and homogeneity tests of the data are normally and homogeneously distributed ($p > 0.05$)

Table 1.
Results of basic movement skills of children in each treatment group

Group	N	Minimum	Maximum	M \pm SD
A1	16	7,54	8,71	8,00 \pm 0,31
A2	16	7,53	8,6	8,01 \pm 0,26
B1	16	7,56	8,71	8,05 \pm 0,26

B2	16	7,53	8,6	7,97 ± 0,30
A1B1	8	7,56	8,71	8,07 ± 0,34
A2B1	8	7,54	8,33	7,93 ± 0,28
A1B2	8	7,8	8,31	8,02 ± 0,17
A2B2	8	7,53	8,6	8,00 ± 0,34

Note: The dependent variable is the child's basic movement skills, "A1" is the baseball training group, "A2" is the Bentengan training group, "B1" is high training motivation, "B2" is low training motivation, "A1B1" is the ball training group baseball and high training motivation, "A2B1" is a group of strong ball practice and high motivation to practice, "A1B2" is a group of low ball practice and low motivation to practice, "A2B2" is a group of strong ball practice and low training motivation.

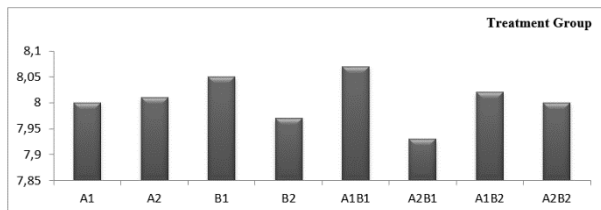


Figure 2. Average basic movement skills of children in each treatment group

Table 4. Normality and Homogeneity Test

Normality			Homogeneity		
Kolmogorov-Smirnov	Shapiro-Wilk		Levene Statistic		
Statistik	df	P	df1	df2	P
0,102	32	0,200	0,956	32	0,212
			3	28	0,065

Note: Data is normally distributed and homogeneous (P > 0.05)

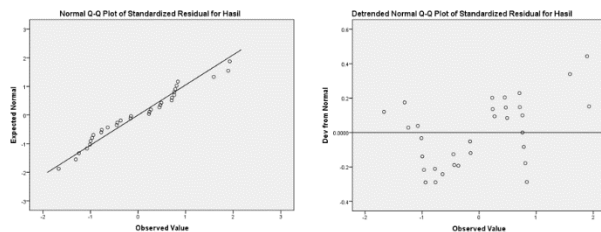


Figure 3. a) Normality plot graph, b) Normality plot graph which has decreased

Table 5 below presents the results of the two-way ANOVA test. The table shows that the results of the basic movement skills of children in groups A1 and A2 (p<0.05) and groups B1 and B2 (p<0.05) are significantly different. Figure 4 adds that there is a significant interaction between groups A and B (p<0.05). To find out which treatment group had a better influence on children's basic movement

By obtaining research data and analyzing it using the factorial anova approach, it can be seen that children's basic movement skills are "A1 and A2 significant", "B1 and B2 are significant", "A1B1 and A2B1 are significant", but are not found with "A1B2 and A2B2 are not significant". This can be noticed in the group with low training models and low training motivation so that it can be understood in order to apply training to children. offered in this research, such as the application of the ball game of rounders and fortifications. Of these two games, the ball game of rounders is more effective than the game of fortifications. Motivation is also an element that improves children's motor skills. With high motivation, children can carry out more enjoyable exercise models (Donie, Yudi, and Okilanda 2022;

skills, a follow-up test was carried out using the Tukey test

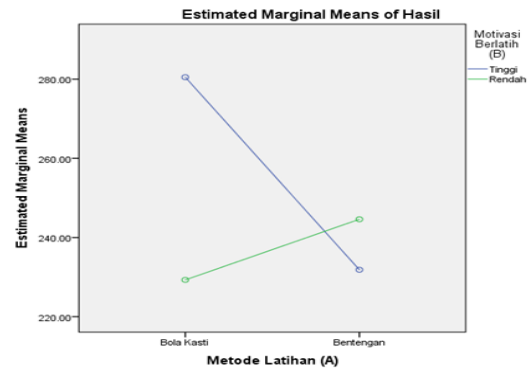


Figure 4. Interaction of training methods with training motivation

Table 5. Two-way factorial ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	P
Corrected Model	134,51	3	445,17	8,32	0,000
Intercept	194,26	1	194,26	36,12	0,000
Practice Method (A)	221,77	1	221,77	4,15	0,049
Practice Method (B)	295,80	1	295,80	5,53	0,026
Practice Method (A)*Practice Method (B)	817,92	1	817,92	15,29	0,001
Error	149,98	28	534,57		
Total	197,75	32			
Corrected Total	283,49	31			

Note: The dependent variable is the child's basic movement skills, "practice method" - found a significant difference between groups A1 and A2 (P<0.05), "motivation to practice" - found a significant difference between groups B1 and B2 (P<0.05). .05), "training method*motivation to practice" - there was a significant interaction between groups A and B (P<0.05).

Table 6. Tukey's test

Compared Groups	Tukey's	P	Conclusion
A1 and A2	18,44	0,025	Significant
B1 and B2	18,44	0,006	Significant
A1B1 and A2B1	21,29	0,008	Significant
A1B2 and A2B2	21,29	0,983	Not significant

Note: The dependent variable is the child's basic motor skills, the difference is significant (P<0.05)

Discussion

Emm-Collison et al. 2020). This is different from children who have low motivation, children who are less enthusiastic about carrying out the training model

Playing is something that is good for children, by playing children can explore various kinds of movement experiences (Komaini 2017; Lee-Cultura, Sharma, and Giannakos 2022; Nugraha, Ilham, and Ali 2024), children's active play becomes one form of children's physical activity during games (Castañer et al. 2016; Loo and Zhang 2024), by playing children can develop physical, cognitive and social skills (Castañer et al. 2016; Loo and Zhang 2024)

Previous research suggests that outdoor play activities can improve children's motor skills, health and physical fitness (Dimiyati et al. 2023; James et al. 2022), in Rasyid et

al. (Haris et al. 2023; Pranoto et al. 2023; Rasyid et al. 2024) research, providing play activities is better applied to children aged 9 -10 years compared to conventional learning. Economic status, play activities and nutritional status have a direct effect on children's motor skills (Ihsan et al. 2023; Komaini 2017). There is no difference between the basic movement skills of boys and girls, but after adolescence, girls' mastery of basic movements decreases compared to boys (Berhimpong et al. 2023; Jang and Hong 2022)

From the results of the research that has been carried out, we can say that children's basic movement skills need to be paid attention to, especially in the form of exercise and motivation of children, children with high motivation are good at doing forms of exercise (knot ball exercises and fortification exercises), but it is better for children to be given This form of training uses a softball rather than a stick, so we recommend that children with high or low motivation are better off exercising using a softball. The results of research using this method can provide an overview and innovation for parents, educators, teachers and trainers to pay more attention to basic movements in children. It is hoped that future research will involve a control group and involve a wider sample group.

Conclusions

This research concludes that it is necessary to pay attention to the form of training (ball and fort training) because it can provide optimal results in basic movement skills. In accordance with these findings, the results of basic movement skills given the form of training with baseball training were no better than those with fortification training ($8.00 < 8.01$). After that, this research found an interaction between the form of exercise and motivation to practice. The results of basic movement skills given in the form of training with baseballs were better than fortification training for high training motivation ($8.07 > 7.93$). The results of basic movement skills given in the form of training with baseballs were better compared to fortification training for low training motivation ($8.02 > 8.00$). These findings are important because they provide information about basic movement skills in the form of exercises that may be useful for fitness instructors, sports practitioners, and athletes in improving basic movement skills. Further research is needed involving other forms of exercise and related factors in exercise, the number of samples in the trained category, and longer treatment times. and athletes in improving basic movement skills.

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