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Article

The Contribution of Dance and Drum Band Activities to the Gross Motor Development of Early Childhood at TK Negeri 1 Labuapi

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Abstract: This study aims to analyze the contribution of dance and drum band activities to the gross motor development of early childhood at TK Negeri 1 Labuapi. The study employed a quantitative approach with an ex post facto design involving 30 children in Group B. Data were collected using observation sheets for dance activities, drum band activities, and the Test of Gross Motor Development-2 (TGMD-2). Data analysis was conducted using simple regression and multiple regression tests with the assistance of IBM SPSS 23. The results showed that dance activities contributed significantly to gross motor development, with a significance value of 0.032 and a contribution of 15.3%. Drum band activities also contributed significantly, with a significance value of 0.019 and a contribution of 18.1%. Simultaneously, dance and drum band activities made a significant contribution to gross motor development, with an R Square value of 46.0%. The drum band variable was the most dominant variable influencing the gross motor development of early childhood children.

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1. Introduction

Early Childhood Education (ECE) is an important phase in the process of children's growth and development because, during this period, all aspects of development progress very rapidly. One aspect that requires optimal stimulation is physical motor development, particularly gross motor skills. Gross motor skills involve the use of the body's large muscles associated with activities such as walking, jumping, running, maintaining balance, and coordinating body movements [1], [2]. At the age of 5–6 years, children are at a stage of motor development that requires directed stimulation so that coordination, balance, agility, and muscle strength can develop optimally [3] Well-developed gross motor skills not only support children's physical readiness to participate in learning activities but also influence their social, emotional, and self-confidence development [4]. Children with optimally developed gross motor skills tend to be more active, interact more easily with their environment, and possess better adaptability in group activities. However, conditions in the field indicate that the stimulation of gross motor development in ECE institutions has not been fully optimal. The learning process still focuses heavily on academic and cognitive abilities, so structured movement activities have not become a primary priority [5]. As a result, some children experience difficulties in body coordination, balance, and movement agility.

Various previous studies have shown that art- and music-based activities can serve as effective media for developing gross motor skills in early childhood. Dance activities, for example, can train body movement coordination, balance, flexibility, and children's ability to follow movement rhythms [6], [7]. Repetitive dance movements help children develop integrated coordination between the hands, feet, and body, thereby enabling gross motor skills to develop more optimally [8]. In addition, dance activities provide enjoyable learning experiences, making children more active and enthusiastic in participating in learning activities [9]. On the other hand, drum band activities also contribute to the gross motor development of early childhood children. Drum band activities involve the coordination of hand and foot movements, body balance, concentration, and the ability to follow rhythms and formations simultaneously [10], [11]. Children are not only required to play musical instruments but also to move according to commands and maintain their positions within the group. These conditions help improve bilateral body coordination, movement control, and children's motor skills [12], [13]. Previous studies have shown that drum band activities are effective in improving children's physical motor abilities because these activities involve structured and repetitive active movements [14].

Although numerous studies related to dance and drum band activities have been conducted, most of them still examine these two activities separately. Studies comparing the simultaneous contribution of dance and drum band activities to the gross motor development of early childhood children remain relatively limited. Furthermore, only a few studies have been conducted within the same ECE institutional context, so previous findings have not been able to identify which activity provides the most dominant contribution to children's gross motor development. Based on the results of the preliminary observation conducted at TK Negeri 1 Labuapi, it was found that approximately 35% of Group B children still experienced difficulties in maintaining body balance, movement coordination, and agility during physical activities at school. Some children appeared less capable of performing jumping movements, walking in balance, and following rhythmic movements accurately. These conditions indicate that children's gross motor stimulation still needs to be improved through activities that are engaging, active, and appropriate to the developmental characteristics of early childhood children.

The novelty of this study lies in the simultaneous analysis of the contribution of dance and drum band activities to the gross motor development of early childhood children within a single ECE institutional setting. In addition, this study employed the Test of Gross Motor Development-2 (TGMD-2) instrument to measure children's gross motor abilities more specifically in the aspects of locomotor skills and object control. This study is important as a basis for consideration for teachers and ECE institutions in determining effective gross motor stimulation programs through art and music activities. Based on the description above, the objectives of this study are: (1) to analyze the contribution of dance activities to the gross motor development of early childhood children, (2) to analyze the contribution of drum band activities to the gross motor development of early childhood children, and (3) to analyze the simultaneous contribution of dance and drum band activities to the gross motor development of early childhood children at TK Negeri 1 Labuapi. In addition, this study also aims to identify the variable that provides the most dominant contribution to the gross motor development of early childhood children.

2. Materials and Methods

This study employed a quantitative approach with an ex post facto research design to analyze the contribution of dance and drum band activities to children's gross motor development without providing any manipulation or special treatment to the variables under investigation. The study was conducted at TK Negeri 1 Labuapi, with an initial population of 189 children. The sample was selected using a purposive sampling technique, in which 30 children from Group B were chosen as research subjects based on

their active and regular participation in dance and drum band extracurricular activities at the school.

Data collection employed two main instruments, namely observation sheets and standardized physical tests. The independent variables, consisting of dance activities (X1) and drum band activities (X2), were measured through direct observation using checklist instruments with a 1–4 Likert scale (Not Yet Developed to Very Well Developed). Meanwhile, the dependent variable, namely gross motor development (Y), was measured using the Test of Gross Motor Development-2 (TGMD-2) instrument, which objectively assesses locomotor skills and object control. Before being used, the observation instruments underwent a reliability test using the Cronbach's Alpha coefficient, yielding values of 0.988 for the dance variable and 0.984 for the drum band variable, indicating a very high level of instrument consistency.

Data analysis was conducted in stages using IBM SPSS Statistics 23 software. The first stage involved descriptive analysis to describe the mean, standard deviation, minimum value, and maximum value of the collected data. Before hypothesis testing, prerequisite tests were conducted, including the normality test using the Shapiro–Wilk method, the linearity test, the multicollinearity test through the Variance Inflation Factor (VIF) value, and the heteroscedasticity test using the Glejser test. The final stage of analysis employed simple linear regression to test partial contributions and multiple linear regression to test simultaneous contributions, as well as to determine the most dominant variable through the Standardized Coefficients Beta values.

3. Results and Discussions

The results of this study aim to answer the research questions regarding the contribution of dance and drum band activities to the gross motor development of early childhood children at TK Negeri 1 Labuapi. The analysis was conducted on 30 children in Group B using observation instruments for dance and drum band activities, as well as the Test of Gross Motor Development-2 (TGMD-2) instrument. Based on the results of the descriptive analysis, an overview of the research data was obtained, as presented in Table 1.

Table 1. Descriptive Statistics of Research Variable.

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
Dance (X1)	30	67	79	74,33	2,952
Drum band (X2)	30	68	79	74,70	3,019
Gross Motor Skills (Y)	30	35	46	41,83	2,995

Based on Table 1, it is known that the mean score for dance activities was 74.33, while the mean score for drum band activities was 74.70. Meanwhile, the average score for children's gross motor development was 41.83. These data indicate that dance and drum band activities at TK Negeri 1 Labuapi have been implemented effectively and actively participated in by the children. The high average gross motor skill score indicates that the children possess fairly good movement coordination, balance, and agility abilities. Before hypothesis testing was conducted, prerequisite tests were first carried out, including tests of normality, linearity, multicollinearity, and heteroscedasticity. The results showed that all data were normally distributed and met the regression assumptions, making them suitable for inferential analysis. This can be seen from the Shapiro–Wilk significance values for all variables, which were greater than 0.05.

Contribution of Dance Activities to Gross Motor Development

The results of the simple regression analysis of the dance activity variable on the gross motor development of early childhood children can be seen in Table 2.

Table 2. Results of Simple Regression Analysis of Dance Activities on Gross Motor Development.

Variabel	B	t value	Sig.	R Square
Constant	71,351	5,435	0,000	
Dance (X1)	-0,397	-2,250	0,032	0,153

Based on Table 2, it is known that the significance value of the dance variable was 0.032 < 0.05. This indicates that dance activities make a significant contribution to the gross motor development of early childhood children. The coefficient of determination (R^2) value of 0.153 indicates that dance activities contribute 15.3% to children's gross motor development, while the remaining 84.7% is influenced by other factors outside the scope of this study. Dance activities are physical activities that involve body movement coordination, balance, flexibility, muscle strength, and the ability to follow musical rhythms. When children engage in dance activities, major muscles such as the hands, feet, head, and body move in a coordinated manner, thereby helping improve children's gross motor abilities. Repetitive movements can support the development of children's neuromuscular systems so that body coordination develops more optimally [15], [16].

The results of this study are consistent with previous studies stating that creative dance activities can improve the gross motor skills of early childhood children through active and enjoyable movement activities [17], [18]. Other studies have also shown that dance activities can help improve body movement coordination, balance, and agility in early childhood children. However, in this study, the regression coefficient showed a negative direction (-0.397). This condition may occur due to other factors influencing children's gross motor development, such as differences in training intensity, children's ability to follow movements, physical condition, and family environmental factors. In addition, not all children possess the same movement adaptation abilities when participating in dance activities. This indicates that gross motor development is influenced not only by one type of activity but also by other forms of physical stimulation received by children in their daily lives. Therefore, dance activities can be used as a form of learning stimulation that supports the gross motor development of early childhood children through directed and enjoyable movement activities.

Contribution of Drum Band Activities to Gross Motor Development

The results of the simple regression analysis of the drum band variable on the gross motor development of early childhood children can be seen in Table 3.

Table 3. Results of Simple Regression Analysis of Drum Band Activities on Gross Motor Development.

Variabel	B	t value	Sig.	R Square
Constant	10,320	0,813	0,423	
Drumband (X2)	0,422	2,486	0,019	0,181

Based on Table 3, it is known that the significance value was 0.019 < 0.05. This indicates that drum band activities make a significant contribution to the gross motor development of early childhood children. The coefficient of determination (R^2) value of 0.181 indicates that drum band activities contribute 18.1% to children's gross motor development, while the remaining percentage is influenced by other factors outside the scope of this study. Drum band activities are activities that combine body movements, musical rhythms, coordination, balance, concentration, and discipline. In drum band activities, children are required to move their hands and feet simultaneously while playing musical instruments and following marching formations. These activities help train bilateral body coordination and children's movement control abilities simultaneously.

The results of this study are consistent with previous studies stating that drum band activities are effective in developing the gross motor skills of children aged 5–6 years [10]. Other studies have also shown that drum band activities can improve body balance, movement coordination, and physical skills in early childhood children because children are involved in active and structured movement activities. In addition, drum band activities help improve children's focus and concentration because children must follow musical rhythms, instructors' commands, and maintain formations collectively. These activities encourage children to learn how to control their body movements more effectively so that gross motor development becomes more optimal [13]. Therefore, drum band activities contribute to the gross motor development of early childhood children because they train movement coordination, body balance, physical strength, and children's motor skills comprehensively.

Contribution of Dance and Drum Band Activities to Gross Motor Development

The results of the multiple regression analysis of dance and drum band variables on gross motor development can be seen in Table 4.

Table 4. Results of Multiple Regression Analysis of Dance and Drum Band Variables on Gross Motor Development.

Variabel	B	Beta	t value	Sig.
Constant	40,587	—	3,063	0,005
Dance (X1)	-0,558	-0,550	-3,737	0,001
Drumband (X2)	0,572	0,576	3,918	0,001

Furthermore, the results of the simultaneous test can be seen in Table 5 below.

Table 5. Results of Simultaneous Test and Coefficient of Determination.

Model	F value	Sig.	R Square
Multiple Regression	11,505	0,000	0,460

The results of this study indicate that children's gross motor development can improve through various physical activities involving body coordination, balance, muscle strength, and movement control abilities. Dance activities train body flexibility, movement coordination, and the ability to follow movement rhythms, while drum band activities train hand and foot coordination, body balance, focus, and children's concentration in following instructions and musical rhythms. The findings of this study are consistent with previous studies stating that art-based learning and movement activities have a positive effect on the motor development of early childhood children. Other studies have also explained that art and music make important contributions to children's physical motor development because they involve active and enjoyable movement activities.

This study also found that the drum band variable was the most dominant variable contributing to gross motor development, with a Standardized Coefficient Beta value of 0.576. This indicates that drum band activities have a greater influence than dance activities on the gross motor development of early childhood children. This condition occurs because drum band activities involve more complex movement coordination by combining hand movements, foot movements, musical rhythms, body balance, and formation discipline simultaneously. Therefore, dance and drum band activities can be used as effective forms of learning stimulation to support the gross motor development of early childhood children. Accordingly, early childhood education institutions are expected to provide various art and physical activity programs in a structured manner so that children's motor development can develop optimally.

4. Conclusion

Based on the results of the study, it can be concluded that dance and drum band activities have a positive and significant contribution to the gross motor development of early childhood children at TK Negeri 1 Labuapi. Dance activities contribute to improving children's movement coordination, balance, and agility through rhythmic movement activities. Meanwhile, drum band activities provide a more dominant contribution to gross motor development because they involve body movement coordination, concentration, balance, and the simultaneous use of large muscles. The results of the study also indicate that dance and drum band activities collectively make a significant contribution to the gross motor development of early childhood children. The combination of movement art and music activities is capable of providing more optimal motor stimulation, thereby supporting children's physical motor development more comprehensively. This study is expected to serve as a reference for teachers and early childhood education institutions in developing art- and music-based learning activities as an effort to improve the gross motor development of early childhood children. Future studies may expand this research by involving a larger sample size and adding other variables related to early childhood development.

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