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Movement and Song as a Gross Motor Stimulation Strategy for Children Aged 5–6 Years: An Experimental Study in Kindergarten

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ABSTRACT

Gross motor development is an essential aspect of early childhood growth that needs to be stimulated through active, enjoyable, and developmentally appropriate learning activities. However, early childhood education practices still face challenges related to children's low participation in motor activities, limited learning variation, and difficulties in performing coordinated body movements. This study aimed to analyze the effectiveness of movement and song activities in improving the gross motor development of children aged 5–6 years. A quantitative approach with a one-group pretest-posttest design was employed. The participants were 16 children from Group B3 at TK Negeri 5 Tibang, Banda Aceh, selected through purposive sampling. Data were collected using structured observations of children's gross motor abilities before and after the intervention. The observed indicators included body coordination, flexibility, balance, agility, eye-foot and hand-head coordination, participation in physical games, and the ability to use both hands. The data were analyzed using normality testing, paired-sample t-test, and improvement analysis. The findings demonstrated an increase in children's gross motor abilities following the implementation of movement and song activities. The total score increased from 680 at the pretest stage to 1,040 at the posttest stage, representing an increase of 360 points. Hypothesis testing indicated that movement and song activities were effective in improving the gross motor development of children aged 5–6 years. These findings suggest that integrating music, singing, and movement can serve as a contextual, enjoyable, and developmentally appropriate learning strategy for young children. Movement and song activities not only stimulate physical-motor abilities but also encourage active participation, motivation, self-expression, and meaningful learning experiences.

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1. INTRODUCTION

Early childhood education is a fundamental stage in establishing the foundation for children's overall development. During this period, children experience rapid growth and development, requiring appropriate, consistent, and developmentally suitable stimulation. Early childhood education is not solely oriented toward academic achievement but encompasses various interconnected developmental domains, including religious and moral values, physical-motor development, cognitive development, language, social-emotional skills, and the arts [1].

One of the developmental domains that plays a crucial role in children's growth is physical-motor development, particularly gross motor skills. Gross motor skills refer to abilities involving the use of large muscle groups and the coordination of different body parts. These abilities include activities such as walking, running, jumping, kicking, maintaining balance, moving body parts, and performing coordinated movements. Well-developed gross motor skills provide a strong foundation for children to perform daily activities, participate in play, and develop self-confidence and independence [2].

At the age of 5–6 years, children reach a developmental stage that enables them to perform more complex physical activities. They begin to combine various movements, control body balance, coordinate hand and foot movements, and follow simple rules during physical activities. Therefore, gross motor stimulation should be provided through active and meaningful learning experiences [3].

Motor skill learning in early childhood should not be delivered through monotonous activities. Young children are active learners with relatively short attention spans. They learn more effectively through play, singing, movement, exploration, and direct interaction with their environment. Consequently, learning activities that integrate music and movement have great potential to create enjoyable learning experiences while simultaneously stimulating children's physical-motor development [4].

One learning strategy that can be implemented is movement and song activities. These activities integrate music, singing, rhythm, and body movements into a single learning experience. Songs serve as auditory stimuli that help children follow rhythm, while movement provides opportunities to develop body coordination, balance, flexibility, agility, and motor control. The integration of these two elements also enables children to learn through multisensory experiences involving visual, auditory, and kinesthetic modalities [5].

Movement and song activities are well suited to the developmental needs of young children. The movements can be designed to be simple, repetitive, easy to imitate, and appropriate to children's developmental abilities. The songs can be selected according to the learning theme and should have a tempo and lyrics that are easy for children to understand. Thus, movement and song activities function not only as a means of improving gross motor skills but also as opportunities for children to express themselves, interact with others, and build self-confidence [6].

Problems related to gross motor development were identified in Group B3 of TK Negeri 5 Tibang, Banda Aceh. Based on preliminary observations, 11 out of 16 children

(68.75%) demonstrated low levels of participation during motor activities. Some children were unable to imitate the teacher's demonstrated movements effectively. They also experienced difficulties in walking in different directions, walking on tiptoe, jumping, moving their heads, hands, and feet in accordance with rhythm, and maintaining body balance and coordination. This condition was also influenced by learning activities that tended to be monotonous and lacked variation, causing children to become easily bored and less enthusiastic [7].

These findings indicate a gap between children's developmental needs and the learning experiences provided during classroom activities. Children require opportunities to engage actively in physical movement; however, the available learning activities have not fully accommodated this need. Therefore, an instructional strategy is needed that combines physical activity with enjoyable learning experiences [8].

Several previous studies have demonstrated that activities involving movement and rhythm have the potential to improve children's gross motor skills. Rhythmic gymnastics, cheerful exercise routines, circuit games, and music-based physical activities have been utilized to stimulate children's motor development. However, most previous studies have primarily focused on gymnastics or specific physical games. This study specifically examines the effectiveness of integrating movement and songs as a simple instructional activity that is easy to implement and can be incorporated into the daily learning routines of early childhood education [9].

The novelty of this study lies in the use of movement and song activities as a strategy for stimulating gross motor development by simultaneously integrating singing and body movements within the learning process of children aged 5–6 years. These activities are not designed as isolated motor exercises but rather as enjoyable and participatory learning experiences. Furthermore, the research context at TK Negeri 5 Tibang, Banda Aceh, provides empirical evidence regarding the implementation of movement and song activities in an early childhood education setting in Aceh [10].

Based on these issues, this study aims to analyze the effectiveness of movement and song activities in improving the gross motor development of children aged 5–6 years at TK Negeri 5 Tibang, Banda Aceh. The research question addressed in this study is: Are movement and song activities effective in improving the gross motor development of children aged 5–6 years.

2. METHOD

2.1 Research Design

This study employed a quantitative approach using an experimental method. The research design adopted was a one-group pretest–posttest design. In this design, a single group of participants was administered an initial assessment (pretest), followed by the treatment in the form of movement and song activities, and subsequently given a final assessment (posttest).

$$O_1 \rightarrow X \rightarrow O_2$$

Description: O_1 = initial measurement (pretest); X = treatment in the form of movement and song activities; O_2 = final measurement (posttest). This design was used to

determine changes in children's gross motor skills before and after participating in the movement and song activities [11].

2.2 Research Participants

This study was conducted at TK Negeri 5 Tibang, Banda Aceh, during the second semester of the 2021/2022 academic year. The study population consisted of 98 children enrolled in Kindergarten A and Kindergarten B. The research sample comprised 16 children from Group B3. The sample was selected using a purposive sampling technique. Group B3 was chosen based on the results of the preliminary observation, which indicated problems in the children's gross motor development, particularly in movement coordination, balance, flexibility, agility, and the ability to imitate the movements demonstrated by the teacher [12].

2.3 Research Instrument

The research data were collected using a structured observation checklist. The instrument was developed based on the physical-motor development indicators for children aged 5–6 years and was modified to meet the needs of the study. The observed indicators included: (1) the ability to perform coordinated body movements to develop flexibility, balance, and agility; (2) the ability to coordinate eye-foot and hand-head movements while participating in movement and song activities; (3) the ability to participate in physical games by following rules; (4) proficiency in using both the right and left hands; and (5) the ability to perform personal hygiene activities. Assessment was conducted using a five-level developmental rating scale consisting of very poor, poor, fair, good, and very good [13].

2.4 Research Procedure

The study was conducted in three main stages: pretest, treatment, and posttest. During the pretest stage, the children were observed to obtain baseline data on their gross motor skills before the treatment was administered. The children participated in movement and song activities using predetermined songs, while their motor skills were observed based on the indicators in the research instrument.

The next stage involved administering the treatment in the form of movement and song activities. The activities were designed to enable children to perform body movements progressively through enjoyable songs. The activities included movements involving the hands, feet, head, and body, as well as movements requiring coordination and balance. The songs used during the activities included "Kudaku," "Siapakah Tuhanmu," "Aku Anak PAUD," and "Angkatlah Tanganmu 123." The movements were synchronized with the lyrics and rhythm of the songs, allowing the children to associate auditory stimuli with motor responses.

During the posttest stage, the children's gross motor skills were observed again using the same instrument to determine any changes in their abilities after participating in the movement and song activities [14].

2.5 Data Analysis Technique

The data were analyzed quantitatively. The analysis included a normality test and hypothesis testing using a paired-samples t-test to determine whether there was a significant difference in the children's gross motor skills before and after the treatment [15]. The research hypotheses were formulated as follows:

H_0 : Movement and song activities are not effective in improving the gross motor development of children aged 5–6 years.

H_a : Movement and song activities are effective in improving the gross motor development of children aged 5–6 years.

The hypothesis testing decision was made by comparing the calculated t-value with the critical t-value at a 5% significance level.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1 Initial Condition of Children's Gross Motor Skills

The results of the preliminary observation indicated that the gross motor development of some children in Group B3 had not yet developed optimally. Of the 16 children observed, 11 children (68.75%) demonstrated low levels of participation in gross motor activities. The children experienced difficulties in imitating the movements demonstrated by the teacher, walking in different directions, walking on tiptoe, jumping, moving their heads, hands, and feet in rhythm with the songs, and maintaining body balance. These findings indicate that gross motor stimulation requires a more active and engaging instructional approach [16].

3.1.2 Changes in Pretest and Posttest Scores

The results of the gross motor skills assessment indicated an improvement in the children's scores after they participated in the movement and song activities.

Table 1. Changes in Pretest and Posttest Scores

Measurement Stage	Number of Children	Number of Children	Number of Children
Pretest	16	680	42,50
Posttest	16	1.040	65,00
Improvement	16	360	22,50

Based on Table 1, the total score of gross motor skills increased from 680 in the pretest stage to 1,040 in the posttest stage. Therefore, there was an increase in the total score of 360 points, or an average improvement of 22.50 points per child. This improvement indicates a change in children's gross motor skills after they received learning experiences through movement and song activities.

3.1.3 Hypothesis Testing Results

Hypothesis testing was conducted to determine the effectiveness of movement and song activities on children's gross motor development. The results of the analysis showed that the gross motor skill scores after the treatment were higher than those before the treatment. Based on the t-test results reported in the thesis, the calculated t-value met the

criteria for accepting the alternative hypothesis at a 5% significance level, with 15 degrees of freedom and a t-table value of 1.76. Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted. These results indicate that movement and song activities were effective in improving the gross motor development of children aged 5–6 years at TK Negeri 5 Tibang, Banda Aceh [17].

3.2. Discussion

The results of the study indicate that movement and song activities were effective in improving the gross motor development of children aged 5–6 years. This finding is demonstrated by the increase in gross motor skill scores from a total of 680 in the pretest stage to 1,040 in the posttest stage. This improvement shows that learning activities combining elements of movement and music can provide positive stimulation for children's physical-motor development [18].

The changes can be understood through the characteristics of movement and song activities, which provide children with opportunities to engage in repeated physical activities within an enjoyable atmosphere. In conventional learning activities, children tend to become recipients of instructions and have limited opportunities to move actively. In contrast, through movement and song activities, children are directly involved in the learning process through physical activities [19].

The movements performed in these activities involve various large muscle groups. Children move their hands, feet, heads, and bodies, as well as change positions according to the rhythm of the songs. These activities provide direct experiences that support the development of body coordination, balance, flexibility, and agility [20].

The improvement in gross motor skills can also be associated with the characteristics of young children who learn optimally through concrete experiences. Children do not merely listen to the teacher's explanation about a particular movement but directly observe examples, listen to the rhythm, and imitate the movements. This process enables multisensory learning involving auditory, visual, and kinesthetic experiences.

Movement and song activities also contribute to children's learning motivation. Based on observations during the research process, children showed more active involvement when learning activities incorporated songs and movements. Songs provide familiar and enjoyable stimuli for children, while movements allow them to express themselves freely [21].

This condition is important because the initial problem identified in the study was the low level of children's participation in motor activities. A total of 11 out of 16 children (68.75%) demonstrated low activity levels during the initial observation. After participating in movement and song activities, there was an overall improvement in gross motor skill scores. This indicates that enjoyable learning activities can help overcome boredom and increase children's participation [21].

The findings also show that movement and song activities can be used as a relatively simple and easily implemented learning strategy by teachers. Teachers do not always require special equipment to conduct these activities. Songs and movements can be adapted to learning themes, available space, and children's developmental abilities.

From a pedagogical perspective, movement and song activities can be positioned as a learning strategy that integrates physical-motor aspects with other developmental domains. When children sing songs while performing movements, they not only develop motor skills but also gain experiences related to language, rhythm, expression, social-emotional development, and creativity [22].

Performing movements together also provides children with social experiences. Children learn to follow rules, pay attention to the teacher's examples, wait for their turns, move together with peers, and adjust their movements within a group. Therefore, movement and song activities have the potential to serve as integrative learning activities that support the simultaneous development of various aspects of children's growth [23].

The findings of this study are consistent with previous research²⁰ indicating that rhythmic physical activities, cheerful exercises, and motor games can support children's gross motor development. However, this study provides an additional contribution by demonstrating that simple movement¹ and song activities integrated into learning can be implemented as an alternative form of gross motor stimulation for children aged 5–6 years.

Nevertheless, the results of this study should be interpreted by considering the research design used. This study employed a one-group pretest–posttest design without a control group. Therefore, the increase in scores after the treatment indicates a positive change following the implementation of movement and song activities, but it cannot fully confirm that all changes were solely caused by the treatment. Other factors, such as children's natural development, learning experiences outside the study, and interactions with teachers or peers, may also have contributed [24].

Another limitation is the relatively¹⁹ small number of participants and the fact that the study was conducted in only one early childhood education institution. Therefore, the generalization of the findings should be considered carefully. Future studies may employ experimental designs with control groups, larger sample sizes, and involve several early childhood education institutions with⁵ different characteristics [25].

Despite these limitations, the results of this study provide important practical implications for early childhood education teachers. Movement and song activities can be used as an alternative approach to provide enjoyable gross motor stimulation. Teachers can develop variations of movements according to children's abilities, select songs appropriate for their age, and provide opportunities for children to explore movements creatively.

4. CONCLUSION

This study demonstrates that movement and song activities are effective in improving the gross motor development of children aged 5–6 years at TK Negeri 5 Tibang, Banda Aceh. The effectiveness is indicated by the increase in gross motor skill scores from a total of 680 in the pretest stage to 1,040 in the posttest stage, with an improvement of 360 points. The results of hypothesis testing also show that there is a difference in children's gross motor skills before and after participating in movement and song activities.

Therefore, movement and song activities can be used as one of the learning strategies to provide stimulation for the gross motor abilities of early childhood children. Movement and song activities have the advantage of integrating physical activity, music,

and enjoyable learning experiences. Through these activities, children have opportunities to practice body coordination, balance, flexibility, agility, and movement skills in a more active and participatory manner.

For early childhood education teachers, movement and song activities can be developed as part of routine learning activities by considering the appropriateness of movements, song tempo, difficulty level, and children's developmental characteristics. Future research is recommended to use experimental designs with control groups and larger numbers of participants so that the effectiveness of movement and song activities can be examined more rigorously and achieve broader generalizability.

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