

The implementation of basic movement activities for children with special needs in inclusive early childhood Education

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Abstract

Children can explore and learn how to control their balance, body coordination, and concentration through basic movement activities. This study aimed to assess the improvement of the physical motor skills of children with special needs through basic movement activities, as part of the implementation of inclusive learning in early childhood education institutions. The research applied a quasi-experimental model with one group pre-post design. Through purposive sampling, it involved 8 boys and 9 girls with motor delays as a representation of the students in inclusive early childhood education institutions in Semarang. The paired sample t-test results in a significant p-value, indicating that the null hypothesis is rejected, and confirming the effectiveness of basic movement activities to improve the children's physical motor skills. The movement activities designed in this research consisted of walking in a straight line, walking on a catwalk, going up and down stairs, hanging, jumping, jumping with obstacles, throwing and catching the ball, and rolling the ball.

Keywords: Children; inclusive education, physical education; special needs.

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1. INTRODUCTION

An urgent role has been played by the adoption of inclusive education in several nations, including Indonesia. Government schools are responsible for providing special needs early education programs by embracing the diversity of children, including children with special needs, through individually tailored programs (Slentz, 2010). With regards to the idea, the learning process for children with special needs does not emphasize the academic aspect but rather social interaction with their peers and life skills that encourage their independence in carrying out daily activities (Yusuf, 2020). The essence of independence training through the enforcement of skills should be designed for the early childhood period in general and specifically available for children with special needs (Jaya, et al., 2018). Before developing life skills, children need to have balanced motor coordination to perform their daily activities.

The development *“Motor development can be defined as the development of human fundamental movement patterns and specialized skills and it compasses human movement abilities and motion that take place through the lifespan.”*

Therefore, the development of motor skills regards the development of basic movement patterns and special abilities that function as the compass of motions for human life. The needs of movement for the early childhood period belong to basic needs (Hands & Martin, 2016; Bremer & Cairney, 2018). From the early age to preschool age, children need a high intensity of movement since they always have the desire to their activities from one place to another. However, they have yet to have stable control of their movements during the period, resulting in a need for practice and repetition to form their muscles and bones strong and flexible. The development of children’s gross motor skills is important for their motor development (Sutapa & Suharjana, 2019). Gross motor skills provide the foundation to do various physical activities and sports (Hestbaek et al., 2017).

Gross motor skills refer to the physical skills that require significant body movement with the entire body. Three stages of the movement process can encourage children to achieve a perfect (automatic) skill level. Gallahue & Ozmun (1998) stated:

“Gross motor development can be defined as the development of a movement that uses the large muscles of the body, which enables functions such as walking, kicking, and throwing.”

Ramadan et al., (2019) also mentioned that the model for developing motor skills through physical activities could positively contribute to the transformation of excessive energy. Physical education is related to movements and the experiences that every child will have to determine certain strategies for doing physical activities (Martins et al., 2017).

Based on the observation in several early childhood education institutions with special needs services, children with special needs still have limited room to develop their motor aspects due to the short time of their welcoming activities. Most of their learning agendas are planned for habituation and core activities. Referring to his project on the development of physical education for children with special needs, McLaren (2010) emphasized the urgency to equally involve children with special needs in physical activities that could boost their fitness and life skills. Emson et al., (2019) also proposed that various physical activities would strengthen their health and development.

The current study aims to develop an educational model for children with special needs in early childhood education institutions through basic movement activities. It will focus on morning activities in the form of physical activities or sports that generally have yet to be optimally implemented. Children with special needs will need a certain time to adjust themselves to their surroundings and peers when

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attending school. Woodfield (2004) and Hatipoğlu Özcan et al., (2024) stated that children's motor skills could positively affect their confidence and social interaction.

Currently, physical activities and sports which are given in early childhood education institutions are still incorporated with welcoming activities. Such a decision provides the children with fewer opportunities to explore their bodies and environment. If children are given a chance to explore their bodies through movements, they will learn about balance, body coordination, and concentration on their will. By doing physical activities, children will be able to grow their confidence and improve their social skills. The activities will also encourage them to learn new skills, especially life skills (Dini, 2012; Liu et al., 2024).

The researcher developed a welcoming activity plan that contains basic movements for children with special needs. The initiative will encourage children, including those with special needs to familiarize themselves with the environment and learn how to control their bodies. This research refers to the Decree of the Minister of National Education No. 70 of 2009 concerning inclusive education. It is also in line with the Decree of the Minister of Women Empowerment and Children Protection No. 8 of 2014 concerning the policy of children-friendly schools. It is designed through the scheme of the Faculty of Education, Semarang State University to ensure the availability of children-friendly education, where children can gain equal opportunities for educational services based on their respective needs. Children with special needs will have many similar experiences as other children when they are given the same opportunities (Lundqvist et al., 2019).

1.1. Literature review

1.1.1. Motor development

Physical education is very beneficial for students to learn movement, social, and culture, both emotional and ethical (Andermo et al., 2020). Physical education refers to educational activities that involve games, sports, or motion. Some movements, games, or sports are selected solely for their educational value. At a minimum, the emphasis is on the child's abilities. These can include mental, reasoning, and problem-solving abilities in addition to emotional and social abilities. As a result, the process of learning more about motion and sports is more significant than the outcome. Therefore, the primary focus must be on the ways in which teachers select their teaching strategies, include kids, engage with their students, and encourage their connections with one another.

In line with the above opinion, the Minister of Education and Culture 413/U/1957 in Indonesia explained that "physical education is an integral part of education through physical activity aimed at improving individuals organically, neuromuscularly, intellectually, and emotionally." Physical education and proper sports will make a very significant contribution to the overall education of children. Complete growth, encompassing physical, mental, emotional, social, and moral facets, is the actual outcome of physical education and sports. Experts' opinions that sports and physical education are the best ways to develop into fully realized human beings are valid.

Physical development in early childhood is directed at basic movement activities, which emphasize physical gross, and fine motor development to train balance, muscle strength, agility, concentration, and self-control (Sung et al., 2024). The achievement of basic competencies for children with special needs is certainly different from children in general, so this basic movement activity is part of the training and assistance for children with special needs. The Standard for Early Childhood Development Achievement Level describes basic competencies related to skills and knowledge that early childhood has knowledge and skills about body parts and their functions, including recognizing the names of body parts, functions of body parts, how to care, the need to become members of the body, stay healthy, can perform various

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coordinated movements in a controlled, balanced, and agile manner to train gross motor skills in strength, stability, balance, flexibility, and agility. Activities for gross motor exercises include crawling, walking, running, crawling, tiptoeing, jumping, jumping, climbing, hanging, kicking, and rolling.

Woodfield (2004) states that all motor skill execution can be improved with repetition and, as motor skill improves, perceptual acuity is enhanced; in other words, the practice of motor skills develops and exercises a range of senses.

1.1.2. Inclusive education

According to Regulation No. 70 of 2009 of the Minister of National Education of the Republic of Indonesia, inclusive education is a system that gives all students the chance to participate in education or learning in a classroom setting alongside other students, even if they have disabilities and the potential to be intelligent or have special talents. In the meantime, Salamanca asserts that inclusive education entails that schools must accommodate all students, including gifted and disabled students, homeless students, and students with disabilities, regardless of their physical, intellectual, social, emotional, linguistic, or other conditions. This is based on a statement found in the Special Education Action Framework. Children from diverse ethnic or cultural backgrounds, children living nomadic lifestyles, and children from underprivileged or marginalized groups (UNESCO, 2003). The aforementioned claim can be supported by the law, leading to the conclusion that inclusive education is a system that supports and caters to the needs of all students, regardless of their backgrounds, abilities, or conditions.

There are four elements related to inclusion proposed by Anisow & Miles (2009), including:

- a. Inclusion is a process. This means that inclusion is an endless search process to find better ways to deal with diversity. Inclusion can be interpreted as learning about differences and providing positive stimulation between children and adults.
- b. Inclusion is concerned with identifying and removing barriers. This involves the process of gathering information from various sources to create a plan that can stimulate the growth and development of children with diversity to improve them optimally.
- c. Inclusion is about attendance, participation, and achievement by all children. "Attendance" relates to the presence and opportunities of children, "participation" relates to the quality of experience gained, while "achievement" relates to learning outcomes in the curriculum, not just tests or examination results.
- d. Inclusion involves a special emphasis on certain groups, so there is a process of marginalization. However, inclusion must demonstrate moral responsibility for attendance, participation, and achievement for all children.

In order for children to grow and develop to their full potential, inclusion encompasses more than just the existence of children with special needs. It also involves the engagement and involvement of children from diverse backgrounds in a process of developmental stimulation. The aforementioned hypothesis leads to the conclusion that inclusive education is the process of offering educational services to all kids, regardless of their differences, uniqueness, or special needs.

Inclusive education includes students with unique needs. Children who have special needs are children who differ greatly in several crucial areas related to how humans function. People who are unable to fully realize their needs and potential due to physical, psychological, cognitive, or social limitations include those who are gifted and intelligent, as well as those who are deaf, blind, have speech problems, physical disabilities, mental retardation, or emotional disorders (Mangunsong, 2011).

1.2. Purpose of study

This study is targeted to create innovations for the education sector by strengthening a children-friendly and inclusive education model. Through the facilitation of basic movement activities that emphasize the development of physical motor skills, children with special needs will be able to explore various activities that motivate them to establish a good physical balance, muscle strength, agility, concentration, and self-control.

2. METHODS AND MATERIALS

2.1. Research design

This study implements a quasi-experimental model with one group pre-post design by considering that it aims to improve the physical abilities of children with needs in terms of basic movement aspects. It refers to the design of the previous research by Shifrer (2017) that conducted quasi-experimental research in the field of education for children with special needs as well.

2.2. Participants

Through purposive sampling, it involves 15 children with special needs aged 4 to 6 years (8 boys and 9 girls) with mild motor delays. The samples represent the population of children from the inclusive early childhood education institutions in Semarang. The research was performed with the consent of the parents and the involvement of the homeroom teacher to assist with the welcoming activities.

2.3. Data collection instruments

The study has adjusted the instruments based on the capacity of the children with special needs. They consist of several physical activities that boost the children's gross motor skills. All relevant instruments have passed the requirements for use, including the validity test using product moment correlation, resulting in $r_{xy} > r_{tab}$; $\alpha = 0.05$; $n = 15$; $r_{tab} = 0.514$.

2.4. Analysis

The requirements for analysis include the normality test and homogeneity test. Meanwhile, a paired sample t-test through the Minitab program is utilized for the hypothesis test.

3. RESULTS

The study involved the teachers in the setting of the environment to support the learning process, for instance, the setting of the outdoor and indoor venue for welcoming activities, in addition to the preparation of learning media and supporting materials that have been modified based on the students' needs. Lidor and Hutzler (2019) confirmed that the instructions for physical activities for children with special needs should be modified due to their limitations in performing repetitions of certain activities.

The steps of welcoming activities should be directed to foster the children's gross motor skills (table 1). Teachers of inclusive classes can take part in this initiative.

Table 1
Steps of basic movements for children with special needs

Steps	Activities
Setting	The teacher provides a safe environment that allows children to freely explore their bodies through movements.
Guidance and training	The teacher plans specific guidance and gradual training activities on gross motor skills based on the children's conditions and specifications.

Adjustment	The teacher conducts a welcoming activity by providing opportunities for children to explore the environment and certain instruments that they will use to develop their motor skills.
Demonstration of skills based on the children's needs and capacities	<p>The teacher demonstrates the skills that the children will learn, for instance:</p> <ul style="list-style-type: none"> • Performing balanced movements by walking on a catwalk, walking by carrying an object, jumping, throwing and catching, and other motor activities. • Performing rhythmic gymnastics movements and dances, which are adjusted for early childhood education children
Continuation	The teacher gives the children the opportunity to repeat the training, so they can do it themselves.

This research highlights children with motor impairments, disorders, and delays. Basic movement activities emphasize physical development that includes both gross and fine motor skills to train balance, muscle strength, agility, concentration, and self-control. The activities given in this study include walking in a straight line, walking on a catwalk, going up and down stairs, hanging, jumping, jumping with obstacles, throwing and catching the ball, and rolling the ball. The steps of activities as described in Table 4.1 guide teachers in implementing the movements for children with special needs, in which the preparation of a convenient venue setting must be the priority to consider. Rosnita et al., (2017) asserted that the arrangement of the outdoor environment would affect the development of children's movements since the more ideal the outdoor learning environment is, the higher the motor skills will be. Teachers need to set a good environment to conduct the activities, so children can freely practice their movements.

The following data in Table 2 indicate the results of the paired sample t-test of the children with special needs who were given the treatment.

Table 2
Descriptive statistics and T-Test

Sample	N	Mean	StDev	SE Mean
Pretest	15	49,07	4,85	1,25
Posttest	15	57,60	3,50	0,90
Estimation for Paired Difference				
Mean	StDev	SE Mean	95% CI for $\mu_{\text{difference}}$	
-8,53	5,36	1,38	(-11,50; -5,57)	
$\mu_{\text{difference}}$: mean of (pretest-posttest)				
Null hypothesis		$H_0: \mu_{\text{difference}} = 0$		
Alternative hypothesis		$H_1: \mu_{\text{difference}} \neq 0$		
		T-Value	P-Value	
		-6,170	0,000	

The test generates p-value ($\text{sig} = 0.000 < 0.05$), indicating that H_0 is rejected. It confirms the difference of the average of post-test (57.60) and pretest (49.07) data.

4. DISCUSSION

Based on the results, the basic movement activities are confirmed effective for inclusive early childhood education institutions. The initiative will assist the development of the children's motor skills, as it provides them with the opportunity to move their limbs. Every child has a different stage of motor development due to the variety of development rates of their characteristics. The variety appears due to their respective conditions, including the lack of opportunities to practice and the developmental disorders (Zeng et al., 2017).

Repetitive guidance and training for children with special needs can offer a meaningful method to assist teachers in leading various activities, which are directed to develop children's physical and motor abilities. Several studies confirmed that most children with special needs have slower motor skills than other children in general (Nonis & Tan, 2014).

Therefore, this study focuses on the children's motor development activities, which are designed for welcoming activities. It aims to establish a bond of relationship between the teachers, children, and school environment in adjusting to the children's emotions (Capurson, 2020; Bucholz & Sheffler, 2009). The welcoming activities can also encourage the children to explore their environment through free playing, thus they will be able to put off any negative emotions. Apart from adapting to the environment and establishing social interaction, children with special needs should also be supported to develop their physical motor skills through welcoming activities. It will help them solve the problem regarding their basic movement abilities. Ramadan et al., (2020) mentioned that children should master basic movements related to gross motor skills to smoothly perform daily activities and boost themselves to enhance further complex movements. Akamoglu et al., (2019) also confirmed the importance of providing opportunities for children to practice and optimally develop their skills.

Children with special needs commonly have yet to master many physical motor skills due to the imbalanced central nervous system that causes delays in motor control abilities, as the impact of the disturbances or obstacles that they experience (Leonard, 2016). As a form of exercise and intervention in their treatment, physical motor activities are required. There is a significant correlation between physical activity and the development of children with special needs (Kristiyanto & Legowo 2019). Children with specific needs can benefit greatly from physical activities when they get adaptive physical education.

A component of adaptive physical education is the inclusion of fundamental movement exercises. For kids with exceptional needs, adaptive physical education is a personalized curriculum that incorporates sports, dancing, water activities, basic motor skills, fitness, and physical activities. (Hakim, 2017). This study involves basic movement skills of adaptive physical education for children with special needs during their early childhood education to train balance, muscle strength, agility, concentration, and self-control using various motion development activities. The welcoming activities based on physical development offer positive impacts for children with special needs, especially those with motor delays. Orhan et al., (2020) explained that children's physical development should become the basic consideration for teachers and parents in providing further intervention both at school and at home. The intervention programs can improve the motor skills of children with special needs (Riga et al., 2020; Erim & Caferoglu, 2017; Niklasson et al., 2017; Murphy et al., 2024).

Children with special needs urgently require the development of physical motor skills. Therefore, physical motor activities should not be casually carried out instead should be the focus of development to train their necessary motor skills that may lag during their age. The concept of a motor learning

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approach is a practice-oriented task for the development of motor functions through the presence of specific feedback appropriate to the children's respective abilities to carry out their motor activities. Any relevant support in the form of advice and infrastructure to conduct physical activities should also be considered since the development of simple basic movements requires safe places and equipment (Saeed et al., 2023). Peer support can also reinforce the movement activities as children will be motivated to perform joint activities with their peers (Tichenor, 2016).

5. CONCLUSION

Children's motor development should be strengthened through the provision of equal opportunities to perform movements that involve the movement of the limbs. Every child has a different stage of motor development, especially children with special needs who are still limited in exploring their movement abilities.

Basic movement activities given to children with special needs reflect the effort to develop their physical and motor skills, both gross and fine motor skills. Through this treatment, they will be able to train their balance, muscle strength, agility, concentration, and self-control. The activities are expected to offer intervention for children with special needs so that their physical motor development can positively correlate.

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Ethical Approval: The study adheres to the ethical guidelines for conducting research.

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