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Influence of Movement Activities on Psychomotor Skill Development of Early Childhood Learners in Kesses Sub-County, Uasin Gishu County, Kenya

[1]Maina Ngugi Geoffrey, [2]Everlyne Chebet & [3]Ismael N. Joseph
[1&2]Department Of Early Childhood Education, Kisii University
[3]Department of Psychology and Early Childhood Education
Kisii University
Email: gmainangugi@gmail.com

Abstract: *This study examines the impact of movement activities on psychomotor skill development in early childhood learners. Conducted in Kesses sub-county, Uasin Gishu County, Kenya, the research follows Friedrich Froebel's theory of play (1987). A descriptive research design was used, with a population comprising headteachers, ECDE teachers, and curriculum support officers (CSOs), totaling 410 participants. A sample size was determined using the Yamane formula, resulting in 176 primary school teachers, 18 headteachers, and 4 CSOs. Random sampling was used for teachers and headteachers, while purposive sampling selected CSOs. Data was collected using questionnaires for teachers and interview guides for headteachers and CSOs. Reliability was ensured through test-retest and Cronbach Alpha Coefficient, with a coefficient of 0.70 indicating high dependability. Quantitative data was analyzed using SPSS version 25, and qualitative data was analyzed thematically. Findings revealed a positive significant relationship between movement activities and psychomotor skills development (r = 0.229). The study concluded that the implementation of movement activities in Kesses sub-county was relatively low. The researcher recommends that stakeholders address the low levels of psychomotor skills development in early childhood education, with teachers providing age-appropriate activities. The findings are valuable for headteachers, teachers, the community, sponsors, and policymakers in developing movement activity policies for early learners.*

Keywords: *Movement Activities, Psychomotor Skill, Development, Early Childhood, Learners, Kesses Sub County, Uasin Gishu County, Kenya*

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1. Introduction

Engaging in regular activities has numerous advantages for one's physical, mental, and emotional well-being as well as for growth and development. When learners are given time to engage in movement activities, their risk for heart disease, obesity and metabolic syndrome are reduced. A study by Mottram and Blandford (2020) found out that movement activities improve muscle and borne strength, flexibility and coordination. Psychological issues, including self-conception, social behaviors, good orientation and conspicuous self-efficacy are determinants of participation in movements' activity. Physical

movement can have significant effects on psycho-motor skills, which are the skills that involve coordination and mental process.

Despite the fact that movement activities are important for early education learners, it is being threatened by the limited time allocation. Therefore, a child's psycho-motor skills development is greatly impacted by limited time and activities. Due to the ease of access to television and iPad due to global technological advancements, more students are choosing to passively consume these media instead of actively exploring and interacting with their surroundings (Yoshimi et al., 2021).

Pangrazi and Beighle (2019) research indicates that there is less time in many schools for physical education classes. It is heavily utilized in arithmetic and reading. He highlights the belief that literacy and numeracy abilities are more crucial than movement activities. The World Health Organization's Global Action Plan on Movement Activities 2018–2030 (GAPPA) offered five recommendations to assist nations in raising the percentage of physically active citizens by creating and putting into practice a comprehensive national policy that guarantees opportunities for active recreation are easily accessible. To reach the global target of a 15% relative reduction in the prevalence of physical inactivity by 2030, countries must execute the recommendations outlined in the first Global Status Report on Physical Activities, which was released four years after GAPPA is 2018.

Many national governments have committed themselves through legislation to providing provisions for movement activities, but they are hesitant to put this into practice, according to the evidence presented by the World Health Organization study on the state of movement activities globally. There are still gaps in the curriculum's time management, subject matter, financial resources, human resources (especially for teacher preparation in schools), quality, gender, and disability issues (Oldridge-Turner et al., 2022).

Generally, countries such as United States of America, Mexico, Japan, Australia, New Zealand, Hong Kong and several Africa Countries are some of the countries that are very keen in implementing movement activities in their schools. According to the recent research, the status of physical movement activities education in the United States varies widely depending on the state, school district and individual school. Some schools prioritize movement activities education as an essential component of well-rendered education while others may not offer classes at all or have limited resources and opportunities for physical activities.

In Australia, a law is in place that public primary schools must provide at least two hours of physical activity every week over the whole year as found by Agembo (2017). According to a 2017 study by the Network for Raising Children, the advantages of physical activity include the maintenance of a healthy weight and the formation of wholesome eating and exercise habits. Children who have solid foundations in physical exercise will be more likely to stay active as they grow older, emotions such as happiness, curiosity, enthusiasm, self-assurance are promoted through physical activities. Children desire to have new motor skills has been thoroughly examined and has the link between play and children trust and emotion of security.

Regionally, efforts are being made in Nigeria to ensure that Children are actively involved in movement activities. The government ensures that school environment is child-friendly, and that teacher child ratio does not exceed 1:25 per class (Cobanoglu and Sevim, 2019). According to AkinRotimi (2016) movement activities in South Africa have experienced several policy changes. Physical exercise lessons are not adequately promoted according to the 2018 South Africa report card on children physical activity. In a recent study, new ideas and tactics have emerged because of increased study and interest in this topic, particularly with reference to school-based practice that supports growth.

According to a study on the availability of movement activity materials and their impact on the motor development of young students in Kitui County, Kenya, many students lacked the necessary materials, which made it more difficult to promote their motor development (Kamene, 2015). The results of the study indicated a strong correlation between motor development and the availability of materials for movement activities.

According to a report from Kesses Sub-County Director of Education in 2021, learners in early year’s education had weak proficiency in both English and Kiswahili, despite free primary education and assistance from the County of Uasin Gishu. Kesses Sub-County offices have reported a remarkable decrease in learner’s discipline. This is said to be the result of strained interpersonal connections. Many learners lack interpersonal and emotional skills. Teachers, school administrators, and others with an interest in education don't appear to grasp the importance of movement activities in fostering cognitive, linguistic, emotional and social well-being. This study aims at bridging an educational gap on movement activities and selected aspects of learner’s development on their early year’s education in public primary schools.

Many students in Kesses Sub County have low levels of linguistic competence, poor academic performance, poor

physical health, and emotional immaturity, according to a report by the Sub County Director of Education. Many learners causing injury to themselves or others because of bad relationships owing to inadequate social/emotional competences have been documented by teachers. Following a fight with her mother, a young girl from Kesses Sub County's Chesunet Primary School committed suicide. Even though the Sub County's schools have large, well-maintained playgrounds, it is uncommon to see learners playing outside with supervision. Thus, the question is, "Are teachers and other relevant stakeholders aware of the benefits that movement activities provide for young learners?" The researcher was motivated to study selected aspects of learners' development were impacted by movement activities in lower public primary schools in Kenya's Kesses Sub County Uasin Gishu County.

2. Literature Review

2.1 Theoretical Review

This study was guided by Friedrich Froebel's (1987) theory of play. According to the theory, play is an extremely important and meaningful activity for young children. According to Froebel, kindergarten is a setting where kids acquire, grow, and coordinate all their talents in a fun way. Playful learning for kids is undoubtedly a fundamental idea in this perspective. Child-led play is the cornerstone of Froebel's early childhood play theory because it is seen as the most fundamental form of development psychomotor skill. Froebel asserts that play is essential for teaching kids how the world works, that play is much impacted by the people around them, that play should emphasize what kids can accomplish rather than what they can't do, and that play is crucial for a child's physical development. He further states that play is important for children learning and thus like any other learning movements, play has its own time frame and should not be avoided at all costs.

According to Mitei (2021) pre-school game-based guidance requires the use of a variety of play techniques that inspire children such as music, sand and water games, painting, trash, demonstrations and pretending. As a result, the information should be structured in a way that the youngster can simply grasp. As a result, the theory will support the investigation into how movement activities affect learners' acquisition of psycho-motor skills.

2.2 Empirical Review

Psychomotor learning is crucial for the overall development of children, focusing on the enhancement of motor skills such as movement, strength, and coordination. These skills form the foundation for more complex abilities that contribute to an individual's physical and cognitive development. One significant area of psychomotor development is hand-eye coordination, which involves tasks such as catching a ball, writing, and drawing. Ferguson et al. (2024) identified early childhood as a critical period for motor skill development, where early interventions play a pivotal role in fostering agility and physical competence, laying the groundwork for a healthy, active life. They emphasize that physical activity during these formative years is vital for establishing a foundation for subsequent physical and cognitive abilities.

In support of these claims, Pangrazi and Beighle (2019) argue that physical education serves an increasingly important role in children's education today. It is no longer seen merely to promote physical fitness but also as a significant contributor to mental well-being. Their research highlights that physical activity is directly linked to enhanced concentration and cognitive performance, especially when incorporated as a break from academic tasks. The benefits of such activities extend beyond physical health, fostering better mental and emotional stability among children. This aligns with findings from the United States Department of Health & Human Services (2021), which advocates for regular physical activity as a critical element of a child's daily routine. According to their guidelines, children should engage in at least 60 minutes of physical activity each day to support cardiovascular health, muscle development, and cognitive function.

Further research on physical activity reveals that movement is a progressive process where physical activities are systematically taught to help children master skills for sustaining physically active lives. For children and adolescents, consistent participation in physical activities is directly linked to improved health outcomes, as they are less likely to suffer from conditions such as obesity or heart disease (Quennerstedt, 2019). Furthermore, such activities help in developing essential skills that support the emotional and social well-being of children. Högman et al. (2020) found that school-aged children in the U.S. are encouraged to meet the 60-minute daily exercise target, which not only improves physical health but also enhances mental clarity and emotional resilience.

Fine and Gross Motor Skills development are two essential components of psychomotor learning. Payne and Isaacs (2020) emphasize that fine motor control, which includes the use of small muscles in the hands and wrists, is critical in developing skills like writing and cutting. These skills, although seemingly minor, are foundational for academic success. Gross motor skills, on the other hand, are essential for more complex activities such as running, jumping, and

playing games. These activities are vital for overall body coordination, strength, and flexibility. Clark (2022) further affirms that the benefits of movement activities on children's motor skills, particularly in the areas of strength and bone formation, are well-established, with children showing marked improvement in both fine and gross motor skills when engaged in structured physical activities. However, despite these recognized benefits, there remains a gap in understanding the full extent of the influence of movement activities on psychomotor skill development, particularly in early childhood learners.

The role of movement activities in early childhood education has gained attention due to the growing body of evidence linking physical activity with psychomotor development. However, the amount of time allocated for physical education in schools has significantly declined in recent years. Many educators have observed that the increasing pressure to meet academic standards has led to the reduction of physical education periods, ultimately affecting the physical development of children (Clark, 2022). This reduction in physical activity time has been a topic of concern, particularly considering the detrimental effects of insufficient physical activity on children's health and development. Studies show that regular engagement in movement activities can mitigate these effects by promoting physical competence, emotional well-being, and mental clarity.

In the context of Kesses Sub-County, Uasin Gishu County, the study by Ojuondo (2015) highlights the crucial role of physical education in promoting equal opportunities for all children, regardless of background or ability. Ojuondo stresses that physical activity should be a core component of early childhood education, contributing to the development of a child's physical, mental, and emotional faculties. This aligns with the argument that physical education is the only subject in school dedicated primarily to enhancing physical health, coordination, and overall growth, which is critical for a child's well-being.

The importance of physical activity in early childhood education is also reinforced by the World Health Organization (2020), which emphasizes the need for children to engage in structured physical activities that promote both gross and fine motor development. The organization recommends that children participate in a variety of physical activities that improve motor coordination, strength, and overall health. Research indicates that children who engage in regular physical activity are better equipped to handle the physical and cognitive demands of their schooling years.

3. Methodology

3.1 Research Design

This study employed a descriptive research design, which is commonly used to gather data that describes the characteristics of a phenomenon or the relationships between variables without manipulating them (Creswell, 2014). A descriptive design is appropriate for this research as the goal was to understand the current state of physical activity and its effects on early childhood education, without influencing the participants. This design allowed for an in-depth investigation into the population's views and practices regarding physical activity, psychomotor skill development, and the implementation of movement activities in Kesses sub-county.

3.2 Samples and Sampling

The study population consisted of headteachers, ECDE teachers, and curriculum support officers (CSOs) in Kesses sub-county, Uasin Gishu County, with a total of 410 respondents. To ensure that the sample size was representative, the Yamane formula was used to calculate the most appropriate sample. This formula is widely used in social research to determine sample sizes from a given population size (Yamane, 1967). The final sample included 176 primary school teachers, 18 school heads, and 4 CSOs.

The sampling methods employed in this research were random sampling and purposive sampling. For the teachers and headteachers, simple random sampling was used. This method ensures that every individual in the population has an equal chance of being selected, which reduces selection bias and enhances the representativeness of the sample (Creswell, 2014). In contrast, purposive sampling was used to select the CSOs, as they are a specific group of participants who possess knowledge and insight relevant to the research (Patton, 2002). This type of sampling allows for a more targeted approach in gathering information from experts or individuals with experience related to the study's focus.

2.3 Data Collection Tools

The primary data collection tools used in this study were questionnaires and interview guides. The questionnaires were administered to the teachers, as this tool is effective in gathering a large amount of data from a wide sample (Dillman, 2007). The questions in the questionnaire were likely both closed and open-ended, allowing for both quantitative and qualitative responses. This mixed

approach strengthens the reliability and depth of the data collected.

For the headteachers and CSOs, an interview guide was employed. Interviews are particularly useful for collecting in-depth information and understanding the perspectives of participants, especially when the researcher wants to explore more complex ideas that cannot be captured by a questionnaire alone (Kvale & Brinkmann, 2009). By using interviews, the study aimed to collect nuanced opinions from these key informants about the role of physical activity in early childhood education and its impact on psychomotor skill development.

2.4 Data Collection Procedures

The data collection procedures involved administering questionnaires to the teachers and conducting interviews with headteachers and CSOs. To ensure the reliability and validity of the instruments, test-retest and Cronbach's Alpha Coefficient were employed. Test-retest reliability was assessed by administering the same questionnaires to a school in a neighboring sub-county, Kapseret, after one and two weeks. This procedure checks the consistency of responses over time (Cohen, Manion, & Morrison, 2018). The Cronbach's Alpha was used to assess the internal consistency of the instruments, with a coefficient of 0.70 indicating acceptable reliability (George & Mallery, 2003).

2.5 Data Analysis

The quantitative data analysis was carried out using the SPSS version 25 statistical software. This software allows for efficient handling of complex data sets and can produce various statistical measures, such as correlation coefficients, mean, and standard deviation. The use of SPSS ensures that the data analysis is rigorous and accurate, providing clear insights into the relationship between movement activities and psychomotor skill development. Thematic analysis was applied to the qualitative data obtained from interviews, allowing the researcher to organize the responses into key themes that align with the research objectives.

2.6 Ethical Considerations

Ethical considerations are critical in educational research to ensure the protection of participants' rights and well-being. Although not explicitly discussed in the methodology section, it is assumed that ethical guidelines were followed. These would include obtaining informed consent from all participants, ensuring that they understood the purpose of the study and their right to confidentiality (Cohen et al., 2018). Furthermore, the confidentiality of participants' responses would be maintained, and the data would only be used for the purposes of the study. The researcher would also ensure that the participation was voluntary, meaning that participants could withdraw from the study at any point without facing any negative consequences.".

4. Results and Discussion

4.1 Response Rate

According to the results, an average response rate stood at 87.37 for the teacher's questionnaires and two interviews (head teachers and curriculum support officer). The head teacher's busy schedule resulted in a lower return rate of 61.11 percent. 2 Curriculum Support Officers were interviewed and the return rate for teachers stood at 90.91 percent.

4.2 Descriptive Analysis

Table 1 Teachers rating on attainment of psychomotor skills growth in early year learners

Development milestone	SD	D	N	A	SA	M	Std Deviation
a. As learners play with objects they build on their eye hand coordination	19 (11.9%)	2 (1.3%)	20 (12.5%)	105 (65.6%)	14 (8.8%)	3.58	1.08
b. Learners build flexibility and endurance through movement activities	9 (6.6%)	11 (10.0%)	31 (19.4%)	20 (12.5%)	84 (52.5%)	3.96	1.28
c. Learners learn locomotion skills through movement activities	14 (8.8%)	16 (10.0%)	23 (14.4%)	27 (16.9%)	80 (50.0%)	3.89	1.35
d. Learners improve on their speed through movement activities	12 (7.5%)	23 (14.4%)	42 (26.3%)	78 (48.8%)	3 (1.9%)	3.74	4.65
e. Through movement activities learners are able to perform skills with minimal errors and more precision	20 (12.5%)	12 (7.5%)	12 (7.5%)	54 (33.8%)	62 (33.8%)	3.74	1.36
Composite scores						**3.79**	**1.94**

Key: SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA-Strongly Agree, M-Mean and Standard Deviation.

The findings in Table 1 demonstrate that while 20 (12.5%) of teachers were neutral, 2 (1.3%) disagreed, and 19 (11.9%) highly disagreed, nearly 105 (65.6%) of teachers agreed and 14 (8.88%) strongly agreed that students improve their hand-eye coordination while they interact with items through movement activities. As a result, 74.5% of teachers concur that during movement activities, students can improve their hand-eye coordination by playing with objects. This corresponds to a standard deviation of 1.08 and a mean of 3.58. Teachers highlighted the importance of providing safe, age-appropriate materials to enhance hand-eye coordination, such as using a ball for exercises that promote coordination between the hands and eyes. This aligns with existing literature on the importance of fine motor skills and their development through interactive activities in early childhood. According to Payne and Isaacs (2020), fine motor control, which involves tasks such as cutting scissors or drawing, is fundamental to children's academic and everyday functioning. These findings support the assertion that regular engagement with hands-on activities not only improves motor control but also enhances cognitive abilities, providing a strong basis for future learning.

Hence teachers should provide enough age appropriate and safe to play with objects to the learners. However, care should be taken through monitoring teachers to avoid accidents and injuries. During the interview, the research also recorded similar sentiments from 7 school heads.

"*I have witnessed a case where two teachers used a ball to train learners on eye-hand coordination and the teacher reported a great improvement.*"

Secondly, research findings indicate that 84 (52.5%) strongly agreed and 20 (12.5%) agreed that flexibility and endurance can be built by involving learners in movement activities. Nevertheless 11 (10.0%) disagreed and 9 (5.6%) strongly disagreed. Since most teachers were in agreement, it is therefore important to provide a number of activities

which will have a positive impact on their flexibility and endurance. One of the curriculum support officers had this to say during the interview:

"*Learner's flexibility and endurance are very important skills to a learner.*

These can be learnt through provision of age-appropriate activities"

Also, during the interview (HT No.19) had this to say.

"*Our children can benefit through running and jumping activities which can improve their flexibility and endurance."*

This is consistent with findings from Högman et al. (2020), who suggested that physical activities such as running and jumping play a pivotal role in enhancing gross motor skills, which include flexibility, coordination, and overall physical endurance. These skills are crucial in developing a child's overall strength, agility, and readiness for more complex physical and cognitive tasks. Aras (2015) also emphasized the importance of movement activities for developing these skills, particularly in young learners, where physical competence is closely tied to emotional and social development.

When asked as to whether learners can acquire locomotive skills through play activities 80 (50.0%) strongly agreed, 27 (16.9%) agreed, 23 (14.4%) were neutral whereas 16 (10.0%) disagreed and 14 (8.88%) strongly disagreed. This suggests that (66.9%) of teachers agreed that play activities can have a positive improvement on learner's locomotion skills. Nearly half of the head teachers surveyed, and the curriculum support officers agreed with this finding.

This finding echoes the results from Clark (2022), who argued that children develop gross motor skills, such as running, jumping, and skipping, primarily through play. Movement activities that involve these physical tasks allow children to practice and perfect their coordination, balance, and agility. Additionally, research by Ferguson et al. (2024) confirms that early exposure to such activities helps children build confidence in their physical capabilities, which is fundamental to their overall development.

From the research results, most 62 (38.8%) of teachers strongly agreed and 54 (33.8%) agreed that through movement activities learners are able to perform skills with minimal errors and more precision. However, 12 (7.5%) and 20 (12,5%) of teachers did not agree with this statement.

his finding aligns with the work of Quennerstedt (2019), who highlighted the role of physical education in promoting accurate motor skills through regular practice. Over time, the repetitive nature of these activities helps children fine-tune their abilities, whether in simple tasks like walking or more complex movements such as skipping and throwing.

Head teacher No.22 had this to say:

"*Learners can learn the skills of performing activities without making errors and with more precisions"*

Composite scores show that to a moderate level (M=3.79 and standard Deviation = 1.94) the early year education teachers said that learners can develop their psychomotor skills through movement activities. This information was also corroborated by the curriculum support officer and 62% of those interviewed head teachers.

According to Amutabi (2019), the Ministry of Education in Kenya, through the Kenya Institute of Curriculum Development (KICD), has emphasized the development of practical skills in early childhood education. Movement activities, such as those involving interaction with materials and real objects, are integral to this skill-building process. KICD (2017) outlined that such activities should constitute a substantial part of the weekly curriculum (32%), although challenges in implementation remain, especially in terms of adequate resource allocation and teacher preparedness. This study confirms that while these policies exist, their execution is inconsistent, suggesting that more support and resources are needed to fully implement physical education strategies that enhance psychomotor skill development in early childhood education.

Additionally, Bakken (2017) argued that the school environment is critical for providing children with the materials and opportunities to develop their psychomotor skills. A study by Ojuondo (2015) noted that physical education is a vital aspect of early childhood curricula as it helps children learn not only about physical skills but also about their own capabilities, self-confidence, and personal health. Through well-structured movement activities, children are better equipped to navigate both academic and social challenges.

Incorporating these perspectives into the research highlights the continued importance of movement activities in early childhood education. As emphasized by the High/Scope Curriculum (2019), such activities lay a strong foundation for psychomotor skill development, including both fine and gross motor skills. The curriculum asserts that activities such as playing with toys, engaging in outdoor play, and participating in running exercises can significantly contribute to the development of a child's motor skills, imagination, and creativity.

5. Conclusion and Recommendations

5.1 Conclusions

The study concluded that movement activities play in the development of psychomotor skills in early childhood learners. The study revealed that children who engage in adequate movement activities tend to show notable improvements in essential motor abilities, such as hand-eye coordination, flexibility, endurance, and locomotive skills. These abilities are fundamental for performing various tasks and for the overall physical and cognitive development of the child. Regular physical activities, such as playing with objects and exercises that promote coordination, enhance children's hand-eye coordination. Furthermore, activities that focus on flexibility and endurance, such as running and jumping, were found to contribute significantly to the development of physical stamina and agility. The study also highlighted that play-based movement activities can greatly enhance locomotion skills, including running, hopping, and skipping, which are critical for a child's motor development.

Movement activities positively impacted children's ability to perform tasks with greater precision and fewer errors, contributing to their overall competence and confidence. Teachers emphasized that providing children with age-appropriate, safe, and engaging movement activities can significantly aid in developing these essential skills. Despite the positive findings, challenges remain in the full implementation of these activities, particularly due to time constraints and limited resources in schools. As the Ministry of Education's curriculum guidelines suggest, movement activities should take up a significant portion of a child's weekly schedule, which is crucial for their holistic development.

5.2 Recommendations

Based on the study's findings, the researcher recommends that different stakeholders take theoretical, policy, and practical steps to guarantee that students have enough safe and varied movement activities throughout their foundation or early childhood education. Among the recommendations include: To address the low levels of psychomotor skills development in early year education learners, teachers ought to provide activities that are well suited to the level of their learners. The activities should be adequate, motivating and provided in a friendly environment.

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