IMPROVISATION OF PHYSICAL EDUCATION INSTRUCTIONAL MATERIALS IN NAIROBI AND NYERI PRESCHOOLS, KENYA.

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ABSTRACT

Improvisation of instructional resources as a strategy for overcoming the challenge of inadequate Physical Education facilities and equipment cannot be over-emphasized. Indeed, improvisation is one of the key highlights in the learning outcomes for learners in the Competency Based Curriculum as it helps in the acquisition of the problem-solving competency. Physical Education is practical in nature and requires instructional materials to make its teaching and learning more concrete. However, concerns have been raised over the inadequate use of the improvisation strategy in the teaching and learning of physical Education in the Kenyan education system.

The aim of this study was to examine whether teachers improvised play materials to provide learners with opportunities to learn movement skills. A descriptive survey research design was employed and respondents were 60 headteachers and 99 teachers from 99 sampled preschools. Questionnaires, interviews, and observation schedules were used as research instruments. Qualitative and quantitative methods of data analysis were used. The results showed that 83(83.84%) teachers improvised play materials while 16 (16.16%) teachers did not. However, results from the headteachers showed a disparity as only 33 (55%) indicated that teachers improvised play materials. Observation schedule results showed there were inadequacies of play materials in some preschools.

The results of the study revealed that not all preschools embraced the improvisation strategy. Thus, Physical education teachers should be encouraged to improvise play materials when commercial materials are not adequate. Teacher trainees should also be trained on the use of improvisation as a teaching and learning strategy.

***Keywords*:** Improvisation, Instructional materials, Physical Education, Preschools, Teaching, and learning strategy

INTRODUCTION

Physical Education is closely tied to the cognitive, socio-emotional, and motor development of young children (IHM Spirit System, 2018). It provides a wide range of developmentally appropriate activities for all children that facilitate the development of physical competence in movement activities (McLachlan, 2015). According to Gil-Madrona (2021) and Devlin (2022) participation in regular physical activity improves children's muscular strength, flexibility, muscular endurance, body composition, and cardiovascular endurance thus improving their physical fitness levels.

This is essential as it reduces the risk of children acquiring lifestyle diseases such as diabetes and cardiovascular diseases which have become a contemporary issue due to the sedentary style of living.

Esteves (2021) further posits that Physical Education teaches self-discipline, improves self-confidence and self-esteem, influences moral development, facilitates socialization and development of social skills such as cooperation, and nurtures leadership skills. According to Physical Activity Guidelines Advisory Committee Scientific Report (2018), physical activity during childhood and adolescence exerts a beneficial effect on several mental health outcomes. It also has a positive effect on multiple aspects of brain function and cognitive performance.

Physical Education is unique to the school curriculum as it is the only programme that provides learners with opportunities to learn motor skills, develop physical fitness and gain an understanding of physical activity. According to UNESCO (2015), it is the only subject in the curriculum whose focus combines the body and physical competence with values-based learning and communication. Indeed, participation in PE provides children with an avenue for self-expression. and acquisition of social skills and values such as sharing, fairness, honesty, and cooperation. Gil-Madrona (2021) points out that schools can provide many opportunities for children to engage in vigorous physical activity and are thus better placed amongst societal institutions to motivate children to live active lifestyles. Research suggests that the best time to introduce PE is during early year learning for children to acquire and refine their motor skills (Jones and Okely, 2020).

The inclusion of Physical Education in the school curriculum is in line with the United Nations Charter on Physical Education and Sport which states that PE and sports is a fundamental right for all and forms an essential element of the education system (UNESCO, 1978). The global physical activity guidelines WHO recommend that children and youth 5-17 years of age should accumulate an average of at least 60 minutes of daily moderate-to-vigorous physical in order to improve or maintain a healthy cardio-respiratory, fitness, and body composition profile (WHO, 2020). The need for PE in schools is also supported and advocated by the National Association for Sport and Physical Education (2008) and American Heart Association (2021).

Despite the essential role that physical activity plays in the life of children, the provision of PE in schools has declined in many countries (Hardman, 2008). Research reveals that one of the setbacks in the implementation of PE programmes is the lack or inadequacies of instructional resources. Hardman (2008) reported that 43% of teachers evaluated worldwide considered the quantity of their Physical Education equipment as limited or insufficient. Equipment shortages were reported as follows: in Africa (62%), Asia (53%), Central or Latin America (78%), and the Middle East (57%). McLoughlin et al (2019) reveal that barriers to physical education programme quality included a lack of leadership, feelings of marginalization, and insufficient funding and collaboration. Studies carried out at various tiers of the Kenyan educational system reveal a problem of inadequate PE facilities and equipment (Muniu, 1986; Simiyu, 1990; Wawire, 2006).

The quantity and quality of a school's equipment can influence the success of its Physical Education curriculum. Limitation of resources affects students' learning experiences, denies learners enough practice, and thus hinders efficient skill acquisition.

Research shows that children who attend schools with spacious playgrounds and equipment have a higher physical activity than those who attend schools with poor facilities and equipment (Delidou, Matsouka & Nikolaidis, 2015; Bales, Ridgers & Aucouturier, 2013). Ugwuanyi (2013) argues that instructional materials are essential in any learning environment and thus effective physical education programmes cannot exist without equipment. The absence or inadequate equipment and supplies result in the skipping of teaching relevant concepts, teachers refusing to teach physical education, or learners not learning in a concrete way. Other teachers try to improvise equipment and supplies to enable them to deliver their lessons and achieve the learning outcomes.

The challenge of the provision of PE learning resources can be mitigated by the application of the improvisation strategy. The goal of improvisation is to "solve a problem". Improvisation is defined as the process of making the most of what is within one's vicinity with an intention of getting what will be most useful. It may also be defined as the act of constructing Physical Education materials using locally available materials that can adequately replace or function in place of the original materials which otherwise may be very expensive or not readily available (Eriba & Regina, 2011). Improvisation is also an act of using materials and equipment obtainable from the local environment or designed by the teacher or with the help of local resource personnel to facilitate and enhance effective instruction (Bromide, 2000).

The teaching and learning process requires a great deal of improvisation since it enables the acquisition of cognitive, affective, psycho-motor, effective, and artistic skills among the learners (Mendez-Gimenez, 2014). Adu and Adu (2014), Aboagye, Armoh, Marcourt, Dougblor and Ossei-Anto (2022) point out that when improvisation is utilized in collaborative teaching and learning activities in a learner-centred environment, it can be a powerful teaching tool. Indeed Aadland, Epseland, and Arnesen (2017) add that improvisational practices in teaching physical education are much-needed elements in teaching to boost the achievement of learning outcomes.

Improvisation demands that one should possess in-depth knowledge of what should be made and be creative and resourceful so that whatever is produced serves the rightful purpose. Méndez-Giménez (2014) posits that a creative teacher remodels commercial teaching materials and involves the learners in the improvisation to make them acquire concepts to be learned with ease. When children play with these materials, the learned skills and concepts are reinforced.

The Kenyan new curriculum stresses competencies that learners need to derive from their learning such as self-efficacy, critical thinking and problem solving, learning to learn, creativity and imagination which are enhanced during improvisation. The power of improvisation lies in learners being active at all times. A major concept of improvisation is that the point of concentration requires attention to the problem rather than to the individuals addressing the problem. This, therefore, implies that PE teachers need to use improvised materials when teaching and involve learners in improvisation since this caters to a limitation of what may not be available for use. This will help in enhancing creativity and problem-solving skills.

Despite the importance of learning resources, Ndwiga (2005) in a study on resource management in schools indicated that teachers in most preschools did not improvise learning materials, yet the preschools had a challenge of providing enough materials. However, Wawire (2006) noted in a study on factors that influence the quality and relevance of ECE in Nairobi and Machakos districts that pre-school teachers used locally available materials in their teaching. These findings from Ndwiga (2005) and Wawire (2006) give different observations on teachers' use of improvised learning materials.

To effectively implement Physical Education, adequate instructional resources are essential as this may hinder the achievement of the expected learning outcomes. This study, therefore, was to examine the status of improvisation of instructional materials for teaching and learning Physical Education in preschools.

METHODOLOGY

The descriptive survey design was employed. Using stratified and simple random sampling, 99 preschools were selected from Nairobi and Nyeri Counties. The counties presented varied geographical settings. The respondents included 60 head teachers and 99 teachers who were selected using stratified and simple random sampling. The research instruments used were questionnaires, interview schedules, and observation guides. Questionnaires were for preschool teachers and interview schedules were for headteachers. Observation guides were used to observe PE lessons and the status of Physical Education instructional resources.

The data collected was analysed using quantitative and qualitative methods. Descriptive statistics were used to analyse the quantitative data by examining the frequency of the respondents' responses. Content analysis was used to analyse the qualitative data. It used a descriptive approach in coding the data and interpretating the quantitative counts of the codes.

RESULTS AND DISCUSSION

Teacher's responses on improvisation of play materials

Table 1: Improvisation of Play Materials

	NAIROBI SCHOOLS					**NYERI SCHOOLS**				
Response	**F %**	**F %**	**F %**	**F %**	**Total %**	**F %**	**F %**	**F %**	**Total %**	**Total %**
	PB	PR	CC	WF		PB	PR	CC		
Improvisation of materials	13 13.13	23 23.23	3 3.03	3 3.03	42 42.42	16 16.16	22 22.22	3 3.03	41 41.41	83 83.84
No improvisation of materials	3 3.03	3 3.03	0 0.00	3 3.03	8 9.09	1 1.01	6 6.06	0 0.00	7 7.07	16 16.16
Total	**16 16.16**	**26 26.26**	**3 3.03**	**6 6.06**	**51 51.51**	**17 17.17**	**28 28.28**	**3 3.03**	**48 48.48**	**99 100**

Note: PB (Public), PR (Private), CC (Council), WF (Welfare)

Data in Table 1. shows that majority of the teachers 83(83.84%), 42 (42.42%) from Nairobi and 41 (41.41%) from Nyeri preschools indicated that they improvised play materials while 16 (16.16%) indicated that they did not improvise. Out of the 16 (16.16%) teachers who indicated that they did not improvise play materials, 9 (9.09%) were from private pre-schools, 4 (4.04%) from public preschools, and 3 (3.03%) from welfare preschools.

This implies that teachers improvised play materials to enhance the teaching of movement skills though some teachers did not improvise.

The 16 (16.16%) teachers who did not improvise play materials indicated that they taught activities that did not require apparatus; others reported that they did not improvise because their pre-schools have no play space and they did not teach PE while others indicated that it was time consuming. One of the teachers said that they did not improvise because the sponsor of the preschool would not allow the use of improvised play materials in the preschool yet the preschool did not provide adequate materials.

From the headteachers' interview, 33(55%) headteachers said that their pre-schools teachers improvised play materials. This percentage shows a disparity with the percentage of the teachers who indicated that they improvised in their preschools. During lessons observation, an observation was made in a private school where the teacher had only two balls for their fifty learners. In a private school in Nyeri, a teacher brought two balls to the field for play and the learners were very excited. This caused a lack of class control as every learner in the large class wanted to play with the ball. This implies that there were some preschools that did not improvise play materials yet did not have adequate materials. This was especially the case with the welfare pre-schools. Improvisation of play facilities and equipment as found in this study and in other studies (Muniu, 1986; Wawire, 2006; Abagi, 2008) has been used as a strategy to overcome the challenge of inadequate PE facilities and equipment.

However, despite the importance of improvisation as a strategy to overcome the challenge of inadequate PE facilities and equipment, some teachers have been found not to embrace the strategy.

Table 2: Improvised Play Items for Pre-school Children

Response	Nairobi Schools	Nyeri Schools	Frequency	%
Balls	33	37	70	70.71%
Ropes	30	29	59	59.60%
Beanbags	24	20	44	44.44%
Hoops	2	2	4	4.04%
Shakers	2	2	4	4.04%
Blocks	2	1	3	3.03%
Sacks	3	-	3	3.03%
Jumping sticks	-	1	1	1.01%
Baskets	-	1	1	1.01%
Walking tins	1	-	1	1.01%
Bladders	1	-	1	1.01%
Seesaws	1	-	1	1.01%
Skittles	1	-	1	1.01%
Slides	1	-	1	1.01%
Swings	1	-	1	1.01%
Batons	1	-	1	1.01%

Table 2 shows that majority of the teachers 70 (70.71%) both from Nairobi and Nyeri pre-schools prepared balls, followed by ropes 59 (59.60%), beanbags 44 (44.44%), rings 22 (22.22%), tyres 6 (6.06%), hoops 4 (4.04%), batons, swings, skittles, bladders and walking tins 1 (1.01%). This may imply that teachers improvise play items that can be made with less costly resources though this limits the variety of play items improvised.

Table 2 also reveals that teachers from Nairobi pre-schools improvised play items that required more funds such as seesaws, slides, and swings, unlike teachers from Nyeri pre-schools. This may imply that administrators of some pre-schools in Nyeri county did not avail funds for the improvisation of play items. According to Holdhus et al 2016, improvisation is a professional skill for teachers and it is a key curricular concept in teaching that teachers employ in their daily teaching.

Teachers are challenged daily to improvise to meet their teaching needs and requirements. Improvisation promotes understanding and maximizes learners' participation, reduces cost and expenditure, assists to achieve learning outcomes, and makes the learning experience real as it provides learners with first-hand experience of learning materials. Lack of embracing the improvisation strategy will lead to absence or inadequacy of equipment and supplies and as Ugwuanyi (2013) points out, this will result in the skipping of teaching relevant concepts or teachers refusing to teach thus no achievement of learning outcomes.

CONCLUSION

Instructional resources have been found to be effective in achieving instructional objectives as they make teaching a reality. Improvisation and utilization of improvised learning resources to facilitate instructional activities no doubt will help PE teachers achieve the stated specific instructional objectives. However, not all pre-schools and PE teachers are ready to embrace the improvisation strategy and use the resources within their immediate environment to improve their instructional delivery.

RECOMMENDATIONS

a) Physical education teachers should improvise when commercial materials are not available.
b) Pre-school administrators should assist teachers financially in the production of improvised materials. They can also provide some of the locally available materials and encourage teachers to improvise.
c) Teacher trainees should be trained on the use of improvisation as a teaching and learning strategy.
d) The county government education officers should also organize seminars and workshops on play material production to equip the teachers with the necessary skills for the improvisation of play materials.
e) Pre-school administrators should invite parents, guardians, and the community to pre-schools' PE resources workshop days to sensitize them on the need of their support in the provision of PE learning materials or materials for improvisation.
f) Pre-school administrators should solicit the support of experts within the community to assist in the improvisation exercise.

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