

QUALITY OF PHYSICAL ENVIRONMENT IN PRESCHOOLS IN INFORMAL SETTLEMENTS IN NAIROBI CITY COUNTY IN KENYA: IMPLICATIONS ON CHILDREN'S DEVELOPMENT AND EDUCATION

NYAKWARA BEGI, TERESA MWOMA, CATHERINE MURUNGI

*Department of Early Childhood & Special Needs Education,
Kenyatta University*

begi.nyakwara@ku.ac.ke

mwoma.teresa@ku.ac.ke

gakii.catherine@ku.ac.ke

UDK: 373.21:37.091.6(676.2)=111

Stručni rad

Primljen: 28. 2. 2023.

Prihvaćen: 27. 9. 2023.

ABSTRACT

The quality of the physical environment in a school for young children enhances their development and education. This is because it makes them feel safe, comfortable, increases their concentration, reduces absenteeism and leads to better child health. The Kenya Basic Education Act of 2013 and Early Childhood Development Service Standard guidelines of 2006 state that there should be appropriate facilities in educational institutions for young children. The policy documents further provide that facilities in early childhood programmes should meet standards such as adequacy, durability, safety and user-friendliness in order to enhance children's development and education. Despite the policies being in place, the provisions are yet to be fully implemented in preschools in informal settlements. This paper presents results from a study conducted in preschools in informal settlements in Nairobi City County, Kenya. The preschools offer alternative care and education for children who cannot access public preschools, complementing the effort of the county government in providing early childhood education. The study aimed to explore the quality of physical environment in preschools in the informal settlements and pinpoint implications on children's development and

KEYWORDS:

*quality of physical environment,
preschools, Nairobi, Kenya, children's
development and education*

education. It was a qualitative study conducted across 54 preschools. Managers of the preschools were interviewed, and observation of physical facilities in the schools were carried out. Both qualitative and quantitative methods were used to analyse data, and the results indicated that the quality of physical environment in most of the preschools was not conducive for children's development and education due to inadequate space and facilities. It is recommended that stakeholders collaborate with management of the preschools to improve the quality of physical environment in order to enhance children's development and education.

INTRODUCTION AND THEORETICAL FRAMEWORK

The quality of physical environment enhances children's holistic development and education. This entails adequate lighting, quality air and well-constructed buildings (Grusec & Hastings, 2015). The physical school environment also improves children's achievement, concentration and reduces absenteeism from school (Gilbert & Gay, 1985). It also promotes teachers' effectiveness, morale, job satisfaction and their ability to deliver school curriculum. Hence, there is need to assess the quality of physical environment in preschools in informal settlements, with a focus on ventilation, lighting, furniture, play space, toilets, water and hand-washing stations.

Globally, the effect of school physical environment on children development and education is evident in the literature reviewed. The U.S Department of Education states that preschool classrooms require adequate and sustained ventilation for the realization of maximum academic and healthy development in children (Engle, 1942). Lack of adequate ventilation and lighting in classrooms oppresses children and limits them from accessing quality education and care, consequently making them to develop negative attitude towards schools in general (Dillard, 2009). A conducive school physical environment enhances children's self-esteem which reduces drop-out rates (Welsh, 2000). It is also associated with increased learning outcomes, better health, higher completion rates and teacher retention (Thapa et al., 2013). Contrary to the merits of a quality physical environment, a poor-quality physical environment, in the form of inadequate classrooms, toilets, water supply, and play space, adversely affects the development and education of children. It was therefore important to find out the quality of physical environment in preschools in informal settlements in Nairobi City County and understand how it was affecting children's development and education.

A study conducted in South Africa had found that safety requirements were important for children to gain self confidence in their schools (Welsh, 2000). This was because it increased their interest in learning and developing as happy individuals. Research carried out in Tanzania and South Africa also revealed that children feel unsafe while learning or playing in small spaces (Thapa et al., 2013). This means that space forms an important component of a quality physical environment in preschools.

In Kenya, Mansour (2017) pointed out that there are many children who live in informal settlements. Socio-economic changes have pushed many families into the informal settlements and have also led to a shift in family structure, with both parents now working and needing a place to care for their young children while they are at work. This has led to an increasing demand for preschools in the informal settlements,

which often have inadequate space and physical resources. The institutions were set up to offer childcare and education services to children who cannot access services in public preschools (Republic of Kenya, 2015). The Nairobi City County Task Force report of 2014 indicated that there were 61440 children enrolled in preschools in informal settlements of Korogocho, Mathare, Kibera, Kawangware, and Mukuru (Nairobi City County, 2014). The report further reveals that these preschools complement the effort of the county government in providing early childhood education services.

The Constitution of Kenya (2010) provides that every child has a right to learn in a quality and safe environment (Republic of Kenya, 2010). The Basic Education Act, 2013 of Kenya placed pre-primary education under county governments, which are expected to ensure that the physical environment in preschools is conducive for children's development and education (Republic of Kenya, 2013). However, these developments have been linked with inadequate facilities for children (Somerset, 2009). The National Early Childhood Development Policy Framework, 2006 states that facilities and equipment for young children should be age-appropriate. The policy further states that classrooms should be clean, well-ventilated and spacious with adequate lighting (Republic of Kenya, 2006). Additionally, there should be space for children to play, equipped with hand-washing facilities to help them clean their hands after play. Therefore, it was necessary to establish the quality of physical environment in preschools in informal settlements in Nairobi City County and identify its implications on children's development and education.

This study was guided by the Ecological Theory by Urie Bronfenbrenner (1970). According to the theory, there are five environments which influence children's development and education. The environments are: Microsystems, Mesosystems, Exosystems, Macrosystems, and Chronosystems. According to Bronfenbrenner and Morris (2006) the environments affect each other because they are intertwined and multiple factors in each of the environments influence children's development and education.

Microsystem refers to the immediate environment in which children live, such as home. It is the primary setting for children's development and education. This level has the greatest impact on children's development and education. Mesosystem involves relations between microsystems. At this level, children's development and education tends to be affected by many factors, such as parents' participation in school activities, provision of appropriate facilities in school to improve physical environment. The Exosystem consists of the external factors which influence children's education and development; for instance, government policies and security. The Macrosystem comprises the cultures in a society where children live and operate, which affect their

development and education. The Chronosystem affects children's development and education because of the changes which occurs in society, such as socio-economic conditions and political changes that affect the family structure and economic status.

The theory helped the researchers to conceptualize how school physical environment is influenced by many factors which affect children's development and education.

PROBLEM STATEMENT

The literature reviewed has shown that quality environment in preschools influences children's development and education. This is because it makes them feel safe, increases concentration, reduces absenteeism and leads to better health of children. Studies done globally have also shown that the quality of physical environment enhances children's holistic development and education.

Studies done in Kenya have revealed that the quality of physical environment in preschools in informal settlements has not received due attention, despite of the fact that government policy documents emphasize its significance. This is because most of the studies done in Kenya appeared to have focused more on learner-related factors like children's enrolment and transition to school, and less on school-related factors like school environment. Therefore, this study was intended to fill the knowledge gap regarding implications of physical environment on children's development and education. The questions to be answered by the study are: What is the quality of physical environment in preschools in informal settlements in Nairobi City County? What are the implications of the quality of physical environment on children's development and education?

METHOD

Study design

In this study, a mixed research methods design was used to allow triangulation of data (Creswell, 2012). Data was obtained using interviews and observation schedules. The dependent variable was the physical environment in preschools; while the independent variable was the impact on children's education and development.

Study setting

The study was carried out in preschools in informal settlements in Nairobi City County in Kenya. Purposive sampling was used to select Nairobi City County. The county was selected because it houses many informal settlements in Kenya including; Kibera, Mathari, Mukuru, Dagoreti, and Kawangware.

Target population

The population of the study was teachers and managers in 204 preschools in informal settlements in Nairobi City County. The Nairobi City County Task Force report of 2014 had revealed that 61440 children were enrolled in preschools in informal settlements of Korogocho, Mathare, Kibera, Kawangware, and Mukuru (Nairobi City County, 2014). The preschools are owned by individuals and faith-based organizations.

Sampling techniques and sample size

The study employed a random sampling technique to select a sample, constituting 30% of the total number of preschools. In total, 54 preschools were selected from a total of 204 preschools in the informal settlements. The study included 78 teachers and 54 preschool managers as participants.

Data collection process

A one-day induction workshop was held to introduce the research team to the purpose of the study and prepare them for the pilot study. Permission to collect data was obtained from the Kenyatta University Research Ethics Board and the National Commission for Science, Technology. Additionally, consent was obtained from the school managements and participants.

Pre-testing of the research tools was done in three preschools that were not included in the main study. This pre-test aimed to assess the effectiveness of the tools and to eliminate errors while administering them. Analysis of the responses and field researcher's observations was used to refine the tools. During data collection the researchers worked in three pairs during piloting and data collection. Interview schedules for teachers and managers of the preschools were utilized to gather information on different aspects of the physical environment in the schools. Obser-

vation schedules were used to capture information on the status of sanitation and lighting, environmental safety, water, sanitation and hygiene in the preschools.

Data analysis

The researchers reviewed and organized their notes before inputting them into the computer for analysis. Descriptive statistics was used to analyse quantitative data, consisting of frequencies and percentages. Qualitative data was analysed using content and theme analysis. Content analysis involved evaluating the frequency of certain words and phrases (Bell, 2010). Theme analysis involved breaking up text into parts that represent themes. The results were presented using tables and written text.

Logistical and ethical considerations

We sought ethical clearance from the Kenyatta University Research Ethics Board. Further permission was obtained from the National Commission for Science, Technology and Innovation. In order to conduct this study in non-formal schools, permission was sought from Nairobi City County. We asked the management of the sampled preschools and all participants who participated in the study for further consent. To enhance confidentiality of the information, participants had their identity concealed by using codes.

RESULTS AND DISCUSSION

The study aimed to investigate the quality of the physical environment in preschools within informal settlements in Nairobi City County, Kenya, and its impact on children's development and education. The focus was on ventilation and lighting, furniture, water and sanitation, play space, and security. The results are presented in the following subsections.

Ventilation and lighting

The quality of classrooms affects the children's development and education. According to the U.S. Department of Education, preschool classrooms necessitate sufficient and consistent ventilation to facilitate optimal academic and healthy

development in children (Engle, 1942). Given the importance of ventilations and lighting in classrooms, their adequacy was determined and results have been presented in Table 1.

TABLE 1. Adequate ventilation & lighting in classrooms

Response	Ventilation		Lighting	
	Frequency	Percentage	Frequency	%
Yes	38	70.4	34	63
No	16	29.6	20	37
	54	100	54	100

As it can be seen from Table 1, about a third of the classrooms in preschools in the informal settlements did not have adequate ventilation and lighting. To understand how the lack of adequate ventilation and lighting in the classrooms affected children's development and education, we interviewed teachers and managers and conducted observations. The results obtained from the analysis of data from observations and interviews revealed that the ventilation and lighting in the classrooms were inadequate, and children had to rely on limited light from small windows. Unfortunately, these windows couldn't provide sufficient natural light due to their size. Additionally, the classrooms were poorly designed, primarily because of space limitations in the settlements. In the majority of preschools, classrooms were small and congested, leading to a sense of stuffiness and the accumulation of stale air. This non-conducive classroom environment had adverse effects on children's concentration levels, caused feelings of discomfort, strained the learners' eyes, and diminished their interest in learning. Moreover, constant straining during reading and writing activities conducted in poorly ventilated classrooms increased the risk of visual impairment for the children. It was also evident from interviews with teachers and managers that the lack of adequate ventilation and lighting hindered effective teaching and learning.

The findings from this study are in line with those from a study done in South Africa which had shown that the exposure of children to natural light in a school setting enables them to perform visual tasks with ease and get motivated to handle more challenging tasks in upper grades. Likewise, sufficient lighting in classrooms was also associated with low visual difficulties among learners (Änggård, 2010). Similarly, in Kenya, Sang (2013) found that well-ventilated and lighted

classroom predicted the behaviour of children and enticed them to fully participate in teaching-learning process. Learners were also able to manipulate materials and gain opportunities to develop their gross and fine muscles alongside attending to classroom assessment tasks. Teachers were also able to enjoy instruction and manage learners in well-ventilated classrooms compared to poorly ventilated ones. Conversely, poorly ventilated classrooms exposed children to the risk of suffocation and development of airborne diseases. It also reduced their attention span and hindered the achievement of learning outcomes.

A study conducted in Germany revealed that children who achieved strong academic achievement and social development were those who had access to classrooms with quality learning materials and adequate teacher support (Schneider & Helmke, 1986). These findings align with those of a study done in Indian elementary schools, where children's ability to develop motor skills and maintain basic classroom concentration was compromised due to insufficient classrooms and limited indoor resources (Ryan, 2006). The subpar physical environment in schools leads to lack of school readiness and limited access to quality education.

Furniture

Suitable and well-maintained furniture are important components of quality physical environment that enhances children's development and education. School furniture includes desks, chairs, tables and many other classroom facilities (Scriven & Associates, 1975). Therefore, we found it important to establish the adequacy of furniture in preschools in the informal settlements and see how it affected children's development and education.

TABLE 2. Adequate furniture

Response	Frequency	Percentage
Yes	30	55.6
No	24	44.4
	54	100

Table 2 shows that about 45% of the preschools did not have adequate furniture for children. It was also observed that in many of the preschools without adequate furniture, four to five children shared a desk. Some of the preschools

had old and poorly maintained furniture that was not clean. The inadequate and poorly maintained furniture posed a problem by snagging learners' clothes, making teaching and learning very difficult for both teachers and children. In such situation, children's learning is obstructed, leading to a development of negative attitudes towards school and learning.

The literature review highlighted how the lack of appropriate and suitable furniture was hindering children's development and education. A research conducted in Sri Lankan preschools had established that the desks and chairs used by children were in short supply and too high, thus hindering the achievement of learning outcomes (Scriven & Associates, 1975). A similar study conducted in Kenya revealed that the kind of furniture provided to preschool children influenced their physical development and academic achievement positively and negatively (Sang, 2013). This was because having appropriately sized desks and chairs correlated with children's interests to learn. The study further indicated that due to inadequate furniture, children in informal settlements were four times more likely to face physical, health and academic delays compared to those in urban and well-furnished schools.

Play space

Space is an essential environmental domain which directly affects safety and learning of children in school settings (Timmons, Naylor & Pfeiffer, 2007). The play space helps children use stored energy, socialize, and talk to each other, as well as do recreation activities which are essential for their growth and development. It also helps them learn that they are valued and appreciated by the school. Therefore, we determined the availability of space for children's play in selected preschools, and the results have been presented in Table 3.

TABLE 3. Availability of space for children's play

Space for Play	Frequency	Percentage
Available	23	42.6
Not Available	31	57.4
Total	54	100

As shown in Table 3, the majority of preschools in the informal settlements did not have space for children's play. After confirming this fact, it became impor-

tant to determine where children played. According to the teachers, the children played in open spaces in the community, church grounds, parking spaces and public school fields. In some instances, communal land was shared by several schools where children had to use the fields in turns for play. In rare cases, the children had to share the grounds owned by technical institutions. From the interviews with the teachers, it was very clear that the lack of space for play denied children opportunity to socialize, do recreation activities, use pent up energy and share experiences during co-curricular activities. Teachers also reported that the lack of space for play led to the development of bad behaviours among children, such as bullying.

These research findings concur with those reported by Mwoma, Begi and Murungi (2018) who found that poor infrastructure, lack of space for play and congested classrooms were some of the challenges that the preschools in the informal settlements were facing. Similarly, Opondi (2016) found that many preschools in the slums did not have play facilities and that children were not participating in play activities, which ultimately affected their education and development. The findings of this study are consistent with research conducted in the UK, which suggested that children exposed to adequate spaces in school were better able to explore and learn compared to their peers in more cramped conditions. Adequate space including classroom layout, child-teacher interaction and display of materials and play equipment were also associated with healthy physical development and increased learning outcomes among children (Timmons, Naylor, & Pfeiffer, 2007). Research carried out in Tanzania and South Africa also revealed that children felt unsafe while learning or playing in small spaces. The results further revealed that majority of children loved to play in closed and small space such as boxes, lean-tos and barrels, which they found more engaging, thus being conducive to creativity in their play and learning (Thapa et al., 2013). This underscores the significance of adequate space as a crucial component of a quality physical environment in preschools.

Toilets

Clean and well-maintained toilets form a basic sanitation facility in a school. Availability of adequate and clean sanitation facilities make children feel safe and secure about their learning. Therefore, we found it necessary to establish the condition of toilets in the preschools (see Table 4).

TABLE 4. Availability of adequate toilets for children

Response	Frequency	Percentage
Adequate	0	0
Not Adequate	54	100
Total	54	100

As it can be seen from Table 4, none of the schools had adequate toilets for children. The study findings, gathered through observation and interviews, indicated that the majority of the schools did not have separate toilets for girls and boys. The toilets were also poorly maintained due to lack of adequate funds for buying cleaning supplies. It was further revealed that some of the preschools without toilets were using community toilets, which not clean. The absence of adequate toilets, coupled with the lack of separate toilets for girls and boys, was a deterrent to children's development and education. This was because children who contracted contagious diseases from the toilets frequently missed school to seek medical attention.

These findings align with those of a study conducted in Indian preschools which revealed that majority of children lacked access to sanitation facilities and toilets (Chary, Narender, & Rao, 2003). This led to many children getting infected with contaminated water and facilities. As a result, most learners dropped out of school, while others suffered severe health consequences. Equally in Kenya, a study conducted by Dierkx (2003) revealed that most urban schools in Nairobi City County informal settlements did not have toilets. This contributed to increasing number of ailing children, drop-out rates, and declining academic performance alongside constant fatalities. Therefore, it is evident that the provision of quality sanitation in preschools was associated to increased academic outcomes and improved health on all aspects of development in children. Contrary to this, a lack of toilets or its inadequacy creates a fertile environment for diseases that directly hinder the development and education of young children.

Clean water

Preschools require clean and adequate water. This is because clean water forms an important component of a quality physical environment which influences children's development and education (Day and Sheehan, 1974). The presence of clean drinking water, play, and art activities enhance children's physical, emo-

tional, social, mental and academic development. Water and sanitation are also critical in creating a conducive school environment because it improves children's health, attendance, retention, performance and promotes their school transition (Republic of Kenya, 2011). Because the availability of clean water in preschools reduces waterborne and sanitation-related diseases such as cholera, diarrhoea, worm infestation and skin infections, it was important to find out whether clean water was available in the preschools (see Table 5).

TABLE 5. Availability of clean water

	Frequency	Percentage
Available	37	68.5
Not Available	17	31.5
Total	54	100

As shown in Table 5, about a third of the preschools did not have clean water for drinking. The main sources of water in preschools that did have water were: piped water, harvesting rain water during the rainy season and water bought from water vendors. The study also examined the methods of water storage, and the results revealed that some schools had water tanks and jerry-cans for water storage, while others lacked proper equipment for storing water. Furthermore, it was determined that most of the preschools sourced their water from taps located outside the school premises, which were provided by the Nairobi Water Company and Sewerage. It was also noted that in some preschools, young children accompanied caregivers to fetch water in the community water taps located outside school compound, which was not ideal for preschool-aged children.

The reviewed literature points out that clean water promotes health in children, which later makes them concentrate on learning activities. However, the results obtained present a different situation where children seem to be at risk of diarrhoea because the water from boreholes outside school compound was not treated. Similarly, in Ethiopia and Tanzania, Scriven and Associates (1975) discovered that among 24 preschools and day care centres that had designated water points, there were fewer reported cases of ill children. Likewise, in Kenya, Sang (2013) had found that preschool children with clean water demonstrated higher attention span compared to those from schools without clean water. Equally, Timmons, Naylor and Pfeiffer (2007) conducted a study in California schools

of children aged 3 to 5 years, and found that children who were actively engaged in water activities demonstrated high academic abilities in classroom assessment tests. Therefore, it is apparent that the provision of clean water in preschools was related to increased academic outcomes and improved health of children. The lack of clean water creates a fertile environment for diseases which hinder children's development and education.

Hand-washing stations

Hand-washing stations are vital components for a quality physical environment because they help children learn about hygiene. It was thus important to determine the adequacy of hand-washing stations in the preschools (see Table 6).

TABLE 6. Availability of adequate hand-washing stations

Response	Frequency	Percentage
Available	28	51.9
Not Available	26	48.1
Total	54	100

The results show that about forty eight percent of the preschools did not have adequate hand-washing stations. It was observed that majority of the preschools had between one to two hand-washing facilities. Teachers also stated that hand-washing stations were not enough for the number of children in schools. Owing to the importance of these facilities, most of preschool managers admitted that they were not able to provide enough hand-washing stations due to financial constraints. Similarly, there was a shortage of soap for hand washing in the preschools, which deprived children of the opportunity to learn how to maintain hygiene. Hand washing is essential as it allows children to practice good hygiene and fosters an interest in creative activities that involve using water to clean their hands. It was also revealed that the absence of water and hand-washing stations hinders teachers from planning creative activities to develop children's motor skills, promote outdoor play activities, and establish a school culture where every learner washes their hands after play or using the toilet.

The findings from this study have been supported by those from other countries. For instance, research conducted in Bangladesh peri-urban schools revealed that

diarrhoea was common in schools without clean water and hand-washing facilities. The study further indicated that an introduction of a soap and hand-washing station in the schools resulted in 47-73% decline in 5 to 9 year old children who were prone to pathogen diseases (Shahid et al., 1996). In Kenya, while the effort to provide water and sanitation systems has been acknowledged by many studies, some gaps still prevail. It was further revealed that hand-washing containers provided best hygienic practices for young children in schools (Saboori et al., 2011). However, during the visit to the preschools, it was observed that there was lack of clean water and adequate hand-washing stations. Therefore, it is evident that providing hand-washing stations enhances children’s development and education. The studies also highlight the rationale of providing soaps to each of the hand-washing stations to reduce the spread of diseases and cultivate healthy hygiene habits among children.

Fence with a gate

Preschools with fences and lockable gates have the capacity to shield children from potential dangers, hazardous situations, and interactions with strangers. Fencing the school compound is essential in guaranteeing that children do not leave the school premises without the knowledge of their caregivers. It also serves as a deterrent against unauthorized entry by strangers. This study aimed to ascertain whether preschools in informal settlements were fenced and had lockable gates, and the results are presented in Table 7.

TABLE 7. School compound fenced and with a gate

	Fenced		Lockable Gate	
	Freq.	%	Freq.	%
Yes	36	66.7	39	72.2
No.	18	33.3	15	27.8
Total	54	100	54	100

As it can be seen from Table 7, 66.7% of the preschools had their compounds fenced while the remaining 33.3% did not. Of the fenced preschools, 72.2% had lockable gates while 27.8% did not have lockable gates. It was observed that schools without proper fences used improvised poles erected around the compound to serve the purpose of a fence and a gate. Additionally, some the schools with fences lacked lockable gates and security personnel to manage the gates,

which ultimately compromised security of children. The interviews with caregivers in preschools without fences and gates had revealed that sometimes children played beyond the school compound, exposing them to potential accidents involving animals, strangers, and road users. This situation also led children to develop fear and negative attitudes towards learning and school. Moreover, the children were hesitant to participate in outdoor activities, which in turn hindered their development of motor skills.

The findings are consistent with those from a study done in Taiwan, which involved 393 elementary schools that benefited from a government project to fence schools following an earthquake (Huang, 2012). However, the effort did not change the situation because children were still facing safety fears due to lack of gates. The learners were also affected emotionally, mentally and academically. Similarly, in Kenya, in Nairobi City County, a majority of preschools in informal settlements lacked fences and lockable gates. The situation contributed to an increase in child abuse and child trafficking within the county, thus negatively impacting the emotional, social and academic development of children (Dierkx, 2003). Additionally, it led to a pervasive sense of insecurity among children and an increased rate of school dropouts. These results are also similar to those found by Begi and Yattani (2020), who found that several safety and security challenges were preventing parents from enrolling their children in preschools in Arid and Semi-arid Lands (ASAL) in Kenya. The challenges included travelling long distances from home to school, harsh weather, rugged terrain, salty water and ethnic conflicts which hindered children's development and education. It is therefore important to note that fencing school compound ensures children's safety and security as it protects them from danger, hazard scenes and strangers.

CONCLUSION AND RECOMMENDATIONS

The results indicate that many preschools in the informal settlements lack classrooms with adequate ventilation, lighting and furniture which conform to policy standard guidelines. This situation poses a threat to children's development and education. Prevalence of inadequate space for play, lack of fence and lockable gates in many of the preschools exposes children to accidents, fear of their safety and anxiety disorders. This type of school environment is associated with adverse academic effects, including poor attention spans, diminished achievements and

higher rates of school dropouts. The findings regarding inadequate toilet facilities, the absence of clean water, and insufficient hand-washing stations in the majority of preschools have significant repercussions on children's health, physical development and learning. Therefore, there is a need for stakeholders to collaborate with preschool managers to improve the quality of physical environment in order to meet the standards provided in policy guidelines, which is in turn essential for children's development and education.

The recommendations for key stakeholders include:

(i) Parents

The results have indicated that many preschools in the informal settlements lack clean water and adequate furniture that conform to the Early Child Development and Education policy standard guidelines. This situation poses a threat to children's development and education. Parents should actively support the preschool management in providing clean water for their children. They should also seek collaboration with other stakeholders to provide clean water points and furniture to facilitate children's development and education.

(ii) Management of preschools

The inadequate space for play and the absence of fences and lockable gates in some of the preschools exposed children to accidents, fear, low self-esteem, and anxiety disorders. The consequences of this kind of school environment include poor attention spans, lower learning outcomes, and increased school dropouts. Preschool management should work in cooperation with other stakeholders to construct fences with lockable gates, thereby safeguarding children from external dangers.

(iii) Non-governmental organizations (NGOs)

The results reveal limited space, a shortage of toilets and hand-washing stations, along with the lack of clean water in the majority of preschools. These factors have a detrimental impact on children's health, physical development and learning. Therefore, NGOs should offer financial, material and technical support inform, such as providing play equipment, chlorinated water and replacing broken hand-washing stations with new ones. Additionally, the option of leasing available land would also be beneficial in providing space for children to play and learn.

REFERENCES

- ÄNGGÅRD, E. (2010). Making use of “nature” in an outdoor preschool: classroom, home and fairyland. *Children, Youth and Environments*, 20(1), 4-25. Retrieved from <http://www.jstor.org/stable/10.7721/chilyoutenvi.20.1.0004/>
- BEGI, N. and YATTANI, B. D. (2020). Safety and Security Challenges Preventing Parents from Enrolling Children in Early Years School in Difficult Circumstances. A closer look at safety and security, Nova.
- BELL, J. (2010). *Doing your research project: A guide for first-time researchers in education and social science*. 3rd ed. Buckingham: Open University Press. Retrieved from <https://handoutset.com/wp-content/uploads/2022/07/Doing-Your-Research-Project-Judith-Bell.pdf>
- BRONFENBRENNER, U. (1970). Two worlds of childhood: U.S. and U.S.S.R. New York: Russell Sage. Retrieved from https://www.russellsage.org/sites/default/files/Bronfenbrenner%26Condry_Two%20Worlds_0.pdf
- BROFFENBRENNER, U., and MORRIS, P.A. (2006). The bioecological model of human development. (In *handbook of child psychology vol 1*) Hoboken N.J: Wiley & sons.
- CHARY, V., NARENDER, A., and RAO, K. (2003). Pay-and-use toilets in India. *Waterlines*, 21(3), 12-14. Retrieved from <http://www.jstor.org/stable/246846588>.
- CRESWELL, J., W. (2012). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). London: SAGE Publications.
- DAY, D., & SHEEHAN, R. (1974). Elements of a better preschool. *Young Children*, 30(1), 15-23. Retrieved from <http://www.jstor.org/stable/42657893>
- DIERKX, R. (2003). Toward community-based architectural programming and development of inclusive learning environments in Nairobi's slums. *Children, Youth and Environments*, 13(1), 56-73. Retrieved from <http://www.jstor.org/stable/10.7721/chilyoutenvi.13.1.0056>
- DILLARD, C. (2009). I Am Because We Are: Increasing Educational Opportunity for Early Childhood Education in Ghana, West Africa. *Race/Ethnicity: Multi-disciplinary Global Contexts*, 2(2), 243-257. Retrieved from <http://www.jstor.org/stable/25595014>.
- ENGLE, W. (1942). School lighting. *Review of Educational Research*, 12(2), 211-220. Retrieved from <http://www.jstor.org/stable/11686233>.
- GILBERT, S., and GAY, G. (1985). Improving the success in school of poor black children. *The Phi Delta Kappan*, 67(2), 133-137. Retrieved from <http://www>.

- jstor.org/stable/20387557.
- GRUSEC, J. and HASTINGS, P. (2015). *Handbook of socialization: theory and research*. New York: The Guilford Press.
- HUANG, S. (2012). A study of the perception of elementary school fences in urban areas. *Journal of Architectural and Planning Research*, 29(2), 149-168. Retrieved from <http://www.jstor.org/stable/430309677>.
- MANSOUR G, OYAYA C, OWOR M. (2017). Situation analysis of the urban sanitation sector in Kenya. Urban Sanit Res Initiat Ghana. Retrieved from <http://www.wsup.com/resource/situation-analysis-of-the-urban-sanitation-sector-in-bangladesh/?platform=hootsuite>.
- Nairobi City County (2014). Taskforce on the improvement of performance of public primary schools and transition rate from primary to secondary education in the Nairobi City County. The taskforce report for the education sector of Nairobi City County, Kenya. Unpublished report. Retrieved from <https://www.scribd.com/doc/237192240/NAIROBI-CITY-COUNTY-TASK-FORCE-ON-EDUCATION-REPORT>.
- MWOMA, T., BEGI, N. and MURUNGI, C. (2018). Safety and security in pre-schools: A challenge in informal settlements. *Issues in Educational Research*, 28(3), 720-736. Retrieved from <http://www.iier.org.au/iier28/mwoma.pdf>.
- OPONDI, L. A. (2016). Impact of outdoor activities on pre-school children's physical skill development in Langata Sub County, Nairobi County, Kenya. Unpublished project report, University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/11295/100252/Akoth%20Lilian_Impact%20of%20Outdoor%20Activities%20on%20Pre-school%20Children%e2%80%99s%20Physical%20Skill%20Development%20in%20Langata%20Sub%20County%2c%20Nairobi%20County%2c%20Kenya.pdf;sequence=1&isAllowed=y
- Republic of Kenya (2006). Early Childhood Development Service Standard Service Guidelines for Kenya. Retrieved from http://guidelines.health.go.ke:8000/media/KENYA_ECD_SERVICE_STANDARD_GUIDELINES__June_2006_FINAL.pdf
- Republic of Kenya (2006). National Early childhood development policy framework for Kenya. Retrieved from <https://planipolis.iiep.unesco.org/sites/default/files/ressources/kenyaecdpolicyframework.pdf>
- Republic of Kenya (2010). Laws of Kenya: The Constitution of Kenya. National Council for Law. Retrieved from <http://kenyalaw.org/lex/actview.xml?actid=->

Const2010

- Republic of Kenya, (2011). National school health strategy implementation plan 2011-2015. Ministry of Health and Sanitation and Ministry of Education. Retrieved from <https://healtheducationresources.unesco.org/library/documents/national-school-health-strategy-implementation-plan-2011-20155>.
- Republic of Kenya (2013). Basic Education Act. Nairobi: Government Printers. Retrieved from http://www.parliament.go.ke/sites/default/files/2017-05/BasicEducationActNo_14of2013.pdf
- Republic of Kenya (2015). Registration guidelines for Alternative Provision of Basic Education and Training. State Department of Education. Retrieved from https://mtaaniinsight.files.wordpress.com/2017/06/alternative_provision_of_basic_education_and_training_apbet_option_2_cover.pdf
- RYAN, J. (2006). A Constitutional Right to Preschool? *California Law Review*, 94(1), 49-99. doi:10.2307/20439027. Retrieved from <https://www.jstor.org/stable/20439027>
- SABOORI, S., MWAKI, A., PORTER, S., OKECH, B., FREEMAN, M., and RHEINGANS, R. (2011). Sustaining school hand washing and water treatment programmes: Lessons learned and to be learned. *Waterlines*, 30(4), 298-311. Retrieved from <http://www.jstor.org/stable/24686670>.
- SANG, C. J. (2013). Effect of classroom environment on academic performance in mathematics of preschool children. Pioneer Zone, Uasin Gishu County. Kenya. Unpublished Thesis, University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/11295/52362/Sang_Effect%20Of%20Classroom%20Environment%20On%20Academic%20Performance%20In%20Mathematics%20Of%20Preschool%20Children%20In%20Pioneer%20Zone%2C%20Uasin%20Gishu%20County%2C%20Kenya.pdf?sequence=3&isAllowed=y
- SCHNEIDER, W., and HELMKE, A. (1986). The Role of Classroom Differences in Achievement Changes. *European Journal of Psychology of Education*, 1(3), 81-91. Retrieved from <http://www.jstor.org/stable/23422016>.
- Scriven and Associates (1975). School furniture development. An evaluation. UNESCO. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000015000>
- SHAHID, N., GREENOUGH, W., SAMADI, A., HUQ, M., & RAHMAN, N. (1996). Hand washing with soap reduces diarrhoea and spread of bacterial pathogens in a Bangladesh village. *Journal of Diarrhoeal Diseases Research*, 14(2), 85-89. Retrieved from <http://www.jstor.org/stable/23498442>.

- SOMERSET, A. (2009). Universalizing primary education in Kenya: The elusive goal. *Comparative Education*, 45(2), 233-250. Retrieved from <http://www.jstor.org/stable/40593170/>
- THAPA, A., COHEN, J., GUFFEY, S., & HIGGINS-D' ALESSANDRO, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357-385. Retrieved from <http://www.jstor.org/stable/24434163>.
- TIMMONS, B., NAYLOR, P., and PFEIFFER, K. (2007). Physical activity for pre-school children — how much and how? *Canadian Journal of Public Health / Revue Canadienne De Santé Publique*, 98, S122-S134. Retrieved from <http://www.jstor.org/stable/41994849>.
- WELSH, W. (2000). The effects of school climate on school disorder. *The Annals of the American Academy of Political and Social Science*, 567, 88-107. Retrieved from <http://www.jstor.org/stable/1049496>

KVALITETA FIZIČKOG OKOLIŠA U PREDŠKOLAMA U NEFORMALNIM NASELJIMA OKRUGA NAIROBI U KENIJI: POSLJEDICE ZA RAZVOJ I OBRAZOVANJE DJECE

SAŽETAK

Kvaliteta fizičkog okoliša u školama za djecu mlađe dobi pogoduje njihovom razvoju i obrazovanju. Omogućava im da se osjećaju sigurno i ugodno, doprinosi boljoj koncentraciji, manjem broju izostanaka i boljem zdravlju djece. Kenijskim Zakonom o osnovnom obrazovanju iz 2013. i Smjernicama za utvrđivanje standarda u razvoju djece u ranom djetinjstvu iz 2006. propisano je da obrazovne institucije trebaju imati prikladne sadržaje za djecu u ranom djetinjstvu. Nadalje se navodi da sadržaji namijenjeni provedbi programa za djecu u ranom djetinjstvu moraju zadovoljiti kriterije primjernosti, trajnosti, sigurnosti i praktičnosti kako bi stimulirali razvoj i obrazovanje djece. Međutim, iako su ti propisi utvrđeni različitim aktima, nisu do kraja provedeni u predškolama u neformalnim naseljima. U ovom radu predstavljani su rezultati istraživanja provedenog među predškolama u neformalnim naseljima na području Grada Nairobija u Keniji. Te predškole nude alternativnu skrb i obrazovanje djeci kojima javne predškole nisu dostupne, čime se upotpunjuju mjere koje lokalne vlasti poduzimaju u svrhu obrazovanje djece u ranom djetinjstvu. Cilj istraživanja bio je utvrditi kvalitetu fizičkog okoliša u predškolama u neformalnim naseljima i definirati posljedice za razvoj i obrazovanje djece. To je kvantitativno istraživanje provedeno u 54 predškole. Provedeni su intervjui s upraviteljima predškola, kao i promatranje fizičkih sadržaja u školama. Primijenjene su kvalitativne i kvantitativne metode u analizi podataka, a rezultati su pokazali da kvaliteta fizičkog okoliša u većini predškola ne pogoduje razvoju i obrazovanju djece zbog manjkavosti prostora i sadržaja. Dioncima je preporučeno da surađuju s upravom predškola kako bi unaprijedili kvalitetu fizičkog okoliša s ciljem poticanja dječjeg razvoja i obrazovanja.

KLJUČNE RIJEČI:

kvaliteta fizičkog okoliša, predškole, Nairobi, Kenija, razvoj i obrazovanje djece