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Relevance of Teaching and Learning Infrastructure in Special Needs Education (SNE) Schools in Kenya: Exploratory Audit in Siaya County

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Abstract: ***This paper is based on a study that explored the appropriateness of infrastructure in SNE schools in Siaya county Kenya. Appropriate infrastructure in SNE schools contributes to conducive teaching and learning environment and for the general comfort of the learners. Appropriate infrastructure also ensures that learners are able to access and meaningfully manipulate facilities as required in relation to the type and severity of the disabilities. These include the buildings, and other facilities used, e.g. classrooms, dormitories, dining hall, furniture, beds and other equipment used by SNE learners. These facilitate learners with disabilities to achieve both academically and socially. Ultimately, enabling these learners to achieve greater independence, confidence, self-esteem and greater participation and social inclusion. However, this study found out that most SNE schools were not equipped to handle children with disabilities. In most cases, their infrastructure was not only inappropriate but also inadequate for teaching and learning.***

Keywords: Appropriate Infrastructure, Teaching, Learning, Siaya County, SNE, Disabilities, Social Inclusion

1. Introduction

The right to education has been globally acknowledged as an overarching right. Article 26 of the Universal Declaration of Human Rights decrees education as an inalienable human right (UN, 1948) upon which depends the realization of other rights. The World Conference on Education for All (EFA) also referred to as the Jomtien Declaration provides that basic education should be accessible to all. Specifically, the declaration stated that the needs of children with disabilities demand special attention and appropriate strategies need to be taken to ensure equal access to education to every category of persons with disabilities as an integral part of the education system (UNESCO, 1990). The Salamanca Statement (UNESCO, 1994) endorsed an inclusive approach to education. The guiding principle of the statement was that regular public schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. All these imply that schools have to have appropriate infrastructure for provision of equal access to education for every category of special needs learners.

According to Rasa (2021) the 2019 census put the population of Kenya at about 48 million (Kenya National Bureau of Statistics). This translated to about 7.2 million persons with disabilities (based on the 15% World Health Organization [WHO] estimate of the population of people with disabilities in any society). He further states that he National Special Needs Education Survey 2014 showed that of the 19 million youth below age 21, about 1.9 million (10%) had a disability, 60% of them lived in the rural areas, while 40% lived in the urban areas. Undeniably, the Kenya government has portrayed commitment in terms of ratification of international treaties and conventions. Undoubtedly, considerable efforts have been made in the provision of policy and legal frameworks for the education of children with disabilities. Specific laws on access to education by children with disabilities include the Children Act of 2001 which domesticates article 28 of the Convention on the Rights of the Child (UN, 1989). The Act provides that every child shall be entitled to compulsory free basic education (GoK, 2002). The same is echoed in article 18 of the Persons with Disabilities Act (GoK, 2003) and the Basic Education Act of 2013 (GoK, 2013). Both laws underscore the right to access education by persons with disabilities.

The right to education is also explicitly provided for in Article 53(b) of the Kenya Constitution 2010 which guarantees the right to free and compulsory basic education for every child. Article 54 of the Constitution particularly targets persons with disabilities and provides that persons with disability have a right to access educational institutions and facilities that are integrated into society to the extent compatible with their interests and needs (GOK, 2010).

The SNE policy is a notable endeavour by the Kenya government to domesticate the Salamanca Statement that urged all governments "to give the highest policy and budgetary priority to improve education services so that all children could be included regardless of differences or difficulties" (UNESCO, 1994). However, in the SNE policy of 2009 there is no provision for adequate systems and facilities that respond to the challenges faced by children with disabilities. If indeed as a society we are to adhere to the global conventions that Kenya has ratified, and the constitution, it is essential that appropriate infrastructure has to be put in place for provision of good education to leaners with special needs.,

This study therefore was designed as an audit study to explore the infrastructure available in SNE schools and how

appropriate it was for provision of conducive teaching and learning environment and for the general comfort of the learners. School infrastructure is a key base for learning in schools. In this study School infrastructure was categorized into two: Academic infrastructure which included classrooms, laboratories for the science practical, computer labs, and social amenities that make learners comfortable for learning. These included the halls and open fields for games, games equipment, dormitories, sanitation facilities and others.

2. Methodology

This paper is derived from an action research study that was carried out in Siaya county The focus of this paper is from the reconnaissance stage of action research that explored and audited infrastructure in selected SNE schools. Siaya County has 45 Special Needs schools and units. For Infrastructure audit, 9 schools were purposively sampled to represent the different disabilities: Visual Impairment (VI); Hearing Impairment (HI); Intellectual Disability (ID) including autism/ ID, and Physical Handicap (PH) These schools were purposively sampled so as to include all types of disabilities in two different sub-counties in Siaya county. However, there are more special schools in Bondo sub-county that in any other sub county n Siaya county, the reason for more schools selected in Bondo sub county. The schools are as indicated in the table 1 below:

Table 1: Sampled SNE schools

Disability Category	Schools	Sub-County
VI	School A	Gem
ID/Autism	School B SchoolC School E	Gem Bondo Bondp
PH	School D	Bondo
HI	School F	Bondo

It should be noted that Bondoc sub county has more SNE schools in Siaya county. This is the reason why there are more sampled schools in Bondo than Gem sub county

Observation tools were used for data collection. One tool was for infrastructure audit (Table 2) and another for classroom environment (Table 3) as indicated below.

Table 2: Infrastructure checklist
Institution…… Audit Date……
Categories of Disabilities
VI HI PH Autism/ Intellectual Disability ID)

SN	Facility (ies)	Availability	Condition
1.	Rumps/lift		
2.	Adapted toilets		
3.	Reserved parking areas		
4.	Wheel chairs		
5.	Walking frames		
6.	Adapted beds		
7.	Adapted vehicles (school bus)		
8.	Adapted playing fields		
9.	Health facilities (sick Bay)		
10.	White canes		
11.	Other adapted physical environment		

Table 3: Classroom Environment Observation checklist
Institution……
Audit Date……..
Categories of Disabilities
VI HI PH Autism/ Intellectual Disability ID)

SN	Facility	Availability	Condition
1.	Braille		
2.	Support system (e.g. sign Language interpreter		
3.	Talking computers		
4.	Picture exchange communication system (for autistic children)		
5.	Adaptive teaching and learning resources		
6.	Adaptive software programmes		
7.	Any other (specify)		

3. Findings

The findings are presented according to observations and interviews which were conducted to clarify certain issues that arose during observations. (seeking for clarification) with teachers in the schools.

School A (for VI)
This is fairly an old school managed by the Catholic Church. The entrance to the classrooms and to the administration block have rumps. However, these need some smoothening since they are rough sue to chipping over time. When asked about this issue, one f the teachers said that they are aware that these are not appropriate for VI leaners, but they will be smoothened when finds became available. It was also realized that some of classrooms, especially the old ones still had steps, which are not suitable for VI learners. Nevertheless, the path to the administration block was well paved and smooth, - which was very appropriate for the VI learners/persons. There were walking rails at the entrance of the kitchen store food store. When we asked why these are not at every enterace to all rooms, one teacher said that "…they are dangerous for the learners since learners play and slide on them, which is dangerous as they risk hurting themselves".

Academic Amenities
There are quite a number of facilities in school A to ensure that there is appropriate teaching and learning for the VI learners, and to ensure that these learners are optimally supported academically. These amenities are as discussed below.

a) **Classrooms:** In school A The newer classrooms are fairly accessible as they have smooth rumps, a ceiling and many windows- well-lit and aerated. The recommended maximum number of learners with VI is 15 learners. However most of the classrooms had less than this number. The maximum number was 14 each, with tables with cabinets. The classrooms were fairly well furnished. Apart from having learners' desks, there were teachers' tables and chairs. Since availing braille for each learner would be too expensive, and the ones available are not adequate for the learners, learners used stylus and slates.

b) **Exam office:** This school has an exam office that deals with setting of exams, with an exam coordinator. All exams are set in braille. This is done by teachers. Braille exam can be recycled for a number of years before it wears out. However, it was revealed by the exam coordinator that the materials used with braille machines are very expensive. For example, a ream of Braillons costs from KSh.8, 000 to 10,000. It was interesting to note that there was a tracing wheel for drawing diagrams in braille.
c) **Braille Library**: There were no rumps to the library, though the door step was not very high. Books and other materials, it seemed, were not arranged in an any order. They appeared so haphazard -seemed to have been just thrown about on the shelves. There was also furniture of two tables and two chairs. There were of-course Braille machines for brailing exams which appeared to be adequate for designated work.
d) **Computer lab:** The school has a computer lab with 30 lap tops with voice over screen readers' software (talking computers), and 40 IPads with non-vision desk top access. It was clarified by the IT personnel that all learners had access to computers for use and the computers available were adequate and well maintained as they were all in good condition. There were 30 computers in number.

Social Amenities

School A has amenities to ensure that learners are comfortable as discussed below.

a) **Dining hall**: The dining hall had several tables and benches, but there was no indication of adapting them for the VI learners. There were two rooms serving as dining rooms. One for small children and another for the bigger ones. The one for smaller children had lower tables and benches. Though the kitchen had stairs, learners were not allowed to access it.
b) **Dormitories**: Dormitories were allocated to the learners according to their ages and were categorized as follows: big boys from ages 14-20 and the younger boys of ages 9-13. The younger boys' dormitory had a house parent to take care and guide them in the dormitory. At the time of the study, it was noticed that the dormitories were fairly clean and organized, and the beds, though they were double decker (bunkers), they were well spaced. The paths to the dormitories are fairly well paved though they could be made smoother. The beds are double decker. There is no indication of adaptation for older children but for youngest and middle age levels. In these dormitories, there is a section for keeping their metal boxes. For safety purposes
c) **Bathrooms:** The old bathrooms still had steps at the entrance. The path leading to them was not very well paved, hence rough and uneven. The number of bathrooms seemed adequate for the number o learners in the school
d) **Toilets (Pit latrines):** The older boys and girls and the younger boys and girls had separate latrines. Toilets were adapted according to gender and age. The latrines were not adapted for use for VI learners since they were just lie any other common latrine. However, they small steps at the holes. We were not sure whether this was a form of adaptation for VI earners.
e) **Sick Bay**: These are two sick bays for boys and girls. 10 beds in the girls' sickbay and 11 beds in the boys' sickbay. The rooms were kept very clean and unlike he dormitories, the beds have mosquito nets. There is a "nurse" in-charge of the sick bay who administers daily drugs required by some of the children for example, Epilepsy and HIV drugs. It was learnt that the nurse is not professionally trained.

Other amenities included

- **Child Desk Room** which was for the newly admitted children who had developed VI later in life. It was said to be a foundation class where learners were taught learning skills like braille, and life skills e.g. brushing teeth. There were two girls in this class. One of the m became blind in class 6, at 12 years' old.
- **White canes** were available but teachers said that these were not very popular with learners. Once they mastered the environment, they did see not see the need for white canes. It was stated by the teachers that when they are given the white canes, some loose them and use them as weapons to beat others. White canes were seen heaped and kept in the low vision resource Centre.

School B- Special Unit (Intellectual Disability (ID)/Autism)

The unit was started in 2010, in a public primary school. It is therefore what is known as an integrated school. There were 17 learners with diverse disabilities, - 9 boys and 8 girls. Three (3) were PH, one (1) was with multiple disabilities and one (1) had muscular dystrophy. Because the classroom was inaccessible, the child with MD is usually carried to the classroom.

Academic Amenities

Classroom:

All the learners were in one classroom some of the classroom though some of the classrooms mostly for regular learners had rumps, though very uneven. and not safe for learners with certain disabilities if they were t use the,. Surprisingly the classroom for the SNE leaners did not have any. This classroom was very inaccessible-First of all it was hidden behind the other classrooms, and had no rump. In fact, it was impossible to access it, especially by PH learners. The classroom had power, but the he space was inadequate for all the 17 learners with poor aeration for the 17 learners with diverse disabilities. There no were indications of good and adequate learning/support aids such as computers. The teachers claimed that they instead used personal phones.

A few of the resources observed had been adapted. For example, there were different colours of beads for learning colours. There were also sand and different sizes of stones for learning about texture.

Social Amenities

Being an integrated school, the playing fields were available for the regular leaners. There was no indication of adaptation for use for the special needs leaners, or learners with disabilities.

a) **Toilets:** There were pit latrines meant for use of all leaners including the ones with special needs and disabilities.

b) **Sick Bay**-There was no health care facility, but the head teacher said that chronic conditions like epilepsy were managed and at certain times the learners were taken to nearest medical centre.

School C: Special Unit for ID/Autism

This unit was hosted in a public primary school. The building hosting the special unit was comparatively the worst in the whole compound.

Academic facilities

There were three classrooms whose walls and roof were made of corrugated iron sheets (see picture 1 below). It was therefore very hot for the learners especially in the afternoons as one teacher put it. The unit had three teachers and a total of 37 learners. 31 were regular attendees while 6 were irregular.

Picture 1: The building hosting the special needs unit

The learners were categorized according to ages and abilities, which included, ID/Autism, PH and some children had multiple disabilities. There was a foundation class for beginners, learners without speech and autistic children. These learners were taught daily living activities and they moved to the next class, if they showed signs of independence. Eventually some of them were integrated into the main school.

There was also a pre-vocational class, which was a makeshift located between two classrooms- space between the two classrooms (see picture 2 below). There were no facilities of any kind for this class whatsoever. Teachers said that they were teaching weaving, leather work and cookery, but they had to buy the materials themselves. But at the time of audit, these materials were not observed.

Picture 2: The narrow section in between classrooms served as the vocational classroom

Classrooms

The furniture (chairs and tables) in the classrooms were not adapted (see pictures 3 and 4 below) and this would affect the learners with such disabilities that require adaptation.

Picture 3: Inside one of the Foundation classroom showing the backboard and part of the furniture

Picture 4: Furniture in the classroom

The entrance doors to the classrooms did not meet the required threshold of at least one meter plus (1M+). This denied any learner with physical disability i.e. a wheel chair entry to these classrooms.

Social Amenities

Toilets- The pit latrines in the school were not adapted and were not good for use by persons with disabilities of any kind, see the photo below;

Entrance to the pit latrines and inside the latrines cubicle

School D for PH

This was an integrated school, with the PH learners boarding in the school, but had their own compound which was known as home. The home is run by the catholic sisters. The home had a total of 48 PH learners- 23 boys;25 girls, some of who were severely disabled. The compound at the boarding facility was uneven, and paths had not been paved. There were rumps to the buildings at the home- dormitories, dining hall. Classrooms had also rumps, but were very uneven and not smooth

Academic Amenities

Classrooms Environment

The classrooms were regular since this was an integrated school. There were regular desks with no adaptations or the regular learners. However, the classrooms that had the PH learners had special seats and desks designed for the PH learners. PH learners were made to sit at the front of the classrooms.

Social Amenities

a) **Toilets**: All toilets at the home had been adapted. The learners could sit on them and they had rails in some of the toilets for learners to hold on to.
b) **Wheel chairs**- wheel chairs were available; however, some were functional while others were broken, hence not functional.
c) **Playing ground**- Playing fields at the home had some good equipment- i.e. swings, slides and sea saw. However, there was no indication of adaptation on these facilities. But the makeshift football field had been crudely but innovatively adapted, having stones to represent goal posts and the field was much smaller
d) **Dormitories-** Beds had been adapted. They had rails on both sides to prevent children from falling off. Dormitories had house parents to ensure the children were protected and helped whenever it was necessary. There were rumps to dormitories but they were rough and uneven.
e) **Dining Hall**-It had adapted tables and high chairs with removable areas to place the food for ease of feeding and easy reach. Some of the tables were low for ease of reaching and sitting for these learners. Washing sinks were adapted. One of the sinks was place lower than the rest for easy reach for some of the learners.

School E (ID/Autism)
School E had children with autism. Right from the main entrance to the Office block (administration block), it was bare soil surface, no pavement that provided ease of access. However, from the Administration block to vocational classes, pavement was available though most of the path ways in the school were all earth surface. This of course posed mobility challenges to the visually impaired, physically impaired and other forms of disabilities that affect the mobility of a person.

Classroom Environment
It was observed that here were few resources for learners: Magnetic board for sensory stimulation; puzzles- for finger dexterity- learning how to pick and for developing both gross and find psychomotor skills; number work- for cognitive development; animal puzzles – coordination of all senses; rings- for colour identification; building blocks- for creativity; Sensory integrated board – for integration of all senses.

School F (HI)
This was a school for HI. The school has 49 students in total.

Academic Amenities
a) **Classroom:** Classes were available but mostly inaccessible. There were some rumps into some buildings but were not adequate enough for ease of access for children with Disabilities
b) **Teaching and Learning Resources**: there were no tangible resources that could be seen during the time of the audit. The school lacked some basic resources such as computers.

Social Amenities
a) **Sanitation facilities**: There was only one toilet (Pit latrine) which was not adapted for all the 49 students. There were also makeshift bathrooms used by the students in the school.
b) **Wheel chairs**: There were no paved pathways yet a number of students were on wheel chairs, which made access to buildings difficult.
c) **Playing fields**: the playground was not adapted to students with disabilities.
d) **Health facilities**: there was no sick bay in the school. For any sickness, students were taken to the Sub-County Hospital

4. Discussion

Appropriate infrastructure in special needs schools contributes to the type of education provided for the learners in these schools. If Kenya is indeed determined to provide quality education to its children and youth, and for them to reach their full potential, it should invest in the schools' infrastructure. Appropriate infrastructure for SNE schools is extremely critical is SNE leaners have access to quality education. The study found that infrastructure in schools was in most cases, wanting. It was not only grossly inadequate, but also inappropriate for provision of meaningful and quality education for these learners. Why is this the case? Is it lack of societal awareness that these children have a right to access education? (Elder, B., Damiani, M., & Oswago, (2016). Is it cultural perceptions about people with Disabilities (PWDs), (Bruce & Venkatesh, 2014; Elder, 2015). is it a manifestation of discrimination? There could be many contributory factors to this situation. Ressa (2021) in fact argues that "…school infrastructure investment excluded children with Disabilities." (P. 124), coupled with low funding from the government (Chomba, Mukuria, Kariuki, Tumuti, & Bunyasi,2014). In comparison, there has been more investment and commitment in education students without disabilities Ressa, 2021). This points to these schools being neglected and discriminated against in this area. And perhaps one can argue that children with special needs in Kenya are still "not given adequate attention with regard to their education" (Mwoma, 2017, p. 188).

In addition, Kiru, (2018) argues that students with disabilities in the rural areas (Siaya county is a rural county), face increased barriers mainly related to limited infrastructure…, which our study has confirms

The study found that there seemed to be awareness that buildings had to be appropriately adapted for accessibility. Further, as Rasa (2021) highlights, the Building Code of the Republic of Kenya (2009) has provisions on facilities, such as construction measures for ramps, handrails, wheelchair space, elevators, doors, etc. It was however not clear whether schools were aware of this code. For example, some of the doors did not meet the threshold of the width of one meter plus. Also if the rails that were claimed to be dangerous would not been if they had been constructed according to the specifications of the building code. In addition, though some schools had rumps at the entrance of classrooms and other service buildings, others had steps, forcing certain leaners to be carried to their classrooms. In most cases, the available rumps were not even and smooth for ease of use, resulting to these buildings being inaccessible to these learners. Ressa (2021argues that inaccessible buildings are a hindrance for these learners in accessing quality education.

The situation of the classrooms was found to be pathetic in certain instances. In integrated schools, the classrooms were the worst in terms of the type of building materials used, or just hidden somewhere behind other classrooms. In addition, having all learners of diverse needs lumped together in one class, one wonders how they are individually attended to, and what type of education they are receiving. Though Mwoma (2017) argues that "children with special needs in Kenya for many years were not given adequate attention with regard to their education: (p. 188), though there is a slight improvement of having schools for these children, situation has not change much. More attention should be given by the government investing more in special needs education for provision of meaningful education for these children.

Co –curricular activities for these children is an area that seemed to be completely neglected. Though playing fields were available in integrated schools there was no indication to show that they were adapted to suit learners with disabilities. Therefore, most likely these learners were excluded from these activities. Yet co-curricular activities can help improve their physical, emotional, and social wellbeing (Gilman, 2001; Sharma, Vaid & Jamwal, 2004).

However, there an argument that several factors may

lead to this: learners' mobility problems; teachers' misunderstanding about the benefit of co-curricular engagements and lack of interest among students with disabilities themselves to take part in non-academic works.

Sanitation facilities, (which were in most cases pit latrines) in all schools apart from one were not adapted for learners with special needs. For example, there were no rails in these latrines In one school there was only one pit latrine for all the 49 learners. In most cases, especially in the integrated schools' special needs learners and with disabilities were expected to use the same facilities as the regular children. Having pit latrines for VI learners was dangerous since they were not able to see where the hole was. In fact, most of them (in school A) were soiled during the time of our observation. These facilities, as Ressa (2021) described them in his study, were "pathetic".

5. Conclusion

Despite Kenya ratifying global conventions on upholding the rights of children, including provision of quality education to all children including those with special needs and/or disabilities, there seems to be some negligence and less investment in the area of appropriate infrastructure in special schools and units. The study found that most schools did not just have inappropriate infrastructure, but it was also inadequate. Most schools did not have adequate classrooms and resources for the diverse special needs of the learners. Most equipment and facilities were not adapted for use of these earners in and out of the classrooms. Due to these findings, one may be attempted to argue that provision of quality education to leaners with special needs and/or disabilities is still perhaps not being taken very seriously and is still neglected. What could be the reason be even after Kenya has included this in its 2010 constitution and the vision 2030? However, there could be many contributory factors to this situation that may need more research.

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