

EXTENT OF AVAILABILITY AND UTILIZATION OF WATER AND SANITATION MATERIALS IN PUBLIC PRIMARY SCHOOLS IN NSUKKA LOCAL GOVERNMENT EDUCATION AREA, ENUGU STATE

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Abstract

This study ascertains the extent of availability and utilization of water and sanitation in public primary schools in Nsukka Local Government Education Area, Enugu State, Nigeria. Six research questions were formulated to guide the study. The design of the study was descriptive survey. 380 respondents were selected from 10 public primary schools using simple random sampling technique. 35 item-questionnaires were used for data collection. The findings revealed that water, brooms, trash cans and hand washing basin are available sanitation materials in public primary school, while detergents and disinfectant, toilets, mops, towels or hand dryers, brushes and gloves, masks and aprons are sanitation materials that are not available in public primary school. Among others, the study equally revealed that the utilization of available sanitation materials in public primary schools is high to some extent such as the use of mops, toilets, hand washing basin, hand towels and hand dryers and trash cans. The inability of government to supply water and sanitation materials, school management not using the money meant for water and sanitation materials, lack of water reservoirs to harvest water during raining season, poor involvement of parents in provision of water and sanitation materials and lack of knowledge in the use of water and sanitation materials among school community members are all the challenges in providing water and sanitation materials in public primary schools. Possible solutions are that government supply of adequate water and sanitation materials, PTA should contribute to the water and sanitation materials needed in schools, regular maintenance and repair of water reservoirs, regular maintenance of cleaning materials and schools without water and sanitation materials should be called to order are solutions to the lack of water and sanitation materials in public primary schools. It was recommended, among others, that agencies in Health and Education sectors should assist public primary schools in the provision of water and sanitation materials.

Keywords: extent, availability, utilization, water, sanitation materials, Public primary schools.

Introduction

Education is a life-long process that begins with the birth of a child and ends with his or her death. It is so basic to nation-building that nations all over the world strive to make it available not only to a few that can afford it but indeed to all citizens. Hence, Sanni & Ogor (2014) stated that Nigeria has sought national development by using education to attain desired national objectives. According to Federal Republic of Nigeria in the National Policy on Education (FRN 2014), education is an instrument per excellent for effective national development. Thus it is a major parameter index for measuring social and economic progress and a vehicle through which a society transfers from one generation to the next its knowledge, culture and values.

This explains why access to education is no longer a privilege but right of every citizen irrespective of sex, religion, social class and ethnic group (Uzochi, 2018). The author further stated that appropriate knowledge, skills and attitudes at primary education level are vital for personal and national development.

Primary education is the cradle of the Nigerian educational system. This means that it is considered as an important level of education, which significantly contributes to success or failure of other levels of education. Primary education refers to the formal education provided to children aged 6 to 12years (FRN, 2014). It is the first level of basic education and it is considered essential for laying the foundation of a child's behaviors and adaptations in the society. Asadu (2014) postulated that it prepares the child for life outside the classroom and equips the child to cope with challenges of life. During the primary school years, pupils are introduced to personal hygiene such as brushing of teeth, washing hands, sweeping and cleaning of environments, among others. These hygiene practices are never possible without access to adequate water supply and sanitation materials.

Water is a fundamental need and a human right. It is vital for the dignity and health of all people. Provision of water for public utilities, commercial organizations, and community endeavour or by individuals is usually by a system of pumps and pipes (Amadi, Yakubu, Iro, Azuamah, Amadi, & Uka, 2023). The authors equally indicate that sources of water supply in primary schools in Nigeria are boreholes, wells, as well as hand dug wells, rain water harvesting and water tankers. However, in a situation where there is no source of water supply, pupils and teachers may fetch water from local streams and bring in their own water bottle for drinking water. Safe and adequate water supply and sanitation facilities in schools are pre-requisites to basic education for school children (Mooijman, 2012). Sufficient and wholesome water supply is the most essential and important prerequisite for the sustenance and maintenance of healthy living. Improvement in water supply brings about the corresponding improvement in the health of the public (Inah, Mgboji, Eko, Kalu, & Eja, 2020). Improvement in the health of the public is also achieved through sanitation and good hygiene practices.

Good hygiene practices can only be observed where there is proper knowledge and adherence to sanitation norms and values. These norms and values are washing of hands/other body parts, flushing of toilets and general cleanness of the environment of the school. Sanitation promotes hygiene and prevents contamination of diseases through adequate provision of safe water, sanitation facilities and good individual hygiene practices (Mooijman, 2012). Sanitation is a part of global development priority and sustainable development goal (FRN, 2014). Sanitation refers to the provision of facilities and services for the safe disposal of human urine and feces (WHO, 2018). In addition, the National Sanitation Foundation of USA views the word sanitation as a way of life that is expressed in the clean home, farm, business, neighborhoods and community (Park, 2011).

Sanitation can otherwise be poor, when there is inadequate provision of sanitation materials. According to Olukanni (2013), poor sanitation, water scarcity, inferior water quality and inappropriate hygiene behaviour are detrimental to the health of infants and young children and are major causes of mortality for children. Poor environmental sanitation practice has been strongly linked to high malaria transmission, morbidity and mortality rates especially in

low and middle income countries (Inah, Uwadiogwu, Eko & Inah, 2017). Due to poor access to sanitation practices, it may expose the children to various diseases. For example, Ejimogu, Okereke, Amadi and Amadi (2019) stated that improper sanitation has been a leading cause of diarrhea which is associated with malnutrition and stunted growth in children. To establish proper sanitation, there is need for safe sanitation materials and facilities (Agbo, Envuladu, Adah, & Zoakah, 2012).

There's no sanitation without sanitation materials. This means that materials are needed for proper hygiene and sanitation practices. Access to improved sanitation facilities and materials is a key to the pupil's wellbeing and sustainable development of any society (Abubakar, 2017). Sanitation materials and facility are materials which hygienically separate excreta from human contact, and are used by only members of one household: toilets flushing to sewer systems or septic tanks, ventilated improved pit (VIP) latrines, pit latrines with a slab, and composting toilets (United Nations International Children's Emergency Fund/World Health Organization UNICEF/WHO, 2015). Sanitation materials contextually are those tools or equipment used to maintain hygiene and hygiene practices. Sanitation materials include all sanitary facilities which are installed, built or provided for the basic purpose of facilitating the sanitary condition of a place which include toilets, urinals, hand wash, shower and bathrooms, body care and ancillary facilities, water supply facilities, refuse disposal facilities, cleaning facilities like mops, soap, broom, rake, among others (Momoh & Ajari, 2022). This study tries to ascertain if these sanitation materials are available and utilized in public primary schools in Nsukka Local Government Area of Enugu State.

Availability refers to the state or condition of being present, accessible and ready for use. It ascertains if the resources, facilities, or services referred to, are present and accessible for individuals or groups to utilize or benefit from (Ikogho and Igbudu, 2013). Thus, availability of water and sanitation materials in primary education can be seen as the presence of water or water supply, sanitation materials such as toilets, urinals, hand wash, shower and bathrooms, body care and ancillary facilities, water supply facilities, refuse disposal facilities, cleaning facilities like mops, soap, broom, rake, among others in primary schools (Ejimogu, Okereke, Amadi & Amadi, 2019). Water is very important in hygiene practices as well as sanitation. Poor availability of quality water, sanitation, and hygiene practices tremendously increase contagious diseases such as diarrhea. An ideal learning environment should have adequate water, sanitation and hygiene (WASH) facilities with functional and reliable water supply sufficient for all the school needs, especially for hand washing and drinking. It should have sufficient number of toilet facilities for pupils and teachers that are safe, clean, ensure privacy and gender segregated (United Nations Development Programme, 2006).

Toilets and sanitation facilities cater for one of the most basic human functions. Inadequate facilities, access and poor knowledge of urinary or bowel activities have wide implications for physical, emotional and psychological health. It affects all children badly especially those with disabilities or additional needs, children with bladder conditions or even children who are bullied (Burton, 2013). In some cases, lack of cleanliness or poor toilet hygiene and usage represents a specific risk of transmitting infections and diseases which can cause short term illness and absence from schools. In others, it contributes to conditions that persist beyond school and may be manifested in some serious forms in later life (Trinies, Garn, Ghang, & Foreman, 2016). Poor hygiene can cause girls in developing countries miss classes, especially

when they are menstruating, in order to ensure privacy in communal toilets. School pupils may seek privacy outside the school building and may encounter snakes or other dangers. Reluctance to use dirty, smelly or inappropriate facilities can lead to major short and long term health implications. Both boys and girls may respond by limiting their intake of water during the day to reduce the need to use toilet or suppress any physical urge, contributing to psychological problems in eliminating waste effectively (Burton, 2013). It could also be worst where there's lack of sanitation materials.

Poor sanitation condition is not just a global issue, Nigeria as a country is also affected. Nigeria has 12 million people without access to safe water and another 40 million people without access to improved sanitation than it had in 1990 (Inah, Mgboji, Eko, Kalu, & Eja, 2020). The authors maintained that Nearly 65 million of the estimated population of over 150 million people does not have access to safe water. They further stated that Over 100 million people have no access to improved sanitation like toilets, and a large population practice open defecation. It is not sufficient to provide communities with a supply of safe water and latrines. Hygiene promotion is crucial if people are to use facilities properly and avoid water and sanitation related diseases. By adopting basic hygienic practices like hand washing with soap which can reduce diarrheal diseases in children by as much as 44 per cent (UNICEF Nigeria, 2010). Better sanitation facilities and services reduce hygiene related diseases and help curb the 272 million school days missed each year due to these diseases (Joint Actions, 2010). It encourages the development of healthy behaviors for life (UNICEF Nigeria, 2010). The availability therefore is as important as its utilization and management.

Utilization and management of sanitation materials is essential as well as its availabilities. Utilization refers to the effective and meaningful use or application of resources, materials, services, or opportunities to achieve specific goals or purposes. The extent to which teachers and pupils utilize and manage the available sanitation materials is very important. According to Ikogho and Igbudu (2013), there are poor usage of available sanitation materials due to negligence or ignorance from the local authority, school manager, teachers and pupils. They also stated that sanitation and hygiene facilities in public primary schools were inadequate and the usage of the available ones is hindered by poor maintenance culture and lack of hand washing supplies. The availability and utilization of sanitation and hygiene facilities in public primary schools have become a source of concern among the stakeholders in education. Aremu (2013) observed that sanitation facilities need more attention because they are insufficient and poorly located, constructed or poorly maintained. Also, Obianagwa, Ifem, Uwaechia, Borlin, Ejiofor, Ereforokuma and Anene (2022) observed that poverty, dearth of sanitary facilities in schools and public places, as well as poor attitude to hygiene account for poor health of children living in Nsukka Local Government Education Area. Hence there seems to be a limited and poor utilization of water and sanitation materials among pupils in public schools.

Against this background, the researchers want to find out the extent of availability and utilization of water and sanitation materials such as toilets and water supply for pupils' health and well-being. Apart from providing adequate toilet and water supply, the availability of water and soap for proper hand washing helps to reduce diarrheal diseases and respiratory infections. There seem to be reduction in diarrhea cases and infection like pneumonia reducing child mortality rate in primary schools, where water and sanitation materials were

both available and utilized (Ejemot-Nwadiaro, Ehiri, Arikpo, Meremikwu, and Critchely, 2015). Thus this study aims to ascertain the extent of availability and utilization of water and sanitation materials in public primary schools in Nsukka Local Government Education Area. Specifically, the study sought to determine:

1. the types of sanitation materials available in public primary schools in Nsukka Local Government Education Area;
2. the extent of water provision in public primary schools in Nsukka Local Government Education Area;
3. the extent of the provision of other sanitation materials in public primary schools in Nsukka Local Government Education Area;
4. extent of the utilization of available sanitation materials in public primary schools in Nsukka Local Government Education Area;
5. constraints to the provision of water and sanitation materials in public primary schools in Nsukka Local Government Education Area;
6. solution to the lack of water and sanitation materials in public primary schools in Nsukka Local Government Education Area.

The researchers sought answers to the following questions that guided the study:

1. what are the types of sanitation materials available in public primary schools in Nsukka Local Government Education Area?
2. what is the extent of water provision in public primary schools in Nsukka Local Government Education Area?
3. what is the extent of the provision of other sanitation materials in public primary schools in Nsukka Local Government Education Area?
4. what is the extent of the utilization of available sanitation materials in public primary schools in Nsukka Local Government Education Area?
5. what are the constraints to the provision of water and sanitation materials in public primary schools in Nsukka Local Government Education Area?
6. what are the solutions to the lack of water and sanitation materials in public primary schools in Nsukka Local Government Education Area?

Methodology

In order to achieve the objectives of the study, descriptive survey research design was adopted. This is the most appropriate for this study since the independent variables of interest cannot be manipulated. According to Nworgu (2015) descriptive survey is the type of study that is concerned with describing events as they are, without any manipulation of what caused the event or what is being observed. The choice of accepting this design was because the design enabled the researchers to collect and analyze data which helped to find out things the way they are from the respondents as regards the extent of availability of water and sanitation materials in the primary schools.

The instrument for data collection for the study was structured questionnaire developed by the researchers. Questionnaire was used to elicit information on pupils' views on the availability of water and sanitation materials in the School. The questionnaire was divided into two sections. Section A contains the demographic data of the respondents while section B has 6 clusters. Following the level of pupils, the items were read and interpreted to them, after which they were asked to tick the options provided for them using a four-point (I)

Available (A) Not available (NA), Very high extent (VHE), High Extent (HE), Low extent (LE), Very low extent (VLE), Strongly agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD).

Data collection was by administering questionnaires to pupils. The questionnaires were distributed and collected by the researchers in the selected primary schools. The selected pupils were briefed on the purpose and objectives of the study. The pupils were given 30 minutes to complete the questionnaire. The instruments were retrieved on the spot to ensure 100% return rate. They were done with the help of three research assistants who were briefed on what to do.

Mean and standard deviation were used to analyze data and answer all the research questions. The criterion mean of 2.50 were used for decision rule. Responses with a mean rating of 2.50 and above were considered positive and accepted, while mean rating less than 2.50 were considered negative and rejected. This is to ascertain the extent of availability and utilization of water and sanitation materials in public primary schools in Nsukka Local Government Education Area.

Results

This section presents the results of the study based on the research questions.

Research Question One: What are the types of sanitation materials available in public primary schools in Nsukka Local Government Education Area?

Table 1: Mean and standard deviation analysis on the types of sanitation materials available in public primary schools

S.N.	Item statements	Mean	Std. Deviation	Decision
1	Water	2.53	1.50	Available
2	Detergents and disinfectant	2.15	1.46	Not Available
3	Toilets	2.43	1.50	Not Available
4	Mops	2.08	1.44	Not Available
5	Brooms	2.55	1.50	Available
6	Towels or hand dryers	1.95	1.40	Not Available
7	Trash cans	2.61	1.50	Available
8	Brushes and gloves	1.69	1.26	Not Available
9	Masks	1.47	1.09	Not Available
10	Aprons	2.16	1.46	Not Available
11	Hand washing basin	2.75	1.48	Available
Grand Mean		2.22	1.42	Not Available

The analysis of data in Table 1 shows the mean responses of the types of sanitation materials available in public primary schools. The total mean of 2.22 indicates that sanitation materials are not adequately available in public primary schools. This means that water, brooms, trash cans, among others, are available sanitation materials in public primary school, while detergents and disinfectant, toilets, mops, among others, are not available in public primary schools.

Research Question Two: What is the extent of water provision in public primary schools in Nsukka Local Government Education Area?

Table 2: Mean and standard deviation analysis on the extent of water provision in public primary schools

S/N.	Item statements	Mean	Std. Deviation	Decision
12	Water is adequately provided in the schools	2.19	1.29	Low Extent
13	Water is occasionally provided	2.32	1.34	Low Extent
14	Water is never provided by the schools	3.18	1.01	Very High Extent
15	Pupils trek far distance from school to fetch water for use in school	3.27	1.02	Very High Extent
Grand Mean		2.74	1.17	High Extent

The analysis in Table 2 shows the mean and standard deviation responses on the extent of water provision in public primary schools. The grand mean of this table is 2.74. From the analysis it can be deduced that water provision in public primary schools is low to some extent and also pupils in public primary school finds it difficult to access water to a very high extent.

Research Question Three: What is the extent of the provision of other sanitation materials in public primary schools in Nsukka Local Government Education Area?

Table 3: Mean and standard deviation analysis on the extent of the provision of other sanitation materials in public primary schools

S/N.	Item statements	Mean	Std. Deviation	Decision
16	Toilets are adequately provided in the schools	3.28	0.95	High Extent
17	Brooms are provided in the schools	3.24	1.02	High Extent
18	There are no towels or hand dryers in the schools	2.96	1.12	High Extent
19	There are enough hand washing stations in the schools	2.49	1.34	Low Extent
20	There are mops in the schools but they are very few	3.06	1.05	High Extent
Grand Mean		3.01	1.10	High Extent

The grand total of mean and standard deviations response represented in table 3 are 3.01 and 1.10 respectively. This shows that the provision of other sanitation materials in public primary schools is high to some extent. This means that toilets, brooms, towels or hand dryers, hand washing stations, mops are adequately provided in the schools to a high extent.

Research Question Four: What is the extent of the utilization of available sanitation materials in public primary schools in Nsukka Local Government Education Area?

Table 4: Mean and standard deviation analysis on the extent of the utilization of available sanitation materials in public primary schools

S/N.	Item statements	Mean	Std. Deviation	Decision
21	Mops are well utilized	2.76	1.19	High Extent
22	Toilets are not well utilized	3.33	1.12	High Extent
23	Hand washing basin is utilized	3.34	1.17	High Extent
24	Hand towels and hand dryers are never utilized	3.26	1.08	High Extent
25	Trash cans are partly utilized	3.47	0.93	High Extent
Grand Mean		3.23	1.10	High Extent

The grand total of mean and standard deviations response represented in table 4 are 3.23 and 1.10 respectively. This shows that the utilization of available sanitation materials in public primary schools is high to some extent such as the use of mops, toilets, hand washing basin, hand towels and hand dryers and trash cans.

Research Question Five: What are the constraints to the provision of water and sanitation materials in public primary schools in Nsukka Local Government Education Area?

Table 5: Mean and standard deviation analysis on the constraints to the provision of water and sanitation materials in public primary schools

S/N.	Item statements	Mean	Std. Deviation	Decision
26	Inability of government to supply water and sanitation materials	3.18	1.05	Agree
27	School managements use the money meant for water and sanitation materials for other purposes	3.40	0.93	Agree
28	Lack of water reservoirs to harvest water during raining season	3.33	0.98	Agree
29	Parents are poorly involved in provision of water and sanitation materials	3.27	1.11	Agree
30	Knowledge of the use of water and sanitation materials is lacking among school community members	3.30	1.03	Agree
Grand Mean		3.30	1.02	Agree

The grand total of mean and standard deviations response represented in table 5 are 3.30 and 1.02 respectively shows the mean and standard deviation responses on the constraints to the provision of water and sanitation materials in public primary schools. This shows that inability of government to supply water and sanitation materials, school management not using the money meant for water and sanitation materials, lack of water reservoirs to harvest water during raining season, poorly involvement of parents in provision of water and sanitation materials and lack of knowledge in the use of water and sanitation materials among school community members are all the challenges in providing water and sanitation materials in public primary schools.

Research Question Six: What are the solutions to the lack of water and sanitation materials in public primary schools in Nsukka Local Government Education Area?

Table 6: Mean and standard deviation analysis on the solutions to the lack of water and sanitation materials in public primary schools

S/N.	Item statements	Mean	Std. Deviation	Decision
31	Government should ensure adequate supply of water and sanitation materials	3.32	0.96	Agree
32	PTA should be encouraged to contribute to the water and sanitation materials needed in schools	3.35	0.78	Agree
33	Regular maintenance and repair of water reservoirs should be ensured	3.29	0.85	Agree
34	Regular maintenance of cleaning materials should be ensured	3.32	0.86	Agree
35	Schools that do not have water and sanitation materials should be called to order	3.05	0.94	Agree
Grand Mean		3.27	0.88	Agree

The grand total of mean and standard deviations response represented in table 6 are 3.27 and 0.88 respectively shows the mean and standard deviation responses on the solutions to the lack of water and sanitation materials in public primary schools. The items whose mean score are above 2.50, indicates acceptance. This shows that government supply of adequate water and sanitation materials, PTA should contribute to the water and sanitation materials needed in schools, regular maintenance and repair of water reservoirs, regular maintenance of cleaning materials and schools without water and sanitation materials should be called to order are solutions to the lack of water and sanitation materials in public primary schools.

Discussion

Results showed that water, brooms, trash cans and hand washing basin are available sanitation materials in public primary schools, while detergents and disinfectant, toilets, mops, towels or hand dryers, brushes and gloves, masks and aprons are sanitation materials that are not available in public primary schools. This is in agreement with the findings by Olutunji and Taiwo (2021) who discovered that majority of the respondents admitted that the most common type of toilet facility was a water closet, followed by a pit latrine and open space for defecation.

The study found out that water provision in public primary schools is low to some extent and also pupils in public primary schools find it difficult to access water to a very high extent. This supports what Inah, Ntekim, Nji, Alexander, Egbonyi and Mboto (2021) stated that all the schools' water systems were not functional as pupils improvised by getting water outside for flushing. Also, Ojukwu and Chukwu-Okeah (2020) added that daily water requirement in the study area is insufficient. They also stated that there is a prevalence of water supply challenge.

The findings of the study showed that toilets, brooms, towels or hand dryers, hand washing stations, mops are adequately provided in the schools to a high extent. This is in agreement with the finding of Ambe, Agbor and Okon (2018) whose findings revealed that some infrastructural facilities like laboratories, sports facilities, school bus, water, toilets/sanitation, dormitories, refectories, clinics were not provided. Also, this finding conforms to the findings made by Nwankwo, Uzoechina and Oguegbu (2016) who found out that sanitation and hygiene facilities such as waste bins, water supply, toilet, etc, are lacking among public and private school who are yet to embrace sanitation and hygiene facilities hence pupils still defecate in the bush among others.

The findings of the study showed that the utilization of available sanitation materials in public primary schools is high to some extent such as the use of mops, toilets, hand washing basin, hand towels and hand dryers and trash cans. This is not in agreement with the finding of Yunus, Kayode, Toyin and Ayinla (2020) whose study revealed that the sanitation and hygiene facilities are inadequately available, the available ones were not being utilized, and there was no proper utilization of the available sanitation and hygiene facilities by the pupils in public primary schools. The study of Faiza, Wanjala, Barasa, Sowji, Vincent, Johnston and Josphat (2015) contradict with the findings of this study as they discovered that investment in school infrastructure was not accorded due priority as its negative effects on pupil's health were due to inaccessible safe drinking water and inadequate sanitary infrastructure despite pupils demonstrating acceptable levels of knowledge on personal hygiene and sanitation. As a result, pupils suffered from communicable diseases such as diarrhea, flu and typhoid which could be prevented by improving sanitation in schools.

The findings of the study showed that inability of government to supply water and sanitation materials, school management not using the money meant for water and sanitation materials, lack of water reservoirs to harvest water during raining season, poor involvement of parents in provision of water and sanitation materials and lack of knowledge in the use of water and sanitation materials among school community members are all the challenges in providing water and sanitation materials in public primary schools. This is in agreement with the findings of Nwadimkpa and Onyeaso (2023) who stated that constraints to environmental hygiene practices to include inadequate provision and maintenance of sanitary facilities by school authorities.

The findings of the study showed that government supply of adequate water and sanitation materials, non-involvement of PTA in provision of water and sanitation materials needed in schools, regular maintenance and repair of water reservoirs and calling to order schools without water and sanitation materials are solutions to the lack of water and sanitation materials in public primary schools. This is in agreement with the findings of Amsalu, Atikilt, Taklual and Tilahun (2022) who stated that immediate opportunities to increase equitable access to WASH in schools in these settings include improved WASH construction facilities, ready for users and providing soap, water, and drying materials in hand washing facilities during school days.

Conclusion and recommendations

Based on the findings of this study, some conclusions were made: water, brooms, trash cans and hand washing basins are available sanitation materials in public primary schools, while

detergents and disinfectant, toilets, mops, towels or hand dryers, brushes and gloves, masks and aprons are sanitation materials that are not available in public primary schools. Among others, water provision in public primary schools is low to some extent and pupils in public primary schools find it difficult to access water to a very high extent.

Based on the results of this study, some recommendations were made. Among others, agencies in Health and Education sectors should assist public primary schools in the provision of some of these facilities as it has been observed that government alone can not adequately fund Education system.

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