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# *Education and Attitude of Urban Dwellers towards Solid Waste Disposal in Calabar, Nigeria*

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**Abstract**
*This study investigated the influence education has on attitude of urban dwellers towards solid waste disposal in Calabar Education Zone of Cross River State, Nigeria. To achieve the purpose of this study, one hypothesis was formulated and tested at 0.05 level of significance. The survey research design was adopted for this study. The stratified random sampling technique was used to select 4 local government areas from the 7 local government areas that make up Calabar Education Zone. The accidental sampling techniques was used to choose 600 respondents for the study; though 561 copies of the questionnaire were retrieved and valid for data analysis. The questionnaire was the instrument used for data collection. The reliability of the instrument was established through the Cronbach Alpha reliability coefficient which is .83. One-way analysis of variance (ANOVA) was used to test the hypothesis. The result revealed that level of education significantly influences attitude of urban dwellers towards solid waste disposal. Based on the findings, it was recommended that urban dwellers should inculcate in themselves and their children/wards positive attitude of disposing solid waste properly through formal and informal education in Calabar Education Zone.*
**Keywords:** education, attitude, solid waste, urban, Calabar

## Introduction

Solid waste is defined as non-liquid and non-gaseous garbage, refuse or sludge products of human and animal activities, regarded as useless. In other words, solid waste is any unwanted material in solid form which is regarded as trash. Solid waste refers to any garbage, refuse, sludge, and other discarded materials including solid and semi-solid resulting from industrial, domestic, construction, healthcare, commercial, agricultural operations, and from community activities (Lumbreras, & Fernández, 2014). It constitutes the following; broken bottles, tomato peels, spoiled cabbage, yam peels, old tyres, scrap metal, empty aerosol cans, compressed gas cylinders, and construction and demolition debris.

The problem of solid waste is one of the issues of modern civilization, emerging from contemporary lifestyle. It is a direct consequence of human activities. As the human population in the world keeps increasing, there is the likelihood for solid waste generation to increase. This is because global demand for the production of goods and services and food to satisfy human needs would increase. Increased solid waste generation coupled with indiscriminate disposal of

solid waste is associated with increased consumption patterns, individual lifestyle, urbanization and socio-economic activities. These human activities can either deteriorate or enhance the quality of the environment (Efut et al., 2018).

An inevitable consequence of more consumption is the rapid increase in the amount of solid waste that is produced. Oftentimes, when systems are breaking down and problems are escalating, people look to societal factors to fix the issue. This has often been the case when dealing with the disposal of solid waste in the developing world. Researchers have argued that solid waste problem is caused by human behaviour and therefore the solution lies in changing that behaviour. This attitude-behaviour gap often emerges and can be further affected by a variety of reasons including convenience, social norms, lack of public participation, and lack of education and awareness of effective waste disposal techniques (O'Connell, 2011).

Attitude is someone's evaluation of developing an affirmative (favourable) or negative (unfavourable) disposition to perform a given behaviour. Negative attitudes are yielded when an individual develops a negative belief while positive attitudes are yielded when a positive belief is developed (Efut & Arikpo, 2019). It is premised that positive attitudes towards the environment are depicted by sustainable management prone behaviours towards solid waste disposal, while negative attitudes towards the environment are synonymous with careless disposal of solid waste. Ideally, a negative attitude is one of the leading causes of indiscriminate solid waste disposal in the cities at different places and time. Human beings have before now, disposed solid waste indiscriminately not minding the environmental and health effects of their action. This has in no small measure contributed to the deplorable state of the environment. This negative attitude has persisted owing to the fact that most households in the urban areas of Calabar Education Zone do not have waste bin; they rather dispose waste at any available open space, gutter or road. The inability of the government to enforce already existing environmental sanitation laws, individual's lack of knowledge and skills on waste recycling, coupled with far distance from household to waste receptacle points, all contribute to the challenges of solid waste disposal.

Improper disposal of solid wastes leads to air, water and land pollution, and these pose serious threat to the biodiversity and human health. Municipal authorities have not been able to solely manage this problem hence, the call for more hands and participation by education stakeholders (Kumar, & Kumar, 2020). Education is the process of imparting knowledge and skills to the learner, be it formal, semi-formal and informal. It is the main route to organise societies for global changes in behaviour. Public investment in education is vital in building highly skilled and educated workforce and in sustaining African prosperity and progress (Agbor et al., 2017). Level of education plays a dominant role in awareness creation and behavioural change in human beings (Lutz et al., 2014). One of the cardinal goals of education is the inculcation of the right type of values and attitudes for the progress and development of the individual and society.

Chengula et al. (2015) ascertained the awareness, attitudes, knowledge and practice of rural dwellers towards solid waste disposal in Tanzania by adopting a cross-sectional design. The population was made up of residents in the country's Morogoro Municipality. Sampling was

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achieved using purposive and simple random techniques and 100 respondents were selected. The researchers used a questionnaire to examine whether educational level was related to the locals' solid waste disposal methods. Percentage scores were used to analyse collected data. It was revealed that 90% of the respondents comprised of those with no formal education, primary and secondary education while the rest had college and university education. As for waste disposal methods, 30% bagged them for disposal in nearby open dumpsites, 22% simply threw them in nearby open dumpsites, 20% burned them, 15% put them in dustbins for disposal in nearby dumpsites while 13% disposed their wastes in municipal dumpsites. Based on the result, Chengula et al. (2015) inferred that educational level played a role in the waste disposal methods of the people. The finding means that since most of the respondents were found to have inadequate education (SSCE and below) and also, a similar percentage were found to dispose their waste inappropriately, then educational level was a contributory factor in the locals' waste disposal methods.

Akpo (2015) explored influence of environmental awareness on attitude to solid waste management (SWM) in Cross River State of Nigeria by adopting a survey method. Residents of Boki LGA made the population of the study. Simple random sampling technique was used to select 120 respondents. A questionnaire was used to investigate the influence of educational level on SWM. Independent t-test was used to analyse the collated data. The result revealed a significant difference on attitude towards SWM based on level of education. This means that level of education significantly influenced SWM. Perhaps, this finding implies that within the study area where Akpo (2015) carried out this investigation, some persons managed solid waste better than others based on their educational level. Presumably, this finding could seemingly have been a little bit more fascinating and could have bridged more gaps were practices of SWM to be investigated alongside the attitudes.

The theoretical framework for this study is based on Structural functionalism theory by Herbert Spencer (1874). Structural functionalism states that the society is a single interconnected, interdependent social system, each element of which performs a definite function. The basic feature is the interaction of its component parts to maintain equilibrium. Structural functionalism attributes to a social system the characteristics of commitment, cohesion, solidarity, consensus, reciprocity, cooperation, integration, stability and persistence. It assumes that the structure is interdependent and functions together in harmony for the maintenance of the whole system.

This theory is in support of the present study because environmental problem such as indiscriminate disposal of solid waste has no boundaries. It is, therefore, necessary to "think global, and act local", by being conscious of the way and manner solid waste is disposed because the same solid waste disposed indiscriminately as a relief to someone is an eyesore to another. This will directly or indirectly affect the air, aesthetic and the underground quality of the environment. It is on the collaborative efforts of the individuals, social groups, non-governmental organizations, environmental protection agencies, farmers, entrepreneurs, traditional rulers and political leaders that the problem of solid waste in the cities can be confronted holistically and comprehensively, bearing in mind that the functionality of each unit of the society is to maintain environmental quality.

## Research question

1. How does level of education influence the attitude of urban dwellers towards solid waste disposal in Calabar Education Zone of Cross River State?
2. How does level of education influence the attitude of urban dwellers towards solid waste disposal in Calabar Education Zone of Cross River State?

## Hypothesis

**Ho1:** Level of education does not significantly influence the attitude of urban dwellers on solid waste disposal in Calabar Education Zone of Cross River State.

## Methodology

The research design adopted for this study is the survey design. Studies that make use of survey are to obtain a picture of the present condition of a particular phenomenon. The adoption of survey is because it is an efficient way of obtaining data from a large population through a sample size which represents the entire population. It is suitable for finding out opinions, attitudes, and relationships among variables.

This research was carried out in Calabar education zone of Cross River State, Nigeria. The area of the study is made up of seven Local Government Areas (LGAs) namely: Akpabuyo, Akamkpa, Biase, Bakkasi, Calabar Municipality, Calabar South and Odukpani. It is found between latitudes $4^{0}27^{1}$ and $5^{0}32^{1}$N and longitude $7^{0}50^{1}$ and $9^{0}30^{1}$ E of the equator, with a landmass of 7,300 square kilometers (Balogun, 2009). It is bounded to the north by Yakurr LGA, to the South by Atlantic Ocean, to the east by Abi LGA and to the west by Akwa Ibom State. The languages spoken by the people are Efik, Ejagham and Ekoi, though Biase people speak Ubaghara and Ukwa languages. The similarities in the culture of this people are traced to their common secret societies like Mgbe and Ekpe. The secret societies are veritable instruments for the enforcement of traditional authority and laws. The people are predominantly farmers, traders, fishermen and civil servants.

The area of the study hosts a number of private and public higher institutions for the training of human resources. There are the University of Calabar, Calabar; the Cross River University of Technology, Calabar; Arthur Jarvis University, Akpabuyo; the National Open University of Nigeria, Calabar; the School of Health Technology, Calabar; and the Cross River State College of Education, Akamkpa.

Tourism is one of the main economic potentials in the area of the study. The Calabar Carnival is an event which attracts both local and international attention. The area is also naturally endowed with a lot of ecotourism sites. They include the Agbokim Water Falls, Afi Mountain Wild Life Sanctuary, the Cross River National Park, Obudu Mountain Resort, the Ikom Monoliths, The Calabar Slave Trade Museum, and the Tinapa Business Resort. These make the area of the study a suitable destination for a mix of business and leisure. The Calabar Education Zone is an area with huge traditional, educational, commercial and tourism institutions coupled with other socio-economic activities which attract both local and international attention. These make solid waste generation and unsanitary disposal inevitable. This informed the choice of the area for the study.

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The study population is made up of all the residents of Calabar education zone, Cross River State. The population comprised farmers, students, civil servants, traders, artisans, politicians and health workers who reside in the study area. The 2021 projected population for the area is one million, four hundred and ninety-six thousand, nine hundred and eighty-eight (1,496,988) residents. The population distribution is shown in table 1.

**Table 1**: Population distribution by Local Government Area

| S/N | LGA | Population | Males | Females |
|---|---|---|---|---|
| 1 | Akamkpa | 178,922 | 90,713 | 88,209 |
| 2 | Akpabuyo | 396,824 | 198,015 | 198,809 |
| 3 | Bakassi | 52,031 | 31,375 | 20,656 |
| 4 | Biase | 217,835 | 108,481 | 109,354 |
| 5 | Calabar Municipality | 213,289 | 110,910 | 102,379 |
| 6 | Calabar South | 195,615 | 98,785 | 96,830 |
| 7 | Odukpani | 242,472 | 120,994 | 121,478 |
| | Total | | 759,273 | 737,715 |

Source: National Population Commission (2021)

A sample size of six hundred (600) respondents was used for the study. The breakdown is presented in table 2.

**Table 2**: Sampling distribution by communities

| LGA | Community | Sample |
|---|---|---|
| Akamkpa | Awi | 100 |
| Akpabuyo | Ikot Nakanda | 100 |
| Calabar Municipality | Akim | 200 |
| Calabar South | Anantigha | 200 |
| | Total | 600 |

The stratified random sampling and the accidental sampling techniques were used for these study. The stratified random sampling was used to select four LGAs from the seven LGAs that make up the Calabar Education Zone. In selecting the LGAs for the study, the researchers wrote the names of the seven LGAs that make up the population of the study in pieces of paper, folded each paper into a paper ball and put into a container. The paper balls were then mixed properly. The researchers picked each paper ball blindly, one at a time and without replacement. The name of the local government area so picked was used for the study.

In selecting the communities for the study, the researchers wrote all the names of the communities that make up the selected four LGAs in pieces of paper, folded each paper into a paper ball, poured into a container and mixed properly. The researchers then drew blindly, one at a time without replacing, to select one community from each of the local government areas. The communities picked were used for the study. The accidental sampling technique was used in administering the questionnaire in the communities selected for the study. By this method, the residents from 18 years and above who were available and were willing to participate in the study were selected and used for the study.

The instrument for data collection was a 23-item structured questionnaire designed by the researchers titled Education and Attitude towards Solid Waste Disposal Questionnaire. The questionnaire consists of two sections: A and B. Section A was meant to elicit demographic information of respondents while section B was grouped into a cluster. The cluster was to elicit information on attitude towards solid waste disposal. The instrument was structured on a four-point rating scale with response options: Strongly Agree which attracted 4 points, Agree which attracted 3 points, Disagree which attracted 2 points and Strongly Disagree which attracted 1 point for all the positively worded items. For worded item that were negative, the researchers reversed the scoring.

The reliability of the questionnaire was estimated after a trial test with 50. The Cronbach's Coefficient Alpha was used to test the internal consistency of the instrument which is .83 for attitude towards solid waste disposal. Based on the indices obtained, the questionnaire was adjudged adequate to be used for this study. The data collected from the respondents through the questionnaire were collated and analysed using mean and standard deviation and one-way analysis of variance.

To ensure the validity of the instruments, a copy of the questionnaire was given to three experts for critiquing and editing. In addition to the instruments, the purposes of the study, research questions and hypotheses were made available to the experts. These experts were requested to examine the instrument on the basis of clarity of language, simplicity of vocabulary, suitability of item format and relevance of items of the study. The corrections and suggestions made by the three experts guided the researchers in the final copy of the questionnaire.

**Presentation of results**

**Ho1:** Level of education does not significantly influence the attitude of urban dwellers towards solid waste disposal in Calabar Education Zone of Cross River State.

**Table 3**: Summary of One-way analysis of variance (ANOVA) of the influence of level of education on attitude of urban dwellers towards solid waste disposal (N=561).

| **Level of education** | **N** | $\bar{x}$ | **SD** | |
|---|---|---|---|---|
| Primary | 90 | 52.26 | 2.52 | |
| Secondary | 249 | 53.26 | 2.56 | |
| Tertiary | 222 | 52.26 | 2.68 | |
| Total | 561 | 52.70 | 6.42 | |
| **Source of Variation** | **SS** | **df** | **MS** | **f-value** |
| Between group | 137.768 | 2 | 68.88 | |
| Within group | 377.519 | 558 | 6.76 | 10.191 |
| Total | 390.287 | 560 | | |

*significant at .05, level, critical f=3.00, df=2,588

The independent variable in this hypothesis is level of education; while the dependent variable is attitude towards solid waste disposal. To test this hypothesis, one-way analysis of variance

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was used. The result of the analysis is presented in table 3. The result of analysis as presented in table 3 reveals that the calculated f-value of 10.191 is greater than the critical f-value of 3.00 at .05 level of significance with 2 and 558 degrees of freedom. The result of analysis is significant since the calculated value is greater than the critical value. The null hypothesis is rejected. This means that there is a significant influence of level of education on attitude of urban dwellers towards solid waste disposal in Calabar Education Zone. Since level of education has a significant influence on attitude of urban dwellers towards solid waste disposal, a post hoc analysis was employed using Fishers' Least Significant Difference (LSD) multiple comparison analysis. The result of the analysis is presented in table 4.

**Table 4**: Fishers' Least Significant Difference (LSD) multiple comparison analysis of the influence of educational level on attitude of urban dwellers towards solid waste disposal.

| (I) edu level | (J) edu level | Mean Difference (I-J) | Std. Error | Sig. |
|---|---|---|---|---|
| 1.00 | 2.00 | .31159 | .33745 | .356 |
| | 3.00 | .38528 | .31572 | .223 |
| | 4.00 | -2.77174* | 1.34481 | .040 |
| 2.00 | 1.00 | -.31159 | .33745 | .356 |
| | 3.00 | .07368 | .25068 | .769 |
| | 4.00 | -3.08333* | 1.33104 | .021 |
| 3.00 | 1.00 | -.38528 | .31572 | .223 |
| | 2.00 | -.07368 | .25068 | .769 |
| | 4.00 | -3.15702* | 1.32570 | .018 |

*The mean difference is significance at the .05 level

The result from table 4 revealed that the respondents who had primary education differed significantly from those who had tertiary education with a mean difference of .31159 and 2.77174 respectively on the influence of education on attitude of urban dwellers towards solid waste disposal. Also, the respondents who professed education to influence attitude towards solid waste disposal had a significant higher mean difference of .38528 among those who had secondary education. From table 4, there exists a significant mean difference between respondents who had primary education and those who had secondary education with a mean difference of .31159 .38528 respectively.

**Discussion of findings**

The result of analysis showed that there is a significant influence of level of education on attitude to solid waste disposal in Calabar Education Zone. The finding of this analysis is in consonance with Chengula et al. (2015) and Akpo (2015) who revealed a significant difference in level of education and SWM. This means that level of education significantly influenced attitudes to SWM.

It is evident that the more educated people are the more they are exposed to information about solid waste and the environment. Education also exposes citizens to knowledge about the impacts of their activities on the environment and the options available for mitigating such impacts. Therefore, with reference to solid waste disposal, an educated person would take positive steps to ensure that his/her waste disposal practices cohere with the knowledge he/she has.

## Conclusion

The purpose of this study was to examine the influence education has on attitude of urban dwellers towards solid waste disposal in Calabar Education Zone of Cross River State. Literature review was carried out according to the variables of the study. The survey design was adopted for the study. A sample of 600 respondents was used for the study. The questionnaire was the instrument used for data collection. Mean and standard deviation and one-way analysis of variance was used for data analysis. The hypothesis was tested at .05 level of significance. Based on the result, it is concluded that level of education significantly influence attitude towards solid waste disposal in Calabar Education Zone of Cross River State, Nigeria.

## Recommendations

Urban dwellers should inculcate in themselves and their children/wards positive attitude of disposing solid waste properly through formal and informal education.

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