

## **Environmental Adult Education Programmes and Waste Management Disposal in the Public Modern Markets in Port Harcourt, Nigeria.**

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**Abstract:** *The study examined environmental adult education programmes and waste management disposal in the public modern markets in Port Harcourt, Nigeria. The study adopted the descriptive survey design. The population of the study comprised 50 respondents comprising 23 market women from Sangana market, Afikpo and Rumuwoji ultra modern market in mile 1 and 27 market women from Bishop Okoye, Samwoko and Oroworukwo ultra modern market mile 3. The study adopted total enumeration method in which the entire population was studied without sampling due to the manageable size of the population. Instrument for data collection was a self-structured designed questionnaire titled "Environmental Adult Education Programmes and Waste Management Disposal in the public modern markets in Port Harcourt Questionnaire" (EAEPWMDQ) with a cumulative reliability index of 0.76 obtained showed the instrument was reliable. The questionnaire was structured using the four point Likert rating scale response of Very High Extent (VHE) = 4points, High Extent (HE)= 3points, Low Extent LE = 2points, and Very Low Extent (VLE) = 1point. Mean and standard deviation statistics were used to answer the research questions, while z-test statistical tool was used to test the null hypothesis at 0.05 level of significance. The study revealed that market women in mile 1 and mile 3 market engaged in keeping the environment clean after their daily sales and the weekly sanitation organized by market chairman equally has been of great help in keeping the market clean at the end of every week. It was therefore recommended that public markets and its environs should be swept and kept clean regularly by these who makes any shop in the market at the close of their daily sales, and market chairmen should ensure markets are kept clean and everyone should keep his/her shade clean on every general market sanitation day.*

**Keywords:** - *Environmental Adult Education Programmes, Waste Management Disposal, Public, Modern, Markets*

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### **INTRODUCTION**

Cleanliness they say is next to godliness, but will one say same when it comes to the public modern markets in Port Harcourt? Over time in Ehezue (2016) man has advanced to explore his

surroundings and use various available resources besides the ground to shape his destiny depending on the magnitude of his capabilities in relation to his experience and level of intellectual

and technological development. On the other hand, forces and factors in man's external surroundings, which constitute man's environment, influence his actions and thinking including the type and variety of his intentions, economic activities, as well as his beliefs, attitudes, hopes and visions.

In the course of time, man's utilization of natural resources and his constant interaction with the forces and factors of his environment have yielded not only intended or desirable outcomes, but also harmful circumstances that threaten the survival of plant and animal species (including man) on the planet earth. For instance, the current prevailing twin phenomena of global warming and climate change which have accentuated the incidence of various calamities on earth (improper waste disposal, flooding, tsunamis, crop failure etc.) are largely traceable to unintended outcomes of man's economic and other developmental activities in rural, urban, private and public settings. In all, man's ignorance of the damage he is doing to earth's very delicate ecosystems in his pursuit of unsustainable lifestyles has been stressed as a major cause of environmental degradation (Greenanswers.com, Eheazu 2016).

Environmental adult education as defined by UNESCO Tbilisi in Eheazu (2016) is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters the attitudes, motivations and commitments to make informed decisions and take responsible action.

Environmental education connects us to the world around us, teaching us about both natural and built environments. Environmental education raises awareness of issues impacting the environment upon which we all depend, as

well as actions we can take to improve and sustain it. Environmental adult education is recognized as a "hybrid outgrowth of the [environmental movement](#) and [adult education](#), combining an [ecological](#) orientation with a learning paradigm to provide a vigorous educational approach to environmental concerns (Sumner, 2003).

Eheazu (2004) states that adults constitute the majority in the production process and they are closer to the environment than the children. Therefore, environmental adult education serves as a vital tool for one to maintain environmental quality. Generally, most adults in Nigeria live environmentally incompatible life styles. The quest for wealth and development has blind-folded many to its attendant environmental problems. Resources are produced for survival under ecologically destructive conditions. Although the extent of damage to humans and environment are not recorded in any statistics, its massive detrimental effects can be seen on valleys, waterways, plants, air, traditionally operated farming, fishing, market places and settlements in Nigeria. Majority of the local population are getting poorer while environmentally related diseases affect urban dwellers. Environmental adult education would encourage people to lead more modest life and more environmentally compatible life style. Environment and development should be unified. The more adults make from the environment today, the less their children would make from it if the environment were not sustainably managed.

Environmental adult education is centered on improving quality of environment through the efforts of individuals, groups and society at large. It aims at liberating adults and by extension young children from the shackles of ignorance, poverty, and poor health resulting from environmental degradation. It focuses on how to

develop enquiring minds and creative thinking in adults on waste management both at home and market places without disrupting environmental equilibrium. Environmental adult education programmes is needed to develop the adults minds, create an ethical awareness of all forms of life, (Adehikun, K, O & Ihieghulem, V. N. 2015). Many see environmental adult education as teaching environmental issues and how individuals especially the market women on how they can manage or change their lifestyles of waste disposal at the market place and their personal life as they go about their day to day business in the market. The overarching goal of environmental adult education is to educate her citizens especially those at the market environs on personal hygiene and proper ways of waste management disposal both at home and in the market places.

According to Business Dictionary in Balogun (2011), environmental sanitation concept means the activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people. These conditions include clean and safe water supply; clean and safe ambient air; efficient and safe animal, human, and industrial waste disposal; protection of food from biological and chemical contaminants; and adequate housing in clean and safe surroundings. It is also called environmental hygiene. Environmental sanitation is also defined as the art and science of applying sanitary, biological and physical science principles and knowledge to improve and control the environment and factors therein for the protection of the health and welfare of the public.

World Health Organization (WHO) has been at the forefront of environmental sanitation and hygiene action over the past years and developed some key materials intended for policy-makers and technical people dealing with these issues. For a sanitation system to provide the greatest

health protection to the individual, the community, and society at large it must anchor on the following assumptions: isolate the user from their own excreta; prevent nuisance animals (e.g. flies) from contacting the excreta and subsequently transmitting disease to humans; and inactivate the pathogens before they enter the environment or prevent the excreta from entering the environment. (Carr and Strauss, in Balogun 2011).

The limitation of environmental sanitation is not far from the fact that people do not realize the health benefits to the individual, the community and to society from improving sanitation. The high cost of improving sanitation is often cited as a barrier to implementing sanitation projects. However, to decrease the proportion of people lacking basic sanitation and water supply by 50% worldwide by the year 2015, it is estimated that US\$ 23 billion per year would be needed - about US\$ 7 billion a year more than is currently spent (WHO, 2000; WHO, 2001b).

Vagale as cited in Balogun (2011) classified traditional markets on a functional basis before analyzing them. Market may be grouped in terms of several variables like scale of transactions (whether retail or wholesale); type of commodities sold i.e. food grains, cloth and household goods; periodicity whether daily or occurring at regular intervals; time of operation whether functioning in the day, night or day and night; nature of growth i.e. organic, laid out, planned; and ownership of land buildings i.e. town council, local community, family head and individuals. However, the most valid and useful classification of market in Nigeria town seems to be the one based on the periodicity of markets operations. Operating system of traditional market is daily both night and day while some markets operate at day intervals. The periodic and daily operation of these markets classified them

as traditional markets because periodicity is one of the criteria of traditional market.

Omole (2010) expressed that markets are man-made features established for the use of man. The work of scholars, particularly those of Filani & Richard, Nwafor, Sada & Mc Nuity, Eben-Saleh in Balogun (2011), among others agreed with this assertion. They went further to identify two basic classes of market places as daily and periodic markets which were further sub-classified as; morning, full-day, night, periodic, provincial and with kingdom markets. Nwafor as cited in Balogun (2011) held the view that a crawly market requires the existence of many full-time traders and that it is a more convenient type of market in that it provides daily needs to the people on daily basis. Browley in Balogun (2011) saw the market place as a place, which provides opportunities to meet one's friends and kinsmen for the exchange of news and gossip. Market gives room for freedom of speech and high level of socialization because of its nature of buying and selling among different categories of people. Adewole (2009) examined the major effects of waste management on the quality of life in two perspectives such as environmental and health effect. The major environmental effects include air pollution and waste pollution, while the health effects include flies which carry germs, mosquitoes breed in stagnant water in blocked drains, rat's spreads typhus, salmonella, leptospirosis and other diseases. Miller in Balogun (2011) considered the second effects of waste management on the quality of life by saying that a city with a hazardous waste facility is now perceived and an undesirable place to live and to identify that people are leaving there is a social somatization.

Lu Aye & Widjaya (2005) compared the level of environmental impact of waste generated by traditional markets with other sources of wastes generation saying that the attributed reason is that

in general the waste generated from traditional markets are more uniform, more concentrated and less hazardous than waste from other sources. Argenti (2000) was of the view that the management of waste from the urban food system, particularly from markets and slaughterhouses, poses one of the greatest challenges to city managers. Slaughterhouse waste is related to a host of hygiene, health and environmental problems thereby requiring safe disposal. Growing quantities of waste from processing plants, markets and slaughterhouses together with dumping of plastic packing and waste burning boosts health risks and the pollution of water, soil and air.

Research Wikis (2006) expressed that new waste management methods have been continually introduced over time, as the issues become more pressing including source reduction, recycling, composting, energy recovery and landfill. When these methods are combined properly, they can effectively manage solid waste, while protecting human health as well as the environment. Traditional markets in Ibadan need the intervention of the new waste management methods to promote human health and enhance healthy environment. Antonis (2011) asserted that it is clear that new challenges are emerging and the current situation must be seen in a different way. Our waste management systems and our market conditions, even at their best, are incapable of handling the growing amounts of waste globally. Also expressed that unless a new paradigm of global cooperation and governance is adopted, a tsunami of uncontrolled dumpsites will be the prevailing waste management method. To this effect, Kpeno (2019) was of the view that waste disposal are those materials that individuals seems not to have need for thereby discarding or throwing them away. Most materials regarded as waste for a particular person may equally not be useful to some others

especially the perishable materials. This encourages one to have proper place for every item needed to be kept so that waste when it has to be disposed should be kept in a proper place for disposal so that nobody mistakes items to be kept for future use for item to be disposed, thrown away or discarded

The primary goal of this study therefore is to examine the extent of environmental adult education programmes and waste disposal management in the public modern markets of Port Harcourt, Nigeria.

### **Purpose of the study**

The primary objective of this study was to investigate environmental adult education programmes and waste disposal management in the modern markets in Port Harcourt, Nigeria. Specifically, the study sought to:

1. Determine the extent market women are engaged in keeping the environment clean after daily sales in the public modern markets of Port Harcourt, Nigeria.
2. Examine the extent to which weekly sanitation organized by market chairmen helped in keeping the market clean at the end of every week in the public modern markets of Port Harcourt, Nigeria.

### **Research Questions**

The following research questions were formulated in line with the purpose of the study:

1. To what extent are market women engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria?
2. To what extent has the weekly sanitation organized by market chairman helped in keeping the market clean at the end of every week in the modern markets of Port Harcourt, Nigeria?

### **Research Hypotheses**

The following hypotheses guided the study and were tested at 0.05% level of significance:

**H<sub>01</sub>.** There is no significant difference between the mean opinion score of mile 1 and mile 3 women on the extent they are engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria.

**H<sub>02</sub>.** There is no significant difference between the mean opinion score of mile 1 and mile 3 market women on the extent the weekly sanitation organized by market chairman helped in keeping the market environment clean at the end of every week in the modern markets of Port Harcourt, Nigeria.

### **Methodology**

This research was designed to gather data from market women from Sangana market, Afikpo market and Rumuwoji ultra modern market all in mile 1 market and market women from Bishop Okoye, Samwoko and Oroworukwo ultra modern market all in mile 3 market. These markets are in Port Harcourt City Local Government Area of Rivers State, Nigeria. The research design adopted in this study was descriptive survey design. The population of the study was 50 respondents comprising 23 market women from mile 1 market and 27 market women from mile 3 market. The study adopted total enumeration method in which the entire population was studied without sampling due to the manageable size of the population. Instrument for data collection in this study was a self-structured designed questionnaire titled "Environmental Adult Education Programmes and Waste Management Disposal in the modern markets in Port Harcourt Questionnaire" (EAEPWMDQ). The instrument was validated by two experts in Adult Education and Community Development and Measurement and Evaluation. The internal consistency of the instrument was determined using Cronbach Alpha statistics. A cumulative reliability index of 0.76 was obtained which

showed the instrument was reliable. Copies of the instrument were personally administered to the respondents by the researcher and retrieved. The data collected were analyzed using mean and standard deviation statistics, while the hypotheses were tested using the z-test. Decision rule for the research questions were based on the classification of level of extent as shown below:

Very High Extent (VHE) = 4.  
 High Extent (HE) = 3  
 Low Extent (LE) = 2  
 Very Low Extent (VLE) = 1

**Results**

**Research Question 1.**

To what extent are market women engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria?

**Classification**

**Table 1: Extent to which market women engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria.**

| S/No                       | Items   | Mile 1 Market Women<br>(N =23) |             |           | Mile 3 Market Women<br>(N=27) |             |           |
|----------------------------|---|--------------------------------|-------------|-----------|-------------------------------|-------------|-----------|
|                            |   | Mean                           | SD          | Remark    | Mean                          | SD          | Remark    |
| 1                          | Market women frequently sweep in and outside their shop at the end of their daily sales | 3.00                           | 0.96        | HE        | 3.00                          | 0.90        | HE        |
| 2                          | We take turn in sweeping our shop   | 2.09                           | 1.00        | LE        | 2.15                          | 1.01        | LE        |
| 3                          | The entire market smells badly as a result of improper waste disposal                   | 2.30                           | 0.99        | LE        | 2.29                          | 1.00        | LE        |
| 4                          | Just like me, my next door neighbor always dispose waste at the end of every day        | 2.78                           | 0.88        | HE        | 2.77                          | 0.90        | HE        |
| 5                          | I keep my shop clean always even as I do not sale perishable goods                      | 2.97                           | 1.00        | HE        | 3,00                          | 0.96        | HE        |
| <b>Grand Mean &amp; SD</b> |   | <b>2.63</b>                    | <b>0.95</b> | <b>HE</b> | <b>2.64</b>                   | <b>0.95</b> | <b>HE</b> |

The analyzed data in table 1 showed the mean and standard deviation scores on the extent to which market women frequently sweep in and outside their shop at the end of daily sales in modern markets of Port Harcourt. The mean scores in items 1, 4 and 5 of research question 1 fell within the range of high extent showing that majority of the respondents agreed with items in the table. However, items 2 and 3 fell within

the range of low extent, implying that majority of the respondents disagreed with the items. With grand mean and standard deviation of 2.63 and 0.95 is to a High Extent.

**Research Question 2**

To what extent has the weekly sanitation organized by market chairman helped in keeping the market clean at the end of every

week in the modern markets of Port Harcourt, Nigeria?

**Table 2: extent to which weekly sanitation organized by market chairmen helped in keeping the market clean at the end of every week in the modern markets of Port Harcourt, Nigeria.**

| S/No                       | Items  | Mile 1 Market Women<br>(N =23) |             |           | Mile 3 Market Women<br>(N=27) |             |           |
|----------------------------|--|--------------------------------|-------------|-----------|-------------------------------|-------------|-----------|
|                            |  | Mean                           | SD          | Remark    | Mean                          | SD          | Remark    |
| 1                          | Security personnel in the market constantly locks any shop with dirty environment  | 3.04                           | 0.88        | <b>HE</b> | 3.03                          | 0.90        | <b>HE</b> |
| 2                          | The weekly sanitation organized by the market chairman has helped in having a clean environment                            | 2.91                           | 0,96        | <b>HE</b> | 2.96                          | 0.92        | <b>HE</b> |
| 3                          | Market chairman is in constant collaboration with sanitation personnel in ensuring that the market regularly observed      | 2.87                           | 0.88        | <b>HE</b> | 2.96                          | 0.96        | <b>HE</b> |
| 4                          | Market chairman is on his own because I will not clean or sweep my shop surrounding  | 2.13                           | 1.00        | <b>LE</b> | 2.11                          | 1.00        | <b>LE</b> |
| 5                          | I am very satisfied at the level of cooperation by women on regular environmental sanitation carried out weekly in my zone | 3.17                           | 0.98        | <b>HE</b> | 3.11                          | 0.98        | <b>HE</b> |
| <b>Grand Mean &amp; SD</b> |  | <b>2.82</b>                    | <b>0.94</b> | <b>HE</b> | <b>2.83</b>                   | <b>0.95</b> | <b>HE</b> |

The analyzed data in table 2 showed the extent to which weekly sanitation organized by market chairmen helped in keeping the market environment clean at the end of every week. The mean scores of items 1, 2, 3 and 5 fell within the range of high extent implying that majority of the respondents agreed with these items. However, item 4 fell within the range of low extent, implying that majority of the respondents disagreed with the items. With the

grand mean and standard deviation of 2.84 and 0.95, the answer to research question 2 is of a High Extent.

**Hypothesis 1**

There is no significant difference between the mean opinion score of mile 1 and mile 3 women on the extent they are engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria.

**Table 3: Z-test Analysis of Difference in Mean Responses Extent to which market women engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria.**

| Respondents                | N  | X    | SD   | DF | z-Cal | z-Crit | LS   | Decision        |
|----------------------------|----|------|------|----|-------|--------|------|-----------------|
| <b>Mile 1 Market Women</b> | 23 | 2.63 | 0.95 |    |       |        |      |                 |
|                            | —  |      |      | 48 | 1.81  | 1.96   | 0.05 | <b>Accepted</b> |
| <b>Mile 3 Market Women</b> | 27 | 2.67 | 0.95 |    |       |        |      |                 |

The analyzed data in table 3 showed the z-test analysis on the extent to which market women are engaged in keeping the market environment clean after daily sales. The result on the table showed there is no significant difference between the mean score and standard deviation of market women in mile 1 and mile 3 market on the extent to which they daily clean they market environment. The result on the table further showed the z-calculated value of 1.805 which was less than the z-critical value of 1.96 at 0.05 level of significance and with a degree of freedom of 48. Since the z-calculated 1.805 was less than the z-critical 1.96, the null

hypothesis was accepted which means that there is no significant difference between the mean opinion score and standard deviation of mile 1 and mile 3 market women on the extent these market women are engaged in keeping the market environment clean after daily sales.

**Hypothesis 2**

There is no significant difference between the mean opinion score of mile 1 and mile 3 market women on the extent the weekly sanitation organized by market chairman helped in keeping the market environment clean at the end of every week in the modern markets of Port Harcourt, Nigeria

**Table 4: Z-test Analysis of Difference in Mean Responses of Mile 1 Market Women and Mile 3 Market on the Extent the weekly sanitation organized by market chairman helped in keeping the market environment clean at the end of every week**

| Respondents                | N  | X    | SD   | DF | z-Cal   | z-Crit | LS   | Decision        |
|----------------------------|----|------|------|----|---------|--------|------|-----------------|
| <b>Mile 1 Market Women</b> | 23 | 2.82 | 0.95 |    |         |        |      |                 |
|                            |    |      |      | 48 | 0.97385 | 1.96   | 0.05 | <b>Accepted</b> |
| <b>Mile 3 Market Women</b> | 27 | 2.83 | 0.95 |    |         |        |      |                 |



The analyzed data in table 4 showed the z-test analysis on the extent to which weekly sanitation organized by market chairmen helped in keeping the market clean at the end of every week. The result on the table showed there is no significant difference between the mean score and standard deviation of market women in mile 1 and mile 3 market on the extent to which weekly sanitation organized by market chairmen helped in keeping the market clean at the end of every week. The result on the table further showed the z-calculated value of 0.97385 which was less than the z-critical value of 1.96 at 0.05 level of significance and with a degree of freedom of 48. However, since the z-calculated 0.97385 was less than the z-critical 1.96, the null hypothesis was accepted which means that there is no significant difference between the mean opinion score and standard deviation of mile 1 and mile 3 market women on the extent weekly sanitation organized by market chairmen helped in keeping the market clean at the end of every week.

### **Discussion**

The discussion of the findings strictly followed the two research questions raised in the study. The view of market women engaged in keeping the environment clean after daily sales in the modern markets of Port Harcourt, Nigeria showed that market women at mile 1 and mile 3 ultra modern markets participated in the weekly sanitation market women participated in

has help improve their personal hygiene and has equally helped in having a clean environment. The findings is in agreement with Lu Aye & Widjaya (2005) as the level of environmental impact of waste generated by traditional markets with other sources of wastes generation saying that the attributed reason is that in general the waste generated from traditional markets are more uniform, more concentrated and less hazardous than waste from other sources. Furthermore, the findings agrees with Argenti (2000) as he viewed that the management of waste from the urban food system, particularly from markets and slaughterhouses, poses one of the greatest challenges to city managers. Slaughterhouse waste is related to a host of hygiene, health and environmental problems thereby requiring safe disposal. Growing quantities of waste from processing plants, markets and slaughterhouses together with dumping of plastic packing and waste burning boosts health risks and the pollution of water, soil and air. Therefore, weekly sanitation and proper waste management disposal in the public ultra modern markets will drastically reduce hazards to human life.

The view of market women on weekly sanitation organized by market chairman helped in keeping the market clean at the end of every week in the modern markets of Port Harcourt, Nigeria showed that market women at mile 1

and mile 3 ultra-modern market organized by the market chairman gave these women insight on healthy living both at home and at market places. The findings agrees with Adewole (2009) as he examined the major effects of waste management on the quality of life in two perspectives such as environmental and health effect. The major environmental effects include air pollution and waste pollution, while the health effects include flies which carry germs, mosquitoes breed in stagnant water in blocked drains, rat's spreads typhus, salmonella, leptospirosis and other diseases. Also, Miller in Balogun (2011) considered the second effects of waste management on the quality of life by saying that a city with a hazardous waste facility is now perceived and an undesirable place to live and to identify that people are leaving there is a social somatization. Weekly sanitation in market places especially the public ultra-modern markets in Port Harcourt is of high essence.

### **Conclusion**

Based on the results and the findings of this research, the researcher therefore noted that educating market women on proper waste disposal using environmental adult education programmes will be of great help as it will serve as a way of enlightening market women in public modern ultra modern market ways to which mile 1 and mile 3 market and its environs on personal hygiene, protecting the

environment from man-made disaster like flooding, erosion, loss of lives etc. and how the public markets can be kept clean after their daily businesses.

However, with the continuous the weekly sanitation organized by the various market chairmen every week, public markets in Port Harcourt will not only be neat but it will improve the personal hygiene of market women to a great extent.

### **Recommendation**

Based on the findings of the study, the following recommendations were made:

1. Public markets and its environs should be swept and kept clean regularly by these who makes any shop in the market at the close of their daily sales.
2. Market chairman should ensure markets are kept clean and everyone should keep his/her shade clean on every general market sanitation day.

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