

## **PROMOTING CHANGE IN SOLID WASTE DISPOSAL HABIT AMONG URBAN DWELLERS IN ABIA STATE THROUGH ENVIRONMENTAL ADULT EDUCATION**

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### **Abstract**

The study investigated 'promoting change in solid waste disposal habit among urban dwellers in Abia State through environmental adult education'. This study adopted the descriptive survey design. The population of this study will comprised 1956 health workers and residence in the study area (1862 members of 27 registered clubs, market associations, women groups and some town unions, and 94 health workers) in Aba South, Aba North, Umuahia South, and Umuahia North local government areas of Abia state. The sample for this study is 1,025 (931members of 27 registered clubs and 94 health workers) in the four Local Government Areas. The instrument used for collection of data for this research was a researcher made 40 items questionnaire titled 'Effectiveness of Environmental Adult Education Delivery Strategies of Abia State Environmental workers on Solid Waste Management among Urban Dwellers in Abia State (EEAEDSASEWSWM). Findings indicated that environmental adult education strategies effectively promoted change in solid waste disposal habit as well as promoted effective participation in activities for proper solid waste management among dwellers. Based on the findings, some recommendations were made which includes that the government should provide the public with disposal bins and incinerators at flash points of the cities and persuade families to provide some on their own.

**Keywords:** Solid Waste Disposal Habit, Adult Education and Environmental Adult Education

### **INTRODUCTION**

The issue of environmental sustainability is one that has become foremost in the minds of educationists, politicians and the society at large. In the recent past, the issue of sustainable development has been the bane of most global conferences and

summits. The United Nations Conference on Environment and Development (UNCED) otherwise known as the Rio Earth Summit held in Rio de Janeiro in Brazil in 1992 detailed some action plan which was referred to as Agenda 21. The Agenda specifically deals with the

management of waste. According to Nwabueze (2012) wastes include all unwanted materials that result from human activities which are discarded purposefully or accidentally into the environment. Osuafor further classified wastes as solid, semisolid, liquid, gaseous and radioactive. Wastes are produced everywhere and at any time in the homes, schools, markets, commercial and industrial centres.

The UNCED however recognised that management of waste among the environmental issues of major concern in maintaining the quality of the Earth's environment Eheazu (2016). According to Onyebamiji (2012) management of waste is one of the major environmental problems confronting many developing nations of the world. Wastes are inevitable consequences of human activities. In defining waste management Obeka (2011) saw it as the collection, transfer, storage, separation, recovery, recycling and final disposal of waste materials usually produced by human activities in an effort to reduce their effect on human health or local aesthetics. Similarly, Tanhill (2013) defined it as the collection, transport, processing, recycling or disposal and monitoring of waste materials for sustainable development. He further stated that waste management usually relates to materials produced by human activities

and all the processes generally undertaken to reduce their effect on human health and the entire household (Osibanjo, 2017).

Environmental Education (EE) is the teaching of individuals, and communities, in transitioning to a society that is knowledgeable of the environment and its associated problems, aware of the solutions to these problems, and motivated to solve them (Fulton, 2011). The United Nations Educational, Scientific and Cultural Organization (UNESCO) (2014) stated that EE is vital in imparting an inherent respect for nature amongst society and in enhancing public environmental awareness. UNESCO emphasizes the role of EE in safeguarding future global developments of societal quality of life through the protection of the environment, eradication of poverty, minimization of inequalities and insurance of sustainable development. Chukwu, (2010) observe that environmental education engages all category of citizens to:

1. Think critically, ethically, and creatively when evaluating environmental issues.
2. Make educated judgments about those environmental issues
3. Develop skills and a commitment to act independently and collectively to

sustain and enhance the environment.

4. Enhance their appreciation of the environment

Environmental adult education delivery for effective waste management can be achieved through the use of posters and flyers, radio and television jingles and dramas, traditional institutions among others. Igbuku and Ogunkoya (2012) suggested the use of cinemas, educational forums, household door to door campaign, street plays, street dances and animation like puppet shows and cartoons.

Adediran and Abdulkarim (2012) defined environmental adult education as education aimed at producing an adult citizenry that is knowledgeable concerning the biophysical environment and its associated problems. According to Adara (2006) environmental adult education enables individuals to acquire experiences about the physical environment as well as study the natural resources that are in it for optimal use. Several studies that been conducted on environmental adult education and solid waste management, Ajeh, (2012) carried out a study titled “Effectiveness of Environmental Education in Adults Learners’ Management and Disposal of Solid Waste in Selected Local Government Areas of Rivers State”. The findings of the study

showed that environmental education was effective in developing knowledge of solid wastes management/disposal among adult learners. Another study carried out by Haile (2011) on the Determinants of Effective Household Solid Waste Management Practices: The Case of Ambo Town Ethiopia. The overall objective of the study is to describe and analyze the household solid waste management current situation and examine the influence of demographics, socio-cultural and institutional factors on the effectiveness of solid waste management at household level in the town. The empirical analyses, using the logistic regression model, shows that, household head sex, household head educational level, household’s location (distance of residents from the main road or center), household’s willingness to pay, household’s awareness on solid waste management and household’s access to the private waste collectors’ service are the major determinants of effective household solid waste management in the study area.

In Abia State, Eheazu (2016) reports that between 400 and 850 metric tons of wastes are generated daily in Abia State. In the state, the rate of waste generation is so high that in one night, a refuse dump site that was cleared the previous day could be replaced with an equal volume of waste the following morning, thus creating the

erroneous impression that it was never cleared before. Another shocking revelation about the sanitary condition of Abia State cities is the fact that Friends of the Earth International (FEI) in 2014 ranked Aba and Umuahia amongst the first 20 dirtiest cities in world (AIT, 2015). In order to prevent people from this habit, Abia State Environmental Workers adopted different environmental adult education strategies for solid waste management to educate the urban dwellers on how to manage waste generated in their homes and surroundings.

Notwithstanding these efforts, solid waste disposal habit of urban dwellers in Abia State negates the provisions made by workers to reach out the populace on how to properly manage waste. However, these situations poised the researcher to investigate on how effective the existing strategies adopted by Abia State Environmental Workers to educate urban dwellers on solid waste management can be utilized to bring about proper waste management among urban dwellers in Abia in State. A lot of research has been carried out on environmental waste management, however, none to the researchers' knowledge has been done using the variables adopted in this study. The researcher therefore fills this perceived gap and investigates 'promoting

change in solid waste disposal habit among urban dwellers in Abia State through environmental adult education'.

### **Research Questions**

The following research questions guided the study:

1. To what level of effectiveness have the environmental adult education delivery strategies provided urban dwellers with requisite skills for management of solid waste in Abia State?
2. To what level of effectiveness have the environmental adult education strategies promoted change in solid waste disposal habit among urban dwellers in Abia State?
3. In what ways have the identified environmental adult education delivery strategies effectively promoted participation in activities for proper solid waste management among urban dwellers in Abia State?

### **1.5 Hypotheses**

The following hypotheses were tested at 0.05 level of significance:

**H<sub>01</sub>:** There is no significant difference in the mean ratings of the opinions of health workers and urban residents on the level to which the educational delivery strategies promoted effective

participation in activities for proper solid waste management among urban dwellers in Abia State.

## **Method**

This study adopted the descriptive survey design. According to Nzeneri (2010), in descriptive survey, data are usually collected, organized and analyzed and described as they exist in their natural setting without interfering with them. The population of this study comprised 1956 health workers and residence in the study area (1862 members of 27 registered clubs, market associations, women groups and some town unions, and 94 health workers) in Aba South, Aba North, Umuahia South, and Umuahia North local government areas of Abia state. The sample for this study is 1,025 (931 members of 27 registered clubs and 94 health workers) in the four Local Government Areas. This was due to the manageable number of the population and this was at the researchers' discretion. The instrument used for collection of data for this research was a researcher made 40 items questionnaire titled 'Effectiveness of Environmental Adult Education Delivery Strategies of Abia State Environmental workers on Solid Waste Management among Urban Dwellers in Abia State (EEAEDSASEWSWM). The questionnaire is divided into two sections, A and B,

Section A will elicit responses on demographic data of respondents while section B contained research questions and corresponding items on each research question. The instrument was given to my two supervisors and one other expert in measurement and evaluation of the University-Harcourt to ascertain the instruments face and content validity. There corrections, suggestions, and contributions were incorporated to improve the quality of the instrument before its final production. In order to determine the reliability of the instrument, the researcher adopted the test-re-test method and Pearson Product Moment Correlation Coefficient Statistic. For the test re-test, the researcher administered the instrument to 20 respondents within the scope of population of the study 10 each from Aba and Umuahia but not within the sample selected for the study. The same instrument was re-administered to same respondents after two weeks interval and the data obtained from the two test data was collated and analyzed with Pearson Moment Correlation Coefficient. The reliability index obtained is 0.81, the instrument was considered reliable. The researcher used mean to answer the research questions, and z-test analysis was used to test the hypotheses at 0.05 significant levels.

## Result and Discussion

**Research Question One:** To what level have the environmental adult education strategies effectively equipped urban dwellers in Abia state with requisite knowledge for waste management?

**Table 1:** Mean responses of the level the methods equip the people with waste management skills

S/N	Item	VHL	HL	LL	VLL	Total	Mean	Decision
1.	Use of print media	1330	244	380	-	6812	3.68	High level
2.	Use of electronic media	1126	813	15	-	6973	3.57	High level
3.	Use of door to door visits	1488	402	50	14	7272	3.72	High level
4.	Use of educational fora	372	1136	248	198	5590	2.86	High level
5.	Use of dramas	2	573	1170	199	4266	2.18	Low level
6.	Use of Television	1332	602	15	5	7169	2.67	High level
7.	Use of posters	569	1334	43	8	6372	3.26	High level
8.	Grand Mean						3.28	High level

Table 1 shows that the grand mean (3.28) is greater than the criterion mean (2.50), an indication that the strategies highly equip the urban dweller. Dramas equip them to a low level.

**Research Question Two:** To what level have the environmental adult education strategies effectively promoted change in solid waste disposal habit among urban dwellers in Abia State?

**Table 2: Mean responses of how the strategies promote change in waste disposal habit**

S/N	Item	VHL	HL	LL	VLL	Total	Mean	Decision
1.	Use of print media	1532	408	10	6	7378	3.78	High level
2.	Use of electronic media	1345	590	12	7	7181	3.68	High level
3.	Use of door to door visits	935	952	48	19	6711	3.43	High level
4.	Use of educational fora	398	1338	206	12	6030	3.09	High level
5.	Use of role play	744	935	65	210	6121	3.13	High level
6.	Use of poster cards	565	967	402	20	5985	3.06	High level
7.	Use of visits to schools	1308	397	220	24	6887	3.52	High level
8.	Use of seminars	1323	608	15	9	7155	3.66	High level
9.	Use of scooping gutter	1518	48	201	187	6805	3.48	High level
<b>Grand Mean</b>							<b>3.43</b>	<b>High level</b>

Table 2 show that the grand mean (3.43) is greater than the criterion mean (2.50). This implies that the identified strategies have

to a high level promoted change in waste habit in urban dwellers in Abia state.

**Research Question Three:** In what ways have the environmental adult education strategies effectively promoted participation in activities for proper solid waste management among urban dwellers in Abia State?

**Table 3:** Mean responses of how the strategies promote effective participation among the people

S/N	Item	SA	A	D	SD	Total	Mean	Decision
1.	Use of print media	1317	608	25	4	7146	3.66	Agree
2.	Use of electronic media	1322	593	30	9	7136	3.65	Agree
3.	Use of door to door visits	754	1151	30	19	6548	3.35	Agree
4.	Use of educational fora	573	1332	40	9	6377	3.26	Agree
5.	Role playing	558	1317	50	29	6312	3.23	Agree
6.	Monthly clean up	747	957	231	19	6340	3.24	Agree
7.	Town criers	1498	402	48	6	7300	3.74	Agree
8.	Radio Announcement	1332	608	10	4	7176	3.67	Agree
9.	Bill boards	195	1725	15	18	6003	3.07	Agree
10.	Television broadcasts	1864	16	55	19	7633	3.91	Agree
<b>Grand Mean</b>							<b>3.48</b>	<b>Agree</b>

Table 3 shows that the grand mean (3.48) is greater than the criterion mean of 2.50, indicating that the respondents agreed that the strategies promoted effective participation among the people of Abia

### Test of Hypothesis

**Hypothesis 1:** There is no significant difference in the mean ratings of health workers and Abia urban residents on the extent to which they promote effective participation in activities for proper solid waste management.

**Table 4:** Summary of z-test analysis on promotion of effective participation in activities for proper solid waste management

Variables	N	Mean	SD	$Z_{cal}$	$\alpha$	$Z_{tab}$	Decision
Health workers	94	3.48	0.62	0.756	0.05	1.96	H <sub>0</sub> Accepted
Residence	931	3.53	0.74				

From the results of the z-test analysis as shown in Table 4, the statement of hypothesis 2 is accepted; implying that there is no significant difference in the mean ratings of health workers and Abia urban residents on the extent to which they promote effective participation in activities for proper solid waste management among urban dwellers. This is because the calculated z-value is less than the critical z-value at 0.05 level of significance.

### Discussion of findings

Result from research question one shows that the grand mean rating score (3.30) of the strategies is slightly greater than the expected mean of 2.50. This implies that

State. This implies that all the strategies promoted people's participation in activities for proper solid waste management.

the strategies equip the dweller lowly. The result contradicts Mbalisi and Ugwu (2012) idea of traditional African way of dumping and burning openly or depositing wastes in bushes. The strategies equipped the public with the knowledge of developing sewage system to collect and move untreated sewage. It supports the idea of Anyatonwu, (2014) that with the advent of technology more can now get energy from burning fossil fuel to power machines. Through the knowledge acquired, the public therefore developed waste collection and disposal systems that suited their immediate environments, this

is to reduce the pollution of the human life-supporting element.

Research question two also shows that the grand mean (3.28) is greater than the expected mean (2.50). the result shows a high extent in the strategies changing the disposal habit in urban dwellers in Abia state which supports the position of Gbenga (2012) and include; monitoring street littering and encouragement of zero waste plans by authority, road sweeping, weeding, brushing and washing, regular withdrawal of large garbage bins from streets and provision of litter bins for pedestrians and families. The result again supported the theory of planned behavioural change adopted by Igbuku & Ogunkoya (2012) which emphasizes that human behaviour requires changing attitudes as a result of intervention programmes. It again emphasizes that behavioural changes are outcomes of a free- choice learning experience such as the strategies adopted in the programmes.

Research question three shows that the mean rating score of the analysis (3.43) is greater than the expected thereby showing effective participation of urban dwellers in waste disposal management. This was supported by the result of table 4.2.2 in which the analysis of the hypothesis showed that there is no significant difference in the mean ratings of health

workers and residence on the extent to which they promote effective participation in activities for proper solid waste management among urban dwellers in Abia State. The result supported Tella (2008) who observed the development of waste collection disposal system suited for individuals' environments. The government is not left out in active participation in solid waste disposal. They deploy daily, waste disposal vehicles to different LGAs to collect wastes and refuse in the state. Tella went on to explain that public private partnerships are of engaged to carry out waste collection and disposal services.

### **Conclusion of the findings**

Based on the findings of this study, it was concluded that environmental adult education strategies effectively promoted change in solid waste disposal habit as well as promoted effective participation in activities for proper solid waste management among dwellers. However, these strategies equipped dwellers with requisite knowledge for waste management to a low extent. It was also concluded that health workers and urban residents shared the same view on the education delivery strategies adopted for educating urban dwellers on solid waste management as well as the level to which they promote effective participation in

activities for proper solid waste management among urban dwellers in the study area.

### **Recommendations**

Consequent upon the findings and subsequent implications, the researcher proposes the following recommendations to improve the effectiveness of the Environmental Adult Education delivery strategies of Abia State Environmental Workers on solid waste management among urban dwellers.

1. The state Environmental Workers should always have a better time to relay their programmes on the electronic media such as television or radio so as to capture a wider audience to their information.
2. The government should provide the public with disposal bins and incinerators at flash points of the cities and persuade families to provide some on their own.
3. The government should provide enough supervision on scheduled clean up exercise days to ensure proper participation of the public.
4. The state Environmental Workers should bring to book any defaulter who tries to sabotage the efforts of the Workers having created enough awareness and acquainted the public with enough requisite

knowledge on solid waste management. This would serve as deterrent to others.

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