



AWARENESS INFORMATION OF RESPONDENTS' IN EFFURUN TOWARDS RECYCLING OF HOUSEHOLD SOLID WASTE

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ABSTRACT

Recycling practice by households is relatively important as one of the treatments that can reduce the amount of waste that goes to incineration or landfills, and it is important contribution to the economy and the environment. Recycling practice is not common among many households in Nigeria but the knowledge of recycling is known by many. This study examines information awareness on recycling practice among households in Nigeria. The study was carried out in Effurun, a commercial town in Delta State, to determine households' knowledge of the concept of recycling and how information awareness on recycling had helped households. Using the instrument of questionnaire for data collection, sixty-four (64) households were randomly contacted in the study area. Results obtained showed that awareness knowledge on recycling practice was largely from schools and from personal sources not the mass media. Recycling practice is largely done by streets scavengers in Nigeria for commercial purpose while many households recycled for environmental reasons. As part of sustainable environmental development, there is need therefore for media recycling awareness.

KEYWORDS: Environment; Households; Information awareness; Recycling

INTRODUCTION

It has been established that recycling practice by household is one of the treatments that can reduce the amount of waste that goes to incineration or landfills, and it is important contribution to economy and environment (Akil, Johar, & Siong, 2015; Iyer & Kashyap, 2007; Valle, Rebelo, Reis & Menezes, 2005). There are numerous studies related to household recycling behaviour or practice.

Though recycling behaviour or practice of householders and their other environmental behaviours are complex and diverse (Miafodzyeva, 2012; Akil, Johar, & Siong, 2015), attitude is believed to be the major contributor to recycling behaviour (McDonald & Oates, 2003). There are studies that showed that recycling problem is best handled by changes in individual behaviour (Miranda & Blanco, 2010; Byerne. & Regan, 2014; Cimen & Yilma, 2016). In the same vein, Ebreo and Vining (2001) examined how the

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self-regulation behaviours of individuals affect their recycling behaviours. Also, Tonglet, Phillips and Read (2004) examined the predictors of recycling behaviour according to the theory of planned behaviour in their study. The theory of planned behaviour (TPB) assumes that the immediate determinant of behaviour is the individual's intention to perform, or not to perform, that behaviour (Miafodzyeva, 2012). Taylor and Todd (1995) found that intention to recycle was positively influenced by attitude and perceived behaviour control but was negatively influenced by subjective norms. These studies identified attitudes as predictors of household recycling participation.

Studies conducted on factors affecting recycling behaviour such as the available infrastructure for recycling, recycling programmes, awareness about the results of recycling (Barr, Gilg, & Ford, 2001); showed that environmental knowledge and interest, settlement locations and types, perceived social effect (Davies, Foxall, & Pallister, 2002); behaviour and attitudes towards recycling (Tonglet, Phillips, & Read, 2004). Easy access to recycling bins has also been considered as the most important factor that affects recycling behaviour and attitudes towards recycling practice (Ebreo & Vining, 2000). Akil, Johar and Siong (2015) study showed reason why people do not participate in recycling. The reasons provided in the study were allocated into four categories namely: household /individual/behaviour; services or local situation; attitudes or motivation and information or knowledge. However, Vicente and Reis (2007) acknowledged that the success of recycling programme depends on active public participation in the separation of recyclable waste while Ittiravivongs (2011) believes that the achievement of recycling programmes depends essentially on the active and sustained involvement of people. Invariably, public participation in recycling programme basically lies in information and education. Information is crucial for household recycling practice.

Barriers factors related to household recycling have been explained. McDonald and Oates (2003) in their study classified four main barriers which were believed to be the main obstacles for those who are not participating in recycling practice or scheme. These were; efforts, information, context and incentives. Similarly,

Jesson and Stone (2009) provided barriers to recycling household waste in UK to be namely: household/individual behaviour; services or local situation; attitudes or motivation and information or knowledge.

Environmental knowledge is relatively important for recycling practice. A significant correlation between high school students' recycling behaviours and variables such as environmental anxiety, recycling knowledge and environmental student club membership exist (Cimen, & Yilma, 2016). The authors also showed that recycling knowledge was found to be a significant predictor of recycling behaviour in general and its behaviour and preferences dimensions. This means that recycling knowledge is one of the most sensitive environmental behaviour. However, recycling awareness is pivot for recycling knowledge and practice. Miranda and Blanco (2010) emphasized that environmental awareness is one of the most important factors that affect recycling. They imply environmental education. The purpose of environmental education as Byerne and Regan (2014) noted, is to raise the awareness of young individuals about environmental issues. This means that awareness and knowledge on recycling is necessary for recycling practice.

Clearly, the need to carry out recycling campaigns for sustainable solid waste management in Nigeria has not been given serious and adequate attention by government and other stakeholders in environmental management. Recycling practice is not common among households in Nigeria but with waste streets scavengers. Akila, Foziah and Hoc (2014) had shown in their study that household recycling programme received less attention in developing countries. Aksan and Çelikler (2019) believe that the problem with household recycling is weak environmental consciousness. They advocated for environmental education, which is aimed at improving the knowledge and skills needed for a sustainable future and enhancing quality of living by changing views of people.

One factor that stands out in these studies is information. Environmental information is very crucial for recycling practice and environmental management generally because it awakens consciousness and raises concern for environmental management. Environmental Information awareness on recycling practice among householder in cities in Nigeria is lacking,

just like the recycling behaviour of ethnic minorities in Turkey has received little attention to date (Perry & Williams, 2007). Ittiravivongs (2011) found that perceived adequacy of recycling information were direct predictors of recycling behaviour. However, some of these studies have not showed if information and awareness affect households recycling practice. Indeed, there are evidence to show that demographic variables such as age, education, income and types of households, personal factors including attitude and values are associated with and are strong predictors of recycling behaviour (Hansmann, Bernasconi, Smieszek, Loukopoulos, & Scholz, 2006; Mutang & Haron, 2012). However, there is no adequate evidence to show if recycling information awareness could affect household recycling practice in developing country like Nigeria. This current study is to determine information awareness on households practice on recycling.

Objectives

Against this backdrop, the objectives of this study among others are to:

1. Determine knowledge of the concept of recycling among households in Nigeria
2. How information awareness on recycling practice had helped households

The study therefore among other things will contribute to the existing concepts, theories, knowledge and practice in recycling of waste among households in Nigeria.

METHODOLOGY

Area of the Study

The study was carried in Effurun. Effurun is the headquarters of Uvwie Local Government Area (LGA) of Delta State. Effurun is a city in the South of Delta State. The population of the town as at the 2006 National Population Census was 188,726 (see www.population.gov.ng and www.nigerianstat.gov.ng). The city is surrounded

by rivers. Also, a refinery and petroleum chemical, gas industry is located at Ekpan, a town under the LGA. There are other oil firms operating there as well as other companies, making Effurun as one of the biggest commercial nerves of the state. The city has Federal University of Petroleum Resources and Petroleum Training Institute. There are radio FM stations: Crown FM and Gboko FM. The city also receive other FM stations around it like JFM in Otor-Jeremi, Udu; Melody FM (radio arm of the Delta Broadcasting Service, Warri); and Quest FM, Ughelli.

The survey research method was adopted using questionnaire as instrument for data collection. With the help of five research assistants, a total sixty-four (64) adults was randomly contacted to answer questions provided in the questionnaire. These adults were contacted in various places namely: their homes, place of work, shops and market shops. The copies of the questionnaire were directly administered to the households using a multi-clustering approach. The questionnaire was structured to determine knowledge of the concept of recycling among households in Nigeria and how information awareness on recycling had helped households. The questionnaire was divided into three sections. Section A was respondents' demographics, section. Section B was on households' information awareness on recycling while section C was households recycling practice. The questionnaire was structured to provide a two option and a four option arrangements. This type of questionnaire structured on recycling knowledge and behaviour have been used by Miafodzyeva (2012), Akila, Foziah and Hoc (2014) and Aksan and Çelikler (2019) respectively. Data were statistically analysed using percentage and average mean.

Results

The sixty-four (64) copies of the questionnaire returned were pooled, collated and analysed.

Table 1: Demographic Information of Respondents'

Characteristics	Frequency (N-64)	Percentage (%)
Sex Data Obtained		
Male	25	39.1
Female	39	60.9
Marital Status Data Obtained		
Single	17	26.5
Single parent (mothers)	20	31.3
Married	27	41.2
Age Range Data Obtained		
20-30	09	14.1
31-40	28	43.7
41-50	20	31.3
>51	07	10.9
Educational Level Data Obtained		
Primary Education	00	00
Secondary Education	21	32.8
Higher Education	43	67.2
Occupation Data Obtained		
Trading	10	15.6
Teaching	13	20.3
Nurses	06	9.37
Lecturing	07	10.9
Artisans	03	4.68
Students	10	15.6
Civil Servants	15	23.4

The demographic data obtained from the respondents

Section B: Households Information Awareness on Recycling

Table 2: Awareness of the Concept of Recycling

Question	Options	
	Yes	No
Have you heard of the concept-- Recycling?	52 (81.3%)	12 (18.7%)

Majority of the respondents have heard of the concept of recycling (81.3%).

Table 3: Respondents'/Households' Knowledge of the Concept of Recycling

Which one of these items best explained the concept of recycling to you?	Frequency (N-64)	Percentage (%)
Managing of solid waste	00	00
Reusing of waste items	22	34.5
A process of separating waste that can be reused	34	53.3
The process of selling of waste items	00	00
System of reducing waste	08	12.5
No idea	00	00

The meaning of recycling was identified by 53.3% of the respondents

Table 4: First Source of Information of the Concept of Recycling

Which one of these was your first source of the term of recycling?

Options	Frequency (N-64)	Percentage (%)
At school	19	29.6
Books	10	15.6
Internet	08	12.5
Radio	00	00
Television	19	29.6
Newspaper	04	6.25
Social media	00	00
Family	00	00
Friends	00	00
Environmental officials	04	6.25
Health officials	00	00

Major sources of information awareness on recycling to respondents were school and television.

Table 5: Frequent Source of Information on Concept of Recycling

Which one of these has been your frequent source of the term of recycling?

Options	Frequency (N-64)	Percentage (%)
At school	20	31.3
Books	04	6.25
Internet	10	15.6
Radio	00	00
Television	14	21.8
Newspapers	08	12.5
Social media	08	12.5
Family	00	00
Friends	00	00
Environmental officials	00	00
Health officials	00	00

Frequent source of information awareness on recycling was in school (31.3%)

Table 6: How Information Awareness on Recycling Helped Households

Which one of the following items best explained how information received on recycling had helped recycling practice?

Items	Frequency (N-64)	Percentage (%)
It increases my knowledge on recycling	17	4.68
It increases my interest on environmental management	10	15.6
It enables me know that waste is wealth	10	15.6
It helps to reduces waste on the environment	00	00
It enhances sustainable development	00	00
It has helped me in health benefits of recycling	15	23.4
It helps in providing raw material to certain industry	03	26.5
It helps in protecting and preserving the ecosystem	00	00
It generally awakens my environmental consciousness and concern	06	9.37
It helps in appropriating waste	00	00
It made me to reuse and recycle something rather than throw away	03	4.6

Information awareness had helped respondents in recycling knowledge (26.5%)

Section C: Determining Households Recycling Practice

Table 7: If Household is Involved in Recycling Practice

Question	Options	
	Yes	No
Do you recycle waste items?	40 (62.5%)	24 (37.5%)
Majority of the respondents recycled (62.5%)		

Table 8: What Households Recycled?

What do you recycled?	Frequency (N-64)	Percentage (%)
Items Provided		
Paper/cardboard/cartons	04	6.25
Plastics	12	18.7
Glass	00	00
Battery	07	10.9
Composite	00	00
Metals/steels	07	10.9
Vehicle tire	00	00
Electronic waste	07	10.9
Medical waste	00	00
Anything that can be reused	27	42.2
Households recycled anything that can be used like all the items listed in this table (42.2%)		

Table 9: Reasons for Recycling

Identify one major reason why you recycle?	Frequency (N-64)	Percentage (%)
Items Provided		
Reducing health problem	07	10.9
To make some money	12	18.7
As part of solid waste management	21	32.8
Providing for industrial raw materials	12	18.7
Reduces bad smell	00	00
Becoming environmentally conscious	12	18.7
As part of solid waste management was the major reason households recycled (32.8%)		

Table 10: Scaling Responses on Information Awareness and Households Recycling Practice

NOTE: SA (Strongly agree); A (Agree); UD (Undecided); D (Disagree); SD (Strongly disagree)

S/N	Items	Options					Mean
		SA	A	UD	SD	D	
1	The concept of recycling is not strange to many households in Nigeria	22	32	00	00	10	3.87
2.	Recycling knowledge is known majorly by educated households in Nigeria.	02	07	00	29	26	1.90
3.	Recycling is done majorly by the poor and not-too-educated households in Nigeria.	00	06	06	34	18	1.53
4.	Media attention has not been channel on recycling programme in Nigeria.	12	32	00	07	13	3.35
5.	Awareness on recycling practice is majorly from personal source not the mass media.	10	30	03	09	12	3.26
6.	Households' involvement in recycling is largely for commercial purpose in Nigeria..	08	05	02	34	15	2.32
7.	Recycling is for scavengers in the streets of Nigeria.	00	00	02	48	14	1.81

Mean point or point of decision (3.00) and (n-64)

DISCUSSION

The data collected were pooled and analysed using descriptive statistics of frequency counts and percentage. Data obtained from respondents' demographics clearly represent the concepts of recycling by households. This is because household could be a single parent (a mother with a child or children), couples with children and single adults with siblings. Also, the age and the level of education of the respondents (67.2%) evidently shows that majority of the respondents (81.3%) have heard of the concept of recycling. Contrary to the findings by Akil, Johar, and Siong.(2015) that elderly people are found to be more active in recycling compared to the younger ones, this study shows that younger people within the ages of 30-40 and 50 were found to be more active in recycling than elderly people. This means that recycling is inclusion for all ages with people of interest. Studies have showed that socio-economic factors namely, education, gender, and age correlate with recycling behaviour (Troschinetz, & Mihelcic, 2009; Akila, Foziah, & Hoc, 2014). This also explains why majority of the respondents (53.3%) identified the process of separating waste that can be reused as best explained the concept of recycling among other definitions provided.

Respondents' understanding of the concept of recycling lines up with that of Cimen and Yilma (2016) study, that recycling is the inclusion of waste that can be reused in the production process again by putting them through a variety of physical and/or chemical processes and transforming it into secondary raw materials. This provides answer to objective one that seeks to determine knowledge of the concept of recycling among households. This implies that the concept of recycling is understood by many households (53.3%). This result corresponds with that in table 10, item one, where respondents' agreed that the concept of recycling is not strange to many households in Nigerians, although, recycling knowledge is known largely by educated households in Nigeria.

One of the core aspects of the study was to determine information awareness on recycling. The data obtained showed that the major sources of information awareness on recycling to respondents were in schools and television viewing. There are studies to show that school has been a major source of knowledge on recycling behaviour (Cimen, & Yilma, 2016; Yilmaz, Aksan, & Çelikler, 2016; Aksan, & Çelikler, 2019) whereas there is need to have more studies on television or media role in recycling knowledge and behaviour. It was also

obtained that the school remains a frequent source of information awareness on recycling knowledge not the mass media. This finding corresponds with that in table 10 items 4 and 5 of this study that mass media have not been channeled on recycling practice in Nigeria. Awareness on recycling practice was majorly from personal source not the mass media. This result finds credence with Miranda and Blanco (2010) study that environmental awareness is one of the most important factors that affect recycling. This implies that environmental education encourages recycling. To Byerne and Regan (2014), the purpose of environmental education is to raise awareness of individuals about environmental issues

However, objective two attempts to determine how information awareness on recycling practice had helped households. The study showed that information awareness on recycling practice had helped households in many ways like increasing household interest on environmental management; enabling or sorting of waste to wealth; protecting and preserving the ecosystem; awakening environmental consciousness and concern. Specifically, recycling had helped households in providing raw material to certain industry. This shows the benefits of recycling. Aksan and Çelikler (2019) study had shown the benefits of recycling. They found that the prevention of environmental pollution, contribution to economy and energy saving, protection of nature, prevention of waste of raw materials and conservation of natural resources as the benefits of recycling of waste.

It is also imperative to know what household recycles since 62.5% of the respondents affirmed that they recycled. As obtained from the data collected, households recycle anything than can be resold to street scavengers on recycling items used such as used papers/cartons, plastics, and metals/steels. Invariably, items that have second-hand value were recycled. Iyer and Kashyap (2007) claimed that recycling has one of the most environmental values since recycling contributes to the economy and the environment. Contributing to the economy and the environment also explains one of the reasons why households recycled. On households recycling for economic benefits, results obtained showed that respondents disagreed to the statement that

households' involved in recycling for commercial purpose in Nigeria. This means that households do not recycle for commercial purpose. On this, Akil, Johar, and Siong (2015) lament that it is discouraging to see that most people recycle because of economic benefits. Nevertheless, becoming environmentally conscious as a way of solid waste management was the primary reason why households recycled.

Recycling is a common practice in many streets and cities in Nigeria by young people. Access to information is a basic requirement for sustainable development. A study has shown that a basic requirement for the achievement of sustainable development is that citizens have the right and ability to influence decisions about the natural resources that sustain their communities (Schwarte, 2008). With access to environmental information, people will have knowledge of the benefits or implications of recycling and their activities on the environment.

The findings in the study imply that there is need for consistent media advocacy campaigns on recycling practice from households to the industry, which help not only for environmental sustainable development but also economic benefits especially in this era of climate change campaigns.

CONCLUSION

Knowledge on recycling is common among many households in Nigeria but only few households are involved in recycling. Recycling practice is largely done by streets scavengers in Nigeria for commercial purpose while many households recycle for environmental reasons. Information awareness on recycling practice had helped households in many ways like increasing household interest on environmental management; enabling waste to wealth; protecting and preserving the ecosystem; awakening environmental consciousness and concern but specifically, recycling practice had helped households in providing raw material to certain industry. Awareness knowledge on recycling practice was largely from schools and from personal sources not from the mass media. There is need therefore for the mass media to increase awareness on recycling practice and benefits especially environmental benefits. This is part of sustainable environmental development.

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