

# Interaction of Psychological Variables on Residents Attitude towards Solid Waste Management in an Urban Centre of Nigeria

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### **Abstract**

The study examined the interaction influence between self-monitoring and locus of control on attitude towards solid waste management among residents in Lagos metropolis of Nigeria. The study adopted the survey design. The study population consisted of residents in Lagos State. The study sample consisted of 375 residents in two local government areas of Lagos State. Three psychological measures namely: Self - Monitoring Scale (SMS), Locus of Control Scale (LOCS) and Attitude Towards Solid Waste Management Scale (ATSWMS) were used to collect data. The data collected were analyzed using appropriate descriptive and inferential statistics. The results showed a significant interaction influence of self -monitoring and locus of control on attitude towards solid waste management of residents (F (1 ,371) =7.056 ,p<0.05). This indicates that psychological factors are very important precursor in the self-reported positive attitude towards solid waste management practices in the study area. The study has implication for policymakers and stakeholders to put into consideration the psychological attributes of residents in the design and formulation of intervention programme and strategies in changing people's negative orientation and belief in the observation of a desirable solid waste management practices.

**Keywords**: Self-Monitoring, Locus of control, Interaction, Attitude towards Solid Waste management.

### Introduction

One of the greatest environmental concerns in Nigeria is the problem of waste disposal. Nigeria's major urban centres are today fighting to clear mounting heaps of solid waste from their environments. These strategic centers of beauty, peace and security are being overtaken by the messy nature of overflowing dumps of unattended heaps of solid waste emanating from household and domestic markets, shopping and business centers. The poor level of solid waste disposal in Lagos is a serious concern as solid waste constitutes environmental nuisance and thus hazardous to health. In a recent online survey by the Sahara Reporters, online news focusing on Nigeria, Ibadan and Lagos were described as the filth centre of the world (Oyeniyi, 2011). The survey revealed one important fact, that urban cities in Nigeria are faced with the problem of waste disposal and management. Lagos is faced with population increase and rapid expansion. These phenomena have no doubt, brought increasing strain on urban infrastructure and facilities.

One area in which this strain has become obvious is in waste management where the existing system appears to be incapable of coping with the mountain load of waste generated and heaped on almost every street corner. Solid waste production has grown beyond 16 million tonne per annum in Lagos state in direct response to rising consumerism, technology and population growth (Ibiyemi, 2010). As time passes the only certainty is that accumulation of waste will outstrip its control. Throughout the western world, there are no longer enough convenient holes in the grounds into which to tip unwanted matter. The third world, having refused to become the "dustbin" of the western world, also lacks appropriate storage facilities, treatment technologies, and good methods of disposal for its waste (Gourlay,1992). Not discounting the above factors, other factors might have compounded the problem.

People's apathetic and lackadaisical attitudes towards matters relating to personal hygiene and environmental cleanliness, of which waste management in general is its focal point, should not be over looked (George, 2010). An average citizen has the mindset that the issue of solid waste disposal should be the sole responsibility of the government to collect the amount of wastes they generated in their households and dump them in designated sites. The Lagos State Government in their own initiatives, came up with the idea of the Private Sector Participation(PSP) in waste management and asked the registered PSP operators to get compactors, telling them that henceforth, evacuation of waste from household to dumpsite in open trucks would no longer be tolerated. Furthermore, Kick Against Indiscipline (KAI), a paramilitary agency was set up by Lagos



State Government to curb environmental indiscipline in the metropolis.

Despite the efforts made by various levels of government to sanitize the environment, it is still filthy and has an adverse effect on the wellbeing of residents; most parts of the Lagos metropolis are hardly free of the waste menace since the PSP operators took over refuse clearing. Besides the health problem, solid waste blocks the drainage system and creates severe flooding on the streets especially during the raining season when farm produce leaves litters the environment (Ilevbare, 2011). Solid waste could be defined as non liquid and nongaseous products of human activities, regarded as being useless. It can take the forms of refuse, garbage and sludge. The World Health Organization ,WHO (2001) also defines waste as "something, which the owner no longer wants at a given time and place and which has no current or perceived market value". One of the few status in Nigeria, that attempts to define waste is the Lagos State Environmental Sanitation Edict (1985), which in Section 32, define waste as (a) waste of all description (b) any substance, which constitutes scrap materials or an effluent or the other, unwanted surplus substance arising from the application of any process. However, psychological factors such as self-monitoring and locus of control should not be underscored as crucial factors in predicting attitude towards solid waste management.

According to Mischel (1986), such psychological variables would interact to influence human attitude and behaviour. Locus of control is grounded in Expectancy – Value Theory, which describes human behaviour as determined by the likelihood of an event or outcome occurring contigent upon the behaviour in question and the value placed on the event or outcome. Hwang, Kim and Jeng (2000) refers to locus of control as an individual's belief in whether or not he or she has the ability to bring about change through his or her behaviour. Studies have shown that locus of control is associated with environmental issues. Hines, Hungerford and Tomera (1987) concluded that an internal locus of control is positively related to environmental behaviour while Cleverland, Kalanas and Laroche (2012) found that the development of a novel construct, internal locus of control captures consumers' multifaceted attitudes pertaining responsibility towards and ability to affect environmental outcomes.

Lennox and Wolfe (1984) restricted the concept of self-monitoring to the ability to modify self-presentation and sensitivity to the expressive behaviour of others. The Self- Monitoring Theory refers to the process through which people regulate their own behaviour in order to "look good" so that they will be perceived by others in a favourable manner. Researches have indicates that the way an individual presents him/her self in situations and adjusting his/her performance to create the desired impression can be a crucial factor in predicting a positive attitude towards environmental issues, for example, Ilevbare (2011) examined the influence of self-monitoring on residents self – reported attitude towards solid waste management in Lagos metropolis and the finding established that people who seek to present themselves in positive light to the public are more concerned with the way they manage solid waste—and also Green-Demers, Pelletier, and Menard (1997) examined the relationship between self-determination, the perceived difficulty of performing various pro-environmental behaviors, self-reported recycling behaviour, purchase of environmentally friendly consumer products, and efforts to gain knowledge about environmental problems. They found that consistent with the theory, self-determination was positively related to the frequency of pro-environmental behaviour.

However, several authors have provided evidence, suggesting that self-identity dimensions can be a useful addiction to the Theory of Planned Behaviour within the domain of repeated behaviours such as recycling. To compare the predictive power of a new model of self-expressive behaviour with the TPB, a study was conducted in which, besides the classic variables of the TPB model (such as attitudes, subjective norms and perceived control), similarity between personal identity and identity typical recyclers was also taken into account. Two hundred and thirty subjects were recruited to study behavioural intentions concerning household recycling in relation to the variables mentioned above. Data analysis, based on structural equation modelling, shows that personal identity contributes significantly and independently to the explanations of intentions to recycle (Mannetti, Pierro & Livi, 2004).

### Hypotheses

- \*Participants who are high on self-monitoring would report a more better positive solid waste management than those who are low in self-monitoring.
- \*Participants who have internal locus of control would have a more positive attitude towards solid waste management than those who have external locus of control
- \* Participants' self-monitoring and locus of control would have a significant interaction influence on attitude towards solid waste management.

## **Study Location**

The study was carried out in Ikeja and Yaba LGAs of Lagos State, south-west Nigeria. The present Ikeja LGA is bounded in the north by Agege LGA, in the south by Oshodi- Isolo and Mushin LGAs, in the East by Shomolu LG, and on the west by Alimosho LGA. The headquarters of Ikeja LGA is Alausa. It is worthy to note that Ikeja LGA is also the capital of Lagos State. Makoko in Yaba LGA was also used as a study area. Makoko lies within the south-eastern part of Metropolitan Lagos. It is bounded in the North by Iwaya and University of Lagos, at the



West by Ebute-Meta, South by the Third Mainland Bridge and East by the Lagos Lagoon. Makoko community sprang up in the early nineteen century. The settlement is surrounded by mass of abundant 'Akoko' trees, wild swamp vegetation and animals. The community is dominated by the 'Ilajes' and 'Eguns'; there are also Yorubas with few Igbos and other ethnic groups. Land ownership is vested in two families namely: the 'Oloto' and 'Olaiye' family. The residents of the area are confronted with severe flooding especially during the wet season.

# Methodology This study adopted the survey design. A total of 375 (210 males and 165 females) respondents were drawn from two residential areas of Lagos. A multi-stage sampling procedure was followed in drawing this sample. In the first stage two Local Government Areas (Ikeja and Yaba) were purposively selected from the 20 Local Government Areas in Lagos State. In the second stage urban cores (that is, whether low or high density areas) were identified in the two LGAs. From this listing one low density (Ikeja) and one high density (Makoko) urban cores were selected through simple random sampling. In the third stage of the sampling, the National Population Commission (NPC), list of localities was used as a sampling frame. The identified localities in the two LGAs consisted this sampling frame. During data collection, the researcher approached participants in their various households; explaining the purpose of the study to them. Participation in the study was voluntary and the researcher sought for participant's consent. Data collection was under the condition of anonymity. Specifically, a time space of two hours was given to fill the questionnaire after which the questionnaires were retrieved from the respondents through the help of research assistants. Collected questionnaires were thereafter examined and properly sorted to ensure that they were properly filled before leaving the field. Four hundered questionaires were initially administered out of which 380 were retrieved and 5 questionnaires were rejected, thus only 375

Approriate descriptive and inferential statistics was used to analyze the data collected from the field. The descriptive statistics was used for the analyses of percentage counts while inferential statistics of t-test and ANOVA was used to test the hypotheses generated for the study. All statistical analysis were carried out using the Statistical Package For Social Sciences (SPSS) Version 16.0 designed to give meaning to the data.

questionnaires which constitute the sample size was used by the researcher accounting for 93.75% return rate.

### Measures:

**The Socio-Demographic data :** This would measure information relating to the socio-demographic variables such as age, sex, marital status, religion, educational qualifications and place of residence.

**Self-Monitoring Scale (SMS):** The SMS is a 13-item scale developed by Lennox and Wolfe (1984). The response pattern is on 5-point Likert format of strongly agree = 5 to strongly disagree = 1 for positive statement and vice-versa. The scoring of items was summed to form a single score. The mean score was used to dichotomize between high and low self-monitoring. The authors reported a Kuder -Richardson reliability of 0.70 and a test-retest reliability of 0.83 (df = 51, P<.001) one month interval. Balogun and Ojedokun (2005) also reported a Cronbach alpha coefficient of 0.91 and split half reliability coefficient of 0.87 for the scale. In this present study, a co-efficient alpha reliability of 0.74 was reported for the scale. The sample items include"In social situations, I have the ability to alter my behaviour; "I have the ability to control the way I came across to people, depending on the impression I wish to give them"When I feel that the image I am portraying is not working, I can readily change it to something that does"; "and I have trouble changing my behaviour to meet the requirement of any situation I find myself in"

Locus of Control Scale (LOCS): The LOCS is a 17-item scale measuring locus of control behaviour .The scale was developed by Craig, Franklin and Andrew (1984). The response format ranged from "Strongly Agree = 5 to strongly disagree = 1, so that high score means external locus of control and low score indicate internal locus, no items was reversed in scoring, all relevant items answered by the participants were equally weighed and then summed together to get a composite score. Sample of items include"I can anticipate difficulties and take action to avoid them"; "A great deal of what happened to me is probably just a matter of chance"; "Everyone knows luck or chance determine ones,s future"; "My life is controlled by outside actions and events"; "I believe a person can really be a master of his fate" Craig, Franklin and Andrew (1984) reported an alpha coefficient of 0.79 for the scale Taiwo, Olapegba and Adejuwon (2005) have also reported a reliability coefficient of 0.75 for the scale among a Nigerian sample. In this present study an alpha coefficient of 0.51 was reported for the scale

Attitude towards Solid Waste Management Scale (ATSWMS): ATSWMS was used to measure attitude towards solid waste management practices among participants. The Attitude Towards Solid Waste Management Scale (ATSWMS) is a 24-item scale developed by the researcher for the purpose of the study. The phrasing of the wordings are in the sentence formats. A sample of the items includes"A clean environment is a healthy one"; Waste management should be the joint responsibility of both individual households and government agencies'; "the solid waste management policies of the local government are inadequate"; "Scavengers are responsible for the recycling of waste"; "Even when refuse bins are provided they are inaccessible"; "Ideally waste should be buried"; "Sometimes it is better to re-use household items instead of throwing away"and "there should be a private-public partnership in the management of solid waste. Respondents were expected to indicate their level of agreement to the item on a 5-point response-format of "Strongly Agree(5) to Strongly Disagree (1)". The



scoring of these items were summated to form a single score. High scores on the scale indicate a positive attitude towards solid waste management while low scores indicate negative attitude towards solid waste. A co-efficient alpha of 0.78 was reported for the scale and a Guttman split-half co-efficient of 0.50 was also reported for this scale.

# **Results and Discussion of findings**

Analysis of the socio-demographic variables from **table I** revealed that the ages of those sampled ranged from 20 to 66 years with a mean age of 33.26 years and out of the total respondents for this study, one hundred and twenty-two {32.5%} were never married, one hundred and eighty-four (49.1%) were married while sixty-nine (18.4%) were divorced. One hundred and thirty-eight (138) (36.8%) were Yoruba; seventy-seven (20.5%) were Hausas while one hundred and sixty (42.7%) were Igbo's. With regard to occupation, one hundred and seven (28.53%) were traders, ninety (24%) were Civil Servant, ninety-two (92) (24.53%) were into teaching profession, twenty-nine (29) (7.73%) were apprenticeship while fifty-seven (15.20%) belong to other profession. In terms of religious affiliation, one hundred and sixty-three (43.47%) were Christians, one-hundred and fifty-one (40.27%) were Muslim while sixty-one (16.26%) practice traditional religion. With regard to educational qualification, thirteen (3.47%) were primary school holders, seventy-three (19.47%) had S.S.E ninety-four (25.07%) had NCE/OND, one hundred and fourty (37.32%) had HND/B.Sc (first degree holders) while fifty-five (14.67%) had masters degree and above. A total number of two hundred and twenty-four (59.73%) reside in Ikeja while the remaining one hundred and fifty-one (40.27%) reside in Makoko.

The first hypothesis which posits that participants who are high on self-monitoring would report a more positive attitude towards solid waste management than those who are low in self-monitoring was confirmed in the study. The hypothesis was tested by means of a two-way analysis of variance (2-way ANOVA). The results of the analysis are presented in Table 3. The results of data analysis indicates that there is a statistically significant main influence of self-monitoring on attitude towards solid waste management (F [ 1, 371] = 24.134, p < .05). This finding suggests that the way people seek to present themselves to the public influences other attitude towards solid waste management. Further examination of this finding through the comparison of the means of the two groups on this variable was carried out by means of the t-test for independent sample. The results of the analysis are presented in table 3. This finding indicates that respondents with high self-monitoring (M= 87.624; SD = 10.947) had a statistically significant more positive attitude towards solid waste management than those with low self-monitoring (M = 81.124; SD = 12.705; t [373] = 5.223, p < .05). This finding suggests that people who seek to present themselves in positive light to the public are more concerned with the way they manage solid waste in the study area. This finding collaborates with the studies of Green-Demers, Pelletier and Menard (1997) who found out self-determination was positively related to the frequency of pro-environmental behaviour and Ilevbare (2011) who also found that people who seek to present themselves in positive light to the public are more concerned with the way they manage solid waste

The second hypothesis which posits that participants who have internal locus of control have a more positive self—reported attitudes towards solid waste management than those who have external locus of control was not supported in the study. The hypothesis was tested by means of the 2-way ANOVA presented in **table 3**. The result of the data analysis indicate that there is no statistical significant influence of locus of control on attitude towards solid waste management in the study area (F $\{1, 371\} = 2.483, p>.05$ ). The findings indicate that locus of control does not influence peoples attitude towards solid waste management in the study area. Therefore, this hypothesis is rejected. The outcome negates previous studies, such as Hines , Hungerford and Tomera (1987) who found a positive relationship between internal locus of control and environmental behaviour and Cleverland, Kalanas and Laroche (2012) that also found significant relationship between the development of a novel construct , internal locus of control and ability to affect environmental outcomes. This finding may be attributed to the identical environment setting where the residents share similar values and orientation.

The third hypothesis which stated that there is a significant interaction influence between self-monitoring and locus of control on participants' attitude towards solid waste management in the study area was confirmed in the study. This finding was supported by Ilevbare (2011) and Mischel (1986) who found out that psychological variables would interact to influence pro-environmental behaviour. Furthermore, the result was analyzed through a multiple comparison of various groups. The result is presented in **table 3** and **4** below.

- 1. Participants with low self-monitoring and were at the same time internal in the locus of control (N = 126,  $\overline{X}$  = 81.667, SD = 12.918) had a statistically significant more positive attitude towards the management of solid waste than does those with low self monitoring but were at the same time external in the locus of control (N = 84,  $\overline{X}$  = 80.309, SD = 12.411; t (208) = 2.721, p < .05).
- 2. Participants with low self-monitoring and were at the same time internal in the locus of control  $(N = 126, \overline{X} = 81.667, SD = 12.918)$  had a statistically significant less positive attitude towards the management of solid waste than does those with high-self monitoring with internal in the locus of control  $(N = 68, \overline{X} = 84.500, SD = 11.306; t (192) = 5.49, p < .05)$ . Thus those with high-self monitoring with internal in the locus of control had a statistically more positive attitude than those with low self-monitoring with internal in the locus of control in the



management of solid waste in the study area.

3.Participants with high self-monitoring and were at the same time external in locus of control (N=97,  $\overline{X}$ = 89.814, SD = 10.186) had a statistically more positive attitude towards the management of solid waste than those with low self-monitoring with internal in the locus of control (N = 126, X = 81.667, SD = 12.918; t (223) = 17.905; p < 0.05).

4.Participants with low-self monitoring and were at the same time external in locus of control (N= 126,  $\overline{X}$  = 81.667, SD = 12.91) had a statistically less positive attitude towards the management of solid waste than does those with high self-monitoring but were at the same time internal in locus of control (N = 68,  $\overline{X}$  = 84.500, SD = 11.306; t (150) = 7.484, p < 0.05).

5.Participants with high self-monitoring and were at the same time external in locus of control (N = 97,  $\overline{X}$  = 89.814, SD = 10.186) had a statistically more management of solid waste than does those with low self-monitoring but were at the same time external in locus of control (N = 68,  $\overline{X}$ = 84.500, SD = 11.306; t (179) = 78.897, p < .05).

6.Participants with high self-monitoring and were at the same time external in locus of control (N = 97,  $\overline{X}$  = 89.814, SD = 10.186) had a statistically significant more positive attitude towards the management of solid waste than does with high self-monitoring but were at the same time internal in locus of control (N = 68, M = 84.500, SD = 11.306; t (163) = 11.403, p<.05).

### Conclusion

The outcome of the study indicates that self-monitoring of residents played a significant role in the favourable disposition towards solid waste management practices in the study area. Furthermore, residents who seek to present themselves in positive light to the public are more concerned with the management of solid waste in Lagos metropolis. Residents' locus of control did not contribute to favourable disposition towards solid waste management practices. However, there was a significant interaction influence of self-monitoring and locus of control on attitude towards solid waste management in the study area. This further demonstrates that self-monitoring and locus of control are very crucial in their relationship with attitude towards solid waste management.

# **Implication**

The findings of this research has great implications for the improvement of the present solid waste management practices in Lagos metropolis and Nigerian urban environment in general, where there is an urgent need for behavioural and attitudinal change in achieving a desirable solid waste management practices and culture for a sustainable environmental management. The findings of this research have practical implications for stakeholders and policy-makers in the development of intervention programme and strategies in changing people's negative orientation and belief in the observation of a desirable solid waste management practices. This could be achieved by putting into consideration these psychological attributes (i.e. self-monitoring and locus of control) in the sensitization of residents on the appropriate solid waste management practices in their various households.

### **Recommendations for further studies**

The study has clearly shown that psychological variables such as self-monitoring and locus of control have interaction influence with favourable attitude towards solid waste management practices among residents'. This does not indicate that the factors examined are by no means exhaustive. In this regard, other measures or variables could also be considered in future research such as personality factors, individual differences, environmental self-efficacy etc. It is therefore suggested that future studies should incorporate the aforementioned variables into the broader framework to determine their individuals and joint contribution to improve waste disposal culture.

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Table.1: Summary table of Socio-Demographic Characteristics of the Respondents

Variable	Group	Frequency (N)	Percentage %
Age	Below 30 years	132	35.2
	31-40 years	110	29.3
	41-50years	81	21.6
	Above 50 years	52	13.9
	Total	375	100%
Sex	Male	210	56
	Female	165	44
	Total	375	100
Ethnicity	Yoruba	138	36.8
-	Hausa	77	20.5
	Igbo	160	42.7
	Total	375	100.0
Marital Status	Never married	122	32.5
	Married	184	49.1
	Divorced	69	18.4
	Total	375	100
Occupational	Trading	107	28.53
	Civil servant	90	24.00
	Teaching	92	24.53
	Apprentice	29	7.73
	Others	57	15.20
	Total	375	100
Religion	Christian	163	43.47
	Muslim	151	40.27
	Traditional	61	16.26
	Total	375	100.00
Educational Qualification	Pry	13	3.47
-	SSCE	73	19.47
	NCE/OND	94	25.07
	HND/B.Sc	140	37.32
	M.Sc and Above	55	14.67
			100.00
Area of Residence	Ikeja province	224	59.73
	Makoko	151	40.27
		375	100

Source: Author's Field Survey (2013)

Table 2: Summary table of t-test Comparison of the Self-Monitoring Groups on Attitude towards Solid Waste Management.

Groups N	N	$\bar{X}$	SD	df	t	P
Low self-monitoring	210	81.124	12.705	373	5.223	.0001
High self monitoring	165	87.624	10.947			

(t [373] = 5.223, p, <.05).

Table 3: Summary of 2-way ANOVA on Attitude towards solid waste management by self monitoring and locus of control

Source	Sum of Squares	Df	Mean Square	F	SIG.
	SS		MS		
Intercept	2521185.526	1	2521185.525	17929.208	.000
Self monitoring	3393.766	1	3393.766	24.134	.000
Locus of control	349.117	1	349.117	2.483	.116
Self-Monitoring*					
locus of control	992.275	1	992.275	7.056	.008
Error	52169.612	371	140.619		
Total	2702288.000	375			
Corrected Total	57295.904	374			



Table 4: Summary table of Means and Standard Deviation of the Interaction Groups

		N	Mean	Std	
1. Low SM with	Internal LOC	126	81.667	12.918	
2. Low SM with	External LOC	84	80.309	12.411	
3. High SM with	Internal LOC	68	84.500	11.306	
4. High SM wit	External LOC	97	89.814	10.186	

Note:\*SM = Self-Monitoring \*LOC = Locus of Control

Multiple Comparisons of the Various Attitudes towards Solid Waste Management

Comparisons	Mean Difference	df	t	p
1 vs 2 LSM×ILoc	1.358	208	2.721	.01
1 vs 3 HSM×ILoc	-2.833	192	5.49	.001
1 vs 4 HSM×ELoc	-8.147	223	17.905	.001
2 vs 3 LSM×I Loc	-4.191	150	7.484	.001
2 vs 4 LSM×E Loc	-9.505	1 <del>79-</del>	78.897	.001
3 vs 4 HSM×ELoc	-5.314	163	11.403	.001

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