

**PERSONALITY TRAITS AS PREDICTORS OF ENVIRONMENTAL
ATTITUDES IN LAGOS METROPOLIS OF NIGERIA**

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Abstract

This present study was aimed at examining the relationship between personality traits specifically the Big Five (Conscientiousness, Agreeableness, Neuroticism, Openness to Experience, and Extraversion) and environmental attitudes. The study also aimed at understanding the particular personality trait(s) predicted environmental attitudes. It was hypothesized that personality traits would correlate with environmental attitudes. It was also hypothesized that Openness to Experience would be highest predictor of environmental attitudes. The study adopted a convenient sampling technique with 326 respondents who were all residents of Lagos metropolis within the ages of 20 to 50 years. The scales used in the course of the research were Big Five Inventory developed by John and Srivastava (1999) and Taj Environmental Attitude Scale developed by Haseen Taj in 2001. The descriptive statistics of frequency counts and percentage, were employed in the analysis of demographic data while Pearson correlation test, Regression and ANOVA were used for hypotheses testing. Personality traits (Big Five) correlated with environmental attitudes and Openness to Experience was the highest predictor of environmental attitudes. Also, respondents with tertiary educational attainment had positive attitudes when compared with those with lower educational attainment. Research findings showed that personality traits, Conscientiousness, Agreeableness, Neuroticism, Openness to Experience and Extraversion were related to the environment favourably or unfavourably in one way or another. Findings have policy implications for public health in this part of the world and the need for reorientation is imperative.

Keywords: *Big-five, environment, Lagos-Nigeria.*

Introduction

The environment humans live in is largely shaped by their activities. One of the prevailing issues concerning the environment is climate change. The occurrence of fossil fuel burning coupled with changes in land use has progressively emitted heightened amount of greenhouse gases around the earth's airspace (Schulte to Bühne, Tobias, Durant & Pettorelli (2021). The summation of these changes paved the way for greenhouse effect which results in climate change (United Nations Framework Convention on Climate Change, 2007).

According to the U.S. Global Change Research Program (2016), climate change has been discovered to affect the health of Americans. Due to the continuous changes in the climate, there is a high propensity for human's health to be at risk, which will likely aggravate prevailing health threats to make room for new public health challenges. The effect of climate change could lead to the endangerment of the air

humans breathe in, the kind of weather obtainable, and indeed the way humans interact with their natural and built environment. The changes in climate will increasingly pose as risks to human health.

The World Bank had reported that Nigeria has a population of over 190.9 million with a land mass of 983,213 square Kilometres of which 773,783sq. (World Bank, 2017). Accordingly, the interplay of millions of Nigerians and their surroundings adversely affects the environment and climate. The resultant effects of these interactions can be seen in deforestation, overpopulation, urbanization, desertification, and varying kinds of pollution (Omofonmwan & Osa-Edoh, 2008).

The upshot of climate change is not limited to physical health but also extends to mental health. It is predicted that global climate change will have a gloomy impact on the mental health and welfare of individuals (Doherty & Clayton, 2011). The occurrence of these natural disasters due to the provenance of climate change might lead people to posttraumatic stress disorders, sleeping problems, depression,

drug and alcohol abuse, increased rates of suicide, and a higher chance of child abuse (Fritze, Blashki, Burke, & Wiseman, 2008). These activities of humankind are altering the earth's climate; the natural greenhouse emission is largely on the increase. The composition of these greenhouse gases are majorly carbon dioxide including other heat-trapping gases such as methane (derived from irrigated agriculture, animal husbandry and the extraction of oil), and the creation of landfills and rice paddies nitrous oxide and different human-made halocarbons (McMichael et al., 2003). Apparently, there is increasing awareness of different environmental issues across different countries in the world (Ogunbode & Arnold, 2012). According to Li, Johnson, & Zaval (2011), almost 97% of individuals live with the awareness of environmental challenges and global warming. Gillford, (2008) also posited that climate change effects on people with global warming, severe weather patterns and pollution will have an increasing streak until actions are taken to protect the environment. How much education one has attained over time has also been seen as a strong determinant of

environmental attitudes. For example, Bedural (2018) indicated that educational attainment and level of education could influence how people view their environment, as well as the kind of attitudes they have about it (Bedural, 2018)

The environmental attitudes which encompasses beliefs, affective responses and behavioural intentions that individuals hold relating to issues and activities of the environment may need to be adjusted so that it could benefit the environment (Schultz et al., 2004). This is in view of the fact that the impact of human behaviour on the global ecology is evident and the environmental issues being faced in recent times can be attributed to the undeviating actions and behavioural approaches that might be required to fix this problem (Oskamp, 2000; Saunders, 2003).

Environmental psychologists have linked environmental problems to maladaptive behaviours of humans and vehemently recommend that the remedy is largely dependent on the comprehension of human attitude towards the environment (Maloney & Ward, 1973; Milfont & Duckitt,

2004). Overtime, personality has been used in psychology for the identification of different types of exhibited traits that impacts behaviour. One of the models that are used to understand and classify these traits disparity is the Big Five taxonomy of personality (Ismail et al, 2018; John, Angleitner, & Ostendorf, 1988). The Big Five taxonomy of personality traits can be utilized to examine environmental related issues. It explains human personality based on of the five encompassing domains of Conscientiousness, Agreeableness, Neuroticism, Openness to Experience, and Extraversion (Goldberg, 1993). These personality trait dimensions can be used in the prediction of more definite value orientation and attitudes (McCrae & Costa, 2008; Roccas, Sagiv, Schwartz, & Knafo, 2002). These traits were created based on how individual would want to use natural, easy-to-understand language to describes themselves and others around them (McCrae & John, 1992). The big five personality traits have also been shown to high level of prediction with regards to other pertinent aspects of life such as career development and achievement, marital satisfaction, and other salient areas of

human endeavour (Ozer & Benet-Martinez, 2006). According to Hirsh (2010), the traits of agreeableness and conscientiousness are linked to environmental concerns. The Big Five personality traits at both the individual and national level can be related to environmental values and behaviour and this can be helpful in developing new programs and the modification of policies related to environmental behaviour (Dutt, 2014).

The Current Study

The effect of climate change is apparent in the ever increasing number of the human population, constant deforestation, the erosion of farmland, the building of greenhouse gases, diminishing freshwater supply, compression of rivers, disintegration of fisheries, the adulteration of soot in the air humans breathe and the pollution of lead in human beings blood (Roodman, 1999). In conceptualizing solutions for environmental concerns, it is important to note that, they are not merely technical problems whose ultimate solution could be derived from chemistry, physics or engineering. There are also behavioural problems that the social sciences must be

involved to help find a viable solution. The same problems that are related to human behaviour can be largely remedied by further understanding human behaviour. Within this context, human behaviour here refers to the behaviour of individuals, group of people, institutions, and countries (Oskamp, 2004). Also, it is worthy to note that environmental concerns are constituting a hazard that needs to be checked and a lot will need to be done to manage the consequences (Oskamp, 1995). It is therefore imperative to fully acknowledge the underlying principles that guide the manner we treat our environment with the aim of averting the on-going abasement and human distress (Oskamp, 2000). An Individual's personality permeates their principles, beliefs and attitudes and it is no different here in Lagos or indeed Nigeria (Idowu, Ayoola, Opele, & Ikenweiwe, 2011). Existing research has linked personality traits with the possibility to partake in environmentally-related activities (Dutt, 2014). In the past, psychologists have been an integral part of explaining the outcome of environmental issues, and how motivation could be introduced to modify individual's attitude

for the advancement of various climes (Gifford, 2008). Thus, this study seeks to fill this gap by examining the relationship between the Big Five personality traits and environmental attitudes in Lagos Metropolis.

The current study is principally governed by the principles of the Big Five theory of personality traits. The current research appropriates for the reason of examining the postulation that the Big Five theory accounts for individual differences. Therefore, this study is to be carried out to primarily investigate the relationship between the Big Five personality traits and environmental attitudes which will further establish if the Big Five personality traits have predictive value on environmental attitudes. Basically, the conduct of this research is hinged on the postulation that an individual's personality traits will influence their environmental attitudes based on the following research questions and hypotheses:

Research Questions:

1. Will the Big Five personality traits correlate with environmental

- attitudes?
2. Will the Big Five personality traits be predictors of environmental attitudes?
 3. Will participants with tertiary education have a positive environmental attitude than participants with lower educational qualification?

Research Hypotheses

1. There will be significant correlation between the Big Five personality traits and environmental attitudes.
2. Big Five personality traits will be significant predictors of environmental attitudes.
3. Participants with tertiary education will have positive environmental attitudes than participants with lower educational qualification

Method

Research Design

This study used the cross-sectional survey design. The research design gave room for the researcher to gather information on personality traits and their relationship with

environmental attitude, from a literate group of participants within certain age brackets at one point in time. This particular design was appropriate for careful study of singular units of the population in view and therefore making statistical conclusions. A standardized questionnaire was administered to a sample of participants drawn from the Lagos metropolis. The independent variable measured was personality traits while the dependent variable measured was environmental attitudes.

Research Setting

This current study was conducted in various areas of the Lagos metropolis, Nigeria. The settings included academic settings and non-academic settings across various areas of Lagos metropolis. These included all Local Government Areas in Lagos State, Nigeria, as well as within the University of Lagos (faculties within the main campus), Akoka, Nigeria. APA ethical guidelines largely informed the entire conduct of the research.

Population / Sample and Sampling

Procedures

The population of this present study are residents of Lagos state, domiciled in all Local Government Areas of the state, and within the University of Lagos, Akoka. The total sample size included 326 people located in various areas of the Lagos metropolis obtained through convenience sampling. The sample size for this present research was realized using an online calculator, (Raosoft), with a margin error of 5%. confidence level of 95% , response distribution of 50%, and the population size of 9,113,605, the minimum sample size required was 377. The population size used for the calculation of the research is according to the figures collated during the 2006 census in Nigeria (City Population, 2019). Eligibility necessary for participants of this study was that intended participants should be literate and should be from late adolescence (20 years and above). The basis for this specification, is that individuals who fall in this age bracket are presumed may have more awareness and consciousness of happenings in their environment with fully formed personalities.

Instruments

The Big Five Inventory comprises of 44 items that are rated in the Likert response scale. It measures the five personality traits of Conscientiousness (9-item), Agreeableness (9-item), Neuroticism (8-item), Openness to Experience (9-item) and Extraversion (8-item). This measurement is done by averaging each personality domain through the creation of a scale (Wuertz, 2015). The BFI is a self-reported inventory that employs the use of short phrases due to evidence that short phrases that are detailed get more consistent answers than one adjective in which people make their choices from (Goldberg & Kilkowski, 1985). The individual taking the BFI answered using the following; 1 - disagree strongly, 2 disagree a little, 3 - neither agree or disagree, 4 - agree a little, to 5 - agrees strongly (Wuertz, 2015). Each domain of personality also included scored items in reversal which requires an adjustment in the scoring of the aforementioned coding system. This is evident in items 8, 18, 23, and 43 of conscientiousness dimension, 2, 12, 27, and 37 of agreeableness dimension, 9, 24 and 34 of the neuroticism dimension, Items 35 and 41 of the Openness to

Experience dimension, and items 6, 21 and 31 of extraversion dimension. These items were reversely scored. The psychometric properties of this scale includes: Cronbach alpha reliabilities ranging from .75 to .95 with averages of .80 inferred from United States of America and Canada samples (John et al., 2008). Also, concerning research studies carried out in Nigeria, BFI has been found to be reliable. This is evident in Onyishi et al., (2012) report of a Cronbach's alpha of .83

The Taj Environmental Attitude Scale was developed by (Taj, 2001) It is in similitude with the Likert's sum-up method of rating. This scale consist of 61 items across six scopes. The six scopes that can be inferred from the items include; environmental concerns, forest, health and hygiene, pollution, population explosion and

wildlife (Dutt, 2014). For every item alternative, a weightage differing from 4 (strongly agree) to 1 (strongly disagree) is allocated to it, that is for favourable items. In the case of unfavourable items, there will be a reversal on the scoring, i.e. from 1 (strongly agree) to 4 (strongly disagree).. TEAS indicated a reliability of .86 alpha Cronbach reliability in the present study. The norms are also in stanine grade (Dutt, 2014).

The procedure of the research began by the researcher administering the consent form to participants (see attached appendix). After this, the participant completed the paper and pencil survey packets with items addressing each participant demographic variables, personality traits and environmental attitudes.

Results

Table 1. Demographic proportion of participants

Variables	Levels	Frequency	Percent
<i>Gender</i>	Male	206	63.2
	Female	120	36.8
<i>Age</i>	20-30yrs	245	75.2
	30-50yrs	81	24.8
<i>Educational Attainment</i>	SSCE	33	10
	Undergraduate	184	56
	BSc/HND/MSc/PhD	108	33
	Missing	1	

Result from Table 1 revealed that male participants dominated the sample accounting for about 63 percent of total sample. Similarly, majority of the participants fall in the age category of 20-30 years representing almost three-quarter of the sample. Furthermore, more than half of the sample are undergraduate students while about one-third are either graduates or postgraduate degree holders.

Table 2. Correlation statistic between Big Five personality traits and environmental attitudes

	N	Mean	SD	Correlation Coefficient (r)	p-value
Extraversion	326	24.60	4.44	.008	.888
Agreeableness	326	33.10	4.94	.084	.131
Conscientiousness	326	31.48	5.43	.015	.794
Neuroticism	326	22.74	4.54	.070	.209
Openness	326	36.00	4.89	.299**	.001
Environmental Attitude	326	130.63	12.08	.196**	.001
Total Scale B-five	326	147.92	11.73		

** indicates $p < 0.01$

Result from table 2 indicated that with exceptions of openness to experience domain, no significant association exist between the other domains of big-five personality traits and environmental attitude ($p > 0.01$). Result further revealed a positive relationship between openness to experience and environmental attitude. In other words, participants who are high in openness to experience equally have high environmental attitude ($r = .299, p = .001$). However, culmilatively, the big-five sclale positively correlated environmental attitudes ($r = .196, p = .001$)

Table 3. *Regression Analysis Summary of Big Five personality traits as predictors of environmental attitudes*

Predictors	B	SEB	B		p-value
			95% CI	β	
			[LL, UL]		
(Constant)	95.25	8.89	[77.77, 112.73]		
Extraversion	-.07	.15	[-0.36, 0.23]	-.02	.670
Agreeableness	.16	.15	[-0.13, 0.45]	.07	.277
Conscientiousness	-.05	.14	[-0.32, 0.22]	-.02	.709
Neuroticism	.28	.16	[-0.03, 0.59]	.11	.077
Openness	.75*	.14	[0.48, 1.02]	.30	.001

$R^2 = .103$ ($p < .05$)

* indicates $p < .05$

Result in Table 3 indicated that only openness to experience had a significant prediction on environmental attitude ($b = .75, p = .001$). The β value of .30 for openness to experience also indicates that for every one unit increase in openness to experience, there is an equivalent 0.30 increase in environmental attitude. Furthermore, other domains of big-five personality traits were not significant predictors of environmental attitude ($p > .05$). However, all domains of big-five personality traits jointly account for about 10 percent variance on environmental attitude ($R^2 = .103$). Since, only one of the domains of big-five personality trait significantly predicted environmental attitude, the study confirms that there is sufficient evidence to neither accept nor reject the hypothesis which states that “big-

five personality traits will be predictors of environmental attitudes”.Also, since openness to experience domain of big-five personality traits was the only significant predictor and perhaps the highest predictor of environmental attitude in this sample.

Table 4a. One-way ANOVA comparison among educational levelson environmental attitude

	N	Mean	SD	F-value	Df	p-value
SSCE	33	128.30	7.76	4.59*	2, 324	0.01
Undergraduate	184	132.39	11.36			
BSc/HND/MSc/PhD	108	128.33	13.86			

* indicates $p < .05$

Table 4b. Multiple Comparisons followed by Tukey Post-hoc Test

(I)	(J)	Mean Difference (I-J)	p-value
BSc/HND/MSc/PhD	SSCE	.030	1.000
	Undergraduate	-4.05*	.015

* indicates $p < .05$

Result from Table 4a showed that a significant difference exists in environmental attitudes among participants with different educational attainment ($F = 4.59, p = .001$). Result of post-hoc analysis followed by Tukey's multiple comparison (Table 4b) further revealed that participants with higher educational attainment (i.e., BSc/HND/MSc/PhD) had a significantly lower environmental attitudes, compared to undergraduate (Mean difference = - 4.05, $p = .015$). This result should be viewed with caution because the test of homogeneity of

variance indicated the means of the groups were not equal.

Discussion

This present study examined the phenomenon of environmental attitudes among a sample population of Lagos metropolis residents with a view to empirically testing for its correlation with personality traits (big five; Conscientiousness, Agreeableness, Neuroticism, Openness to Experience and Extraversion). It also evaluated the

influence of a socio-demographic variable (educational attainment) on environmental attitudes among the sample size. The Objectives of the study was to ascertain the extent of the relationship between personality traits and environmental attitude and also determine how personality traits predicted environmental attitudes.

Results from the current study accepted the hypothesis that the Big Five Big Five personality traits will correlate with environmental attitudes. It can be inferred from the research results that a significant relationship was found between the Big Five personality traits and environmental attitudes. It can also be deduced from the current finding that an individual's personality traits are related to their environmental attitudes and it correlates with their attitude to the environment. This finding is consistent with Hirsch (2010) research study on personality traits and pro-environmental behaviour.

Further statistical analysis proved that personality traits (Big Five) is a predictor of environmental attitudes. This implies that the Big five personality traits;

Conscientiousness, Agreeableness, Neuroticism, Openness to Experience and Extraversion traits can collectively predict an individual's environmental attitudes whether positive or negative. The present study found that Openness to Experience was the highest predictor of environmental attitudes. This result is consistent with Hirsch (2010) reported that Agreeableness and Openness to Experience were related to greater environmental concern. Hirsch's study used a German sample with a larger sample size and different measures in the process of the research. The nature of the demography in Hirsch's differs from the current study but the results are consistent. While this is true about the study, the trait of agreeableness did not seem to be predictor as hypothesized with the other traits. This could be attributed to subtle cultural and societal differences which could have had an influence on the results, and could be investigated in future studies.

The trait of Openness to experience has been linked to an increased level of individual value of self-superiority. This mirrors an expanded idea of self and responsibility for other people which may

account to the trait being a predictor to environmental attitudes (Olver & Mooradian, 2003). Openness to Experience is related to an increment mental capacity and thought pliability (DeYoung et al, 2005) these qualities make individuals who rate high in this trait hold a larger idea of how humans should act in the bigger environment and a considerable amount of aesthetic gratitude to the natural environment (Hirsch, 2010).

Wuertz (2015) study on personality traits and environmental concern reported a correlation between openness to experience and environmental concern and also, that openness to experience was a significant predictor of positive environmental attitudes, which is consistent with the result of the current study. Individuals who scored high in this traits are liable to play with novel experiences and are different in the methods of seeking facts and their responses (Doherty & Clayton, 2011). Research shows that individuals who are highly connected to their natural surroundings hold the preservation and defense of the environment at high regard (Clayton, 2003). Also, the idea of trying

new experiences are appealing to individuals that are rated high in openness to experience and they tend to move towards new behaviours especially when they perceive that whatever they are engaging in is becoming habitual (Roccas et al., 2002; Gifford, 2008).

Ogunbode and Arnold (2012) study on environmental awareness and attitudes reported that educational attainment was more related to environmental awareness and pro-environmental behaviour than other socio-demographic variables tested but the contrary was found in this study. This finding is intriguing because it is expected that those who are more educated will have have a more positive active attitude towards the environmental. Although the test of homeogeneity of variance indicated that the means of the groups was not equal, there may be need for further studies to understand why this is so. In Ogunbode and Arnold (2012)'s study, there were no significant differences between the level of educational attainment, although, participants with primary education or vocational training reported less deliberation on environmental

issues than participants with secondary and tertiary education.

Bedural (2018) study on examining the relationship between educational attainment and the environmental values, attitudes and actions of Filipinos reported that educational attainment significantly influenced environmental values, attitudes and actions of Filipinos, it also reported that participants with higher level of education are likely to have more positive attitudes to the environment compared to those with lower qualifications.

Conclusion

This current study was aimed at evaluating the relationship between personality traits and environmental attitudes among residents of Lagos State with the bigger picture of addressing how psychologists could play a role in the global issue of climate change. This present research hinged its foundation on the importance of understanding an individual's personality traits in order to know its influence on environmental attitudes. The current study concludes that there is a correlation between personality traits (Big Five) and

environmental attitudes and openness to experience was a predictor of environmental attitudes. In clear terms, the that an individual's personality trait was a predictor of their environmental attitudes. This finding is of significance to psychologists and indeed policy makers on how they can deal with environmental issues specifically the attitudes of individuals.

The current study was carried out to examine the relationship between personality traits and environmental attitudes using the survey method. From the onset, the intricacies of both concepts were brought to the fore and in view of their implications to various environmental issues. Despite the strengths of the study, there are also some noteworthy limitations. The minimum required sample size was 377 based on sample size needed but the sample size used was 326, this is considered as a limitation because of sampling size (Martinez-Mesa et al., 2014). This was a major limitation and the results in this study should be viewed with some caution. For future research, environmental and social scientist should collaborate for improved

comprehension of environmental issues. Psychologists and environmental stakeholders in Nigeria can come together to tackle various environmental issues. With the knowledge that personality traits have the potential of yielding to these messages, psychologists can come up with the right models, ideas or motivational techniques for positive environmental attitudes (Wuertz, 2015). Psychologists can combine their knowledge of people's perception of scenarios and the techniques that would be executed to create the largest effect (Kazdin, 2009). Also, further research should be directed on the basis that makes openness to experience the highest predictor of environmental awareness. Additionally, a larger sample size is recommended and additional socio-economic variables that have been empirically tested could be considered for future research.

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