Nigerian Journal of Social Psychology, Volume 2, No. 2 (2019).
Published by the Nigerian Association of Social psychologists.

Incremental Contributions of Place Attachment above and beyond Locus of Control in Pro-environmental Behaviour

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Abstract

In recent times, there is increasing attention by government and non-governmental organisations to change the utilitarian approach which people have in relation to their environment. The goal of such paradigm shifts is to encourage individuals and groups to care for and protect the places where they live in and work to earn their living. The aim of the present cross-sectional study was to examine the roles of locus of control and place attachment in pro-environmental behaviour of a sample of local government employees in Enugu state, Nigeria. Participants were 240 staff who were drawn from three local government areas (LGAs) located in Enugu urban area of Enugu state. They completed a questionnaire form consisting of the Locus of Control Behaviour Scale (LOCBS), Place Attachment Inventory and Pro-environmental Behaviour Scale (PEBS). Hierarchical Linear regression was used in analysing the data. Locus of control significantly and positively predicted pro-environmental behaviour, accounting for 6% of the variance in pro-environmental behaviour. Place attachment significantly and positively predicted pro-environmental behaviour, explaining 9% of the variance in pro-environmental behaviour. The result implies that having an internal locus of control is important but dependence, identity, affect, or bonding with important aspects of one's environment was associated with greater engagement in environmentally supportive behaviours. It was suggested that psychosocial interventions aimed at instilling internal control beliefs into the LGA staff and designing programmes to create positive emotions and feelings towards significant places for diverse segments of the population may be helpful in increasing pro-environmental behaviour.

Keywords: locus of control, place attachment, pro-environmental behaviour, public policy.

Introduction

There is a growing awareness that human behaviour contributes to environmental problems such as water pollution, decline of biodiversity, and desertification (Intergovernmental Panel on Climate Change, IPCC, 2007).While clean technologies are recognized as critical factors in resolving many of toady's environmental burdens, academics and policy makers agree that changing consumer behaviour through deeper change in the society also has to play a vital role (Mequanint & Gebremedhin, 2015). As Morrison-Saunders and Therivel (2006) states, the transition to global sustainability will require changes in human values, attitudes, and behaviours. Therefore, it is relevant to study factors influencing behaviours to reduce these problems.Researchers are striving to understand this disconnect between environmental attitude, awareness, and behavior. Some of their efforts have been devoted to the identification and study of factors that may affect pro-environment behaviour.

Over the past few decades, environmental researchers have used a variety of term to describe the sort of actions that are environmentally sustainable, including pro-environmental behaviour (Bamberg & Moser, 2007; Steg, Bolderdijk, Keizer & Perlaviciute, 2014; Chukwuorji, Iorfa, Nzeadibe, & Ifeagwazi, 2017), responsible environmental behaviour, environmentally responsible behaviours, ecological behaviours, conservative behaviours, environmentally supportive behaviours and environmentally significant behaviours (Stern, 2000).Pro-environmental behaviour is such behaviour which is generally (or according to knowledge of environmental science) judged in the context of the considered society as a protective way of environmental behaviour or a tribute to the healthy environment,

(Krajhanzl, 2010). Pro-environmental behaviour is not just a single human action or behaviour, but it encompasses all behaviours human beings exhibit in the environment which positively affects the environment. Acting pro-environmentally cannot be achieved without the combination of some variables which helps to either promotes or disrupts the environment. In this study, the variables of interest are locus of control and place attachment.

Locus ofcontrol as developed by Julian Rotter in 1954 has since become an important part ofpersonality psychology, given that people may either believe that they have control over the events in theirlives or that they have no control over the events in their lives (Agbajemebe, Ezeugwu, & Nwanosike, 2018). The full name Rotter gave the constrct was Locus of control of Reinforcement (Rotter, 1966). Rotter's view was that behaviour was largely guided by reinforcement (rewards and punishments) and that through contingencies such as rewards and punishments, individuals come to hold beliefs about what causes their actions. These beliefs, in turn, guide what kind of attitudes and behaviour people adopt (Chukwuorji, Ituma, & Ugwu, 2018). A locus of control orientation is a belief about whether the outcomes of our actions are contingent on what people do (internal control orientation) or on events outside one's personal control (external control orientation) (Zimbardo, 1985). Individuals with an internal locus of control view events as resulting from their own actions, whereas persons with an external locus of control view events as being under the control of external factors such as luck (Chukwuorji, Amazue, Ifeagwazi, & Chibueze, 2017; Marsh & Weary, 1995; Onyedire, Ekoh, Chukwuorji, & Ifeagwazi, 2017).

Weiner's (1986) attributional analysis of motivation and emotion postulates that, people's behaviour are largely determined by the perceived controllability of the causes of events. Presumably, individuals with an internal locus of control actively seek out

information, and such information may also include issues related to environmental problems. If so, they will more often acquire, and make better use of, knowledge that is conducive to behaving in an environment – friendly manner than those who attribute control to external sources. In order for values to be expressed in pro-environmental behaviour, it seems to be important that people perceive their events to be controlled by their own behaviour or personal characteristics, that is, internal locus of control. Moreover, this is more important for people with a low degree of self-transcendence values than for those who strongly prioritize self-transcendence values.

One understudied factor that may affect individuals' engagement in environmentally-responsible behaviour is attachment to a particular place. Attachment to place refers to the emotional bond between people and their environment settings (Mazumdar, 2005), and is widely understood to have originated from Bowlby's (1969, 1982, 1991) attachment theory which describes the emotional bond between a child and his/her primary caregiver. Place attachment was defined as a bond with a particular place comprising functional (place dependence), cognitive (place identity), and affective (place affect), and behavioural (place social bonding) aspects (Giuliani, 2003). According to Ramkissoon, Weiler and Smith (2012), the consideration of place attachment as an attitude and acknowledgement of the close relationshipbetween attitude and behavioural intention when both are directed toward a particular object or environmentresults in a conceptual framework that integrates the different place attachment sub-constructs. In general, place theorists uphold that individuals who are emotionally, psychologically or functionally attached to a place will act to safeguard that place (Tuan, 1977; Relph, 1976).

Empirical researchers have found the link between the variables of interest in this study. Internal locus of control have been found to be associated with greater pro-

environmental behaviour among some populations in previous research such as willingness to pay for green product among Indian consumers (Trivedi, Petal,& Savalia, 2015), Romanian undergraduate students' eccentric concern and support for interventionist conservation policies (Pavalache-llie & Unianu, 2012), and environmental attitude in Pakistani youth aged 18-25 years (Asghar&Nazneen, 2016) and consumers' purchase of environmentally packaged foods (Schwepker & Cornwell, 1991). One study by Sarigollu and Huang (2011) reported that the effect of locus of control is mediated by pro-environmental attitude.

In the same vein, some studies have reported the contribution of place attachment in fostering pro-environmental behaviour and intentions to perform such behaviours among visitors in national parks (Halpenny, 2006; 2010; Haywantee, Liam & Betty, 2012; Ramkissoon et al., 2012; Tonge, Ryan, Moore, & Beckley, 2015), Australian rural landholders (Raymond, Brown,& Weber, 2010), and residents of Reunion Island (Junot, Paquet, & Fenouillet, 2018). Place attachment have also been found to be positively related to positive word of mouth about a place (Zenker & Rütter, 2014), use of urban services (Belanche, Casaló, & Orús, 2016), and environmental management practices (Arifwidodo & Chandrasiri, 2013). A recent online-based study in a Chinese major city, also reported that the social bonding dimension of place attachment is most effective at promoting pro-environmental behaviour and that this relationship is stronger for native born residents and those with longer residency length (Songa & Soopramaniena, 2019).

In sum, evidences suggest that internal locus of control and place attachment may lead people to engage in pro-environmental behaviours. The more overwhelming evidence in in the area of place attachment, but recent research on the construct proves that findings are far from being conclusive concerning the association between place attachment and general

pro-environmental behaviours. None of the existing studies have simultaneously examined the contributions of both locus of control and place attachment in pro-environmental behaviour. It is expected that investigating the incremental effects of variables would be beneficial in understanding the salient factors that may be of more value in fostering engagement in pro-environmental behaviour. Although several populations have been studies by researchers, majority of participants in such studies have been undergraduate students and visitors to national parks or other recreational facilities. There is no study which has focused exclusively on individuals who are employed in government agencies. This group is considered important because they constitute the bulk of the population in most developing countries of the world. Therefore, they may serve as important targets for interventions to encourage behaviours that protect and sustain the environment. The objective of this study was to fill these gaps in knowledge concerning pro-environmental behaviour. The hypotheses for this study are as follows: (1) Locus of control will significantly predict pro-environmental behaviour. (2) Place attachment will significantly predict pro-environmental behaviour above and beyond the contributions of locus of control.

Method and Materials

Participants and procedure

Two hundred and forty local government workers participated in this study. The workers comprised of one hundred and forty (140) workers from Enugu North Local Government Area and hundred (100) participants from Enugu South Local Government all in Enugu state. Among the 240 participants, 114 (47.5%) were men whereas 126 (52.5%) were women. The age range of the participants was 20-65 years, with a mean age of 45.7 years.

The educational qualifications of participants were as follows: SSCE/WAEC (2.1%), HND/BSc. (85.8%), Master's degree (8.8) and others who were not specific(3.3%). By religious affiliation, there were Christians (96.3%), Muslims (2.7%) and African traditional worshipers (1%). Based on their career grade level, the sample had both junior workers (49.6%) senior workers (50.4%). The numbers of years spent in current job ranged from 1-32 years with average tenure of 14.0 years (*SD*=9.90).

With the approval of the local government authority, the instruments were personally administered to workers in both Enugu South Local Government and Enugu North Local Government Areas by the third author. Data collection was carried out in the month of June 2016. The participants were informed that completion of the instruments was voluntary and that their response would be kept strictly confidential. The distribution of the questionnaire took two weeks and three days.

Measures

Three instruments were used for the study, namely:Locus of Control Behaviour Scale (LOCBS), Place Attachment Inventory (PAI), and Self-report Pro-environmental Scale (SPS)

Locus of Control Behaviour Scale (LOCBS)

LOCBS was developed by Criag, Franklin and Andrews (1984). The scale comprises 17 items designed to measure internality and externality of control. The items are scored on a six point Likert format of strongly disagree (1), to strongly agree (6). Some items in the scale are: I can anticipate difficulties and take actions a avoid them; when I make plans, I am almost certain I can make them work; My life is controlled by outside actions and events; e.t.c Total score on the test ranges from 17-102, and higher scores indicate internal locus of

control. A Cronbach's alpha reliability of internal consistency of .79 was reported by Craig, et al. (1984), also a Cronbach's alpha reliability of internal consistency of .73 was reported for the scale in a Nigerian study (Ibeagha, Balogun & Adejuoron 2004), and its reliability and validity has been supported in recent Nigerian strudies (e.g., Abdollahia & Talib, 2014; Chukwuorji, Ituma, & Ugwu, 2018). Internal consistency reliability (α) of .75 was obtained for LOCBS in the present study.

Place Attachment Inventory (PAI)

PAI was developed by Williams and Vaske (2003). The items on the scale were represented using a 5-point Likert scale of 1- strongly disagree to 5- strongly agree, with a neutral point of 3. The researchers obtained a Cronbach's alpha which ranges from .84 to -94 for place identity and -82 to 94 for place dependence in their studies in different countries including Cameron. An internal consistency reliability (α) of .73 was obtained for PAI in the present study.

Self-report Pro-environmental Scale (SPS)

SPS was developed by Schultz and Zelenzy (1998) to measure individual's recycling behaviours, conservation behaviours, consumer behaviour and transportation behaviours. It is scored using a five-point Likert scale (1=Never, 2 = Rarely, 3= Sometimes, 4 = Often, and 5 = Very often). Scores are summed together to create a scale score, where higher scores indicate a higher pro-environmental attitude. The reliabilities of the scale has been assessed to get the different Cronbach's alpha in different countries like Mexico (α = .54), Nicaragua (α = .52), Peru (α = .58) Span (α = .62), and the U.S. (α = .63) (Schultz & Zelenzy, 1998). Internal consistency reliability (α) of .79 was obtained for SPS in the present study.

Data analysis

Pearson's correlations was used to establish the relationships of the study variables including some relevant demographic factors. Hierarchical multiple regression was used to analyze the data in order to test the hypotheses in Statistical Package for Social Sciences (SPSS®) version 20. Regression is important in establishing the linkages between (a) scores on different tests, (b) test scores and non-test (demographic) variables, (c) scores on parts of tests and scores on whole tests , etc. (Urbina, 2004). Multiple regression analysis further allows researchers to simultaneously use several predictor variables, and thereby be in a position to explain better the variation in the dependent variable, and hence make more accurate predictions (Tabachnick & Fidell, 2013; Mendenhall, Beaver, & Beaver, 2009). Demographic factors that correlate significantly with pro-environmental behaviour were added in the first step of the regression model as covariates. Locus of control was added in step 2, while place attachment was added in the third step of the model.

Results

Table 1: Correlations of demographic variables, locus of control, place attachment and pro-environmental behaviour

Variable		1	2	3	4	5	6	7	8
1	Gender	-							
2	Age	-.02	-						
3	Qualification	-.05	.16	-					
4	JobStatus	-.06	.76***	.09	-				
5	Years in current job	-.05	.88***	.09	.91***	-			
6	Locus of control	-.14*	.13*	.01	.16*	.17*	-		
7	Place attachment	-.08	.11	-.04	.19**	.16*	.29**	-	
8	Pro-environmental Behaviour	-.02	.11	.01	.21**	.18**	.27**	.39***	-

Note: *$p < .05$; **$p < .01$; ***$p < .001$

In Table 1, the correlations show that gender was not significantly related to pro-environmental behaviour. Age was not significantly related to pro-environmental behaviour, and educational qualification was not significantly associated with pro-environmental behaviour. Job status had a significantly positive relationship with pro-environmental behaviour, showing that the senior workers had higher pro-environmental behaviour than the junior workers. Number of years spent in the current job was significantly and positively associated with pro-environmental behaviour which indicates that those who have spent more years in the job had more pro-environmental behaviour than those who had lower number of years. Locus of control was positively related to pro-environmental behaviour. Those who are externally oriented had more positive pro-environmental behaviour. Place attachment had a positive association with pro-environmental behaviour. Higher place attachment was related to more engagement in pro-environmental behaviour.

Table 2: Hierarchical multiple regression predicting pro-environmental behaviour by locus of control and place attachment

Predictors	***B***	***SE***	**β**	***T***	$R^2 \Delta$
Step 1					.04
Job status	3.58	2.07	.26	1.73	
Years in current job	-.04	.11	-.06	-.42	
Step 2					.06
Locus of control	.16	.04	.25*	3.92	
Step 3					.09
Place attachment	.25	.05	.32*	5.08	

Note: $^{*}p < .001$; Total $R^2 = .19$.

Table 2 showed that the control variables (job status and number of years spent in current job) which were included in the first step of the regression analysis did not significantly predict pro-environmental behaviour. However, they contributed 4% of the variance in pro-environmental behaviour.

Locus of control and pro-environmental behaviour

Locus of control significantly and positively predicted pro-environmental behaviour. This indicates that external locus of control (as represented by higher scores on LOCBS) was associated with higher engagement in pro-environmental behaviour. Locus of control accounted for 6% of the variance in pro-environmental behaviour.

Place attachment and pro-environmental behaviour

Place attachment significantly and positively predicted pro-environmental behaviour, indicating that workers with higher place attachment had higher pro-environmental behaviour than those with lower pro-environmental behaviour. Place attachment explained 9% of the variance in pro-environmental behaviour, and it was found to be a stronger predictor of pro-environmental behaviour than locus of control.

Discussion

The present investigation focused on on locus of control and place attachment as predictors of pro-environmental behaviours. More importantly, the study attempted to explore if place attachment will explain more incremental variance in pro-environmental behaviour, above and beyond the contribution of locus of control. It was found that both locus of control and place attachment contributed significantly to the variance in pro-environmental behaviour, but place attachment explained significantly more variance in pro-environmental behaviour above the contribution of locus of control.

The finding on locus of control as a predictor of pro-environmental behaviour is in line with the earlier stated hypothesis, but surprisingly the direction of the current finding indicates that those with external locus of control engaged in more pro-environmental

behaviour. Previous research (e.g., Asghar & Nazneen, 2016; Pavalache-llie & Unianu, 2012; Sarigollu & Huang (2011; Trivedi, Petal, & Savalia, 2015) had reported contrary findings showing that internal locus of control leads to pro-environmental behaviours. A possible reason for this finding could be the nature of our sample which is primarily composed of civil servants who work in local government, unlike the samples in previous studies that were students and tourists.

It was further expected that place attachment will significantly predict pro-environmental behaviour and the finding showed that individuals with higher place attachment engaged in more pro-environmental behaviour than those with lower place attachment. This finding is consistent with previous findings showing that place attachment leads to pro-environmental behaviour (e.g., Arifwidodo & Chandrasiri, 2013; Belanche, Casaló, & Orús, 2016; Halpenny, 2006; 2010; Haywantee, Liam & Betty, 2012; Junot, Paquet, & Fenouillet, 2018; Ramkissoon et al., 2012; Raymond, Brown, & Weber, 2010; Zenker & Rütter, 2014). From the correlations results, senior workers reported more pro-environmental behaviour. It is possible that these workers values their work environment and have greater desires to enhance their environment with a positive pro-environmental behaviour. In the place attachment theory Giuliani (Giuliani, 1991, 2003) attest that the formation of attachment to a place is developed at infancy and as an individual grows into adulthood and explores a different environment they will exhibit the prior affective bond of relationship that will protect their new environment.

Place plays a vital role in the life of an individual it helps a person to form an attachment and affection to the environment where he/she finds himself or herself which fosters a healthy living if pro-environmental behaviours are encouraged and promoted. These workers have seen their work environmental as a part of them and have spent most of their

working life in that environment so they needed to foster and promote their environment through positive pro-environmental behaviour. Also proper training should be inculcated into the junior workers because the work environment is part and parcel of their life. There is an assurance that as the junior workers explores the environment and establishes some emotional bonds, attachment, and affect they would want to promotes and enhance pro-environmental behaviour as well.

In spite of the strengths of this study by being the first to simultaneously examine locus of control and pro-environmental behaviour in order to establish the incremental variance in pro-environmental behaviour on account of place attachment in a sample of public workers, it has some limitations. The sample size used for the study can be considered modest, but it is not large enough in order to generlaise the findings across larger population of workers. The study can be replicated with a large number of participants as this will help to make for more validity. The cross-sectional nature of the study and use of self-report measures to obtain data for the study also means that it is not free from common method bias.

Conclusion

This study discovered that locus of control and place attachment are important factors that can be beneficial for fostering pro-environmental behaviours among workers in governement agencies. This study will help the researchers to uncover the critical area of the incremental variance explained by place attachment over and above locus of control place that many researchers were not able to explore. Thus a comprehenive and heuristic theory on pro-environmental behaviour may be arrived at.Although previous studied agreed that individual with internal locus engage more in environmentally-friendly behaviours than individual with external locus of control, the current finding indicates the oppositie.

Government agencies and advocacy groups that are concerned with the environment will have to focus on both locus of control and pro-environmental behaviour to effectively encourage sustainable environmentally protective behaviour among workers. However, special efforts which increase place attachment need to be emphasized more staff training programmes and workers' outreach efforts.

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