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Our Role and Responsibility towards Protecting the Environment: A Quantitative Study on the Relationship among Individual's Environmental Attitude, Pro-environmental Behavior and Performance

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KEYWORDS Environmental Attitude. Environmental Responsibility. Pro-environmental Behavior. Performance

ABSTRACT The importance of protecting our ecosystem has started gaining importance with many issues being faced by the global community such as melting of the ice at the north pole, climatic changes, with global warming, lesser rain to name a few. An individual has to take responsibility for the man-made issues. It is high time, there is a reversal happening so that our surroundings with its bounty is given back to the future generations in its beauty and richness. The influence of changing an individual's attitude towards the environment is considered very important and hence research is being carried out to find how it influences the pro-environmental behavior and performance. The mediating role of pro-environmental behavior was also tested using measurement and structural model. The results indicate that the environmental attitude has a positive relationship with the outcome variables namely pro-environmental behavior and performance. There is an urgent need to ensure environmental attitude is positive among people since a positive environment attitude will lead to a sustainable holistic living.

INTRODUCTION

Individuals living on this earth need to respect our dwelling which has been given to us to live as a gift. It should not be taken for granted and consumed over and above than that which is required. This calls for judicious use of our natural resources be it energy or water. The earth provides us with enough herbs and plants for food. That which is consumed has to be compensated back to the ecosystem so that the earth becomes replenished and sustainable. It is not just individual consumption that needs to be addressed. It is found that the corporate contribution in sustaining the ecosystem is equally important. The corporate community justifies its stand by stating that it is producing, only to satisfy its consumers. But at what cost needs an answer? Does the enormous production of various products really required?

In recent years, people have realized the importance of ecological preservation and conservation for maintaining and sustaining the ecosystem. We are in a period wherein we are heading towards an ecological crisis. This ecological crisis is man-made mostly because of the mechanistic and capitalistic style of resource utilization (van Schalkwyk 2011). Some argue that this could have been because of natural occurrences. Environmental degradation, climatic change, and global warming are instances that imbalance the ecosystem. Due to globalization and industrialization, there is massive air, land and water pollution.

Added to that there is depletion of natural resources namely food, water, and energy. This has led to an urgent need to conserve and preserve our ecosystem. It is necessary to ensure there is a good quality of life provided by a clean healthy environment. To achieve this, it is imperative that individuals realize the importance of the ecosystem. Global trends have resulted in massive changes in the ecological cycle. This calls for preserving the environment with an earnest devotedness (van Schalkwyk 2011). Big-

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geri and Mauro (2018) have integrated environmental concerns in the formulation of human development index and have stated that human development depends on the environmental sustainability. Similarly Zhou et al. (2018) have stated that environmental sustainability is the core of any development.

Vedeld (1994) presents the debate existing between ecological and neoclassical economical approaches on the use of natural resources. Hart (2002) presents the role of growth, culture, and environment and the competing ideologies existing in each. They stress the importance of preserving and nurturing the richness of our surroundings. When individuals have a positive attitude towards nature and the environment, it is expected to spill over to their other domains. In this research, it is proposed to find the relationship between an individual's environmental attitude on pro-environmental behavior and performance.

Objectives

The objectives of this research was to find the importance of environmental attitude of people and its influencing role in protecting the environment through pro-environmental behavior and in improving the performance.

Literature Review

A review of the literature has been done on the influence of environmental attitude on behavior and performance.

Research on Environmental Attitude and Pro-environmental Behavior

The need for environmental concerns have to be all inclusive, be it energy in terms of using naturally renewable resources or be it corporate in terms of corporate social responsibility, the consumption should be in a such a manner that there is very little damage tendered on the ecosystem. This clearly indicated that there is a close sync of the human psyche with nature and the need for sustaining the environment for a peaceful habitat.

Researchers have realized in recent years the urgency to give back to the planet earth what they have consumed in large measures during the last century. As in the days past, unless there is a respect for what the earth had provided and is providing, it is not long before the earth crumbles and takes its natural recourse in various ways- be it climate change, earthquakes, tsunami to name a few. Corral-Verdugo et al. (2009) present the relationship between affinity towards diversity and psychological factors- future orientation, altruism, emotions towards nature related to pro-sustainability orientation and environmentally friendly behavior. Interrelated features underlying ecological futures are ecosophy, postformal thinking, and poetics (Hampson 2010).

Environmental identity has become a motivator for a range of environmental behaviors (Kashima et al. 2014). Environmental identity ranges from mundane environmentalism to environmental striving. The increasing dominant and destructive role is being played by people on the environment. Researchers have highlighted the importance of ecology and its related environmental economics emphasizing the value of the ecosystems and biodiversity (Spash and Aslaksen 2015).

Hirsh (2014) states that personality traits Agreeableness and Openness predict environmental attitudes. This indicates the close link between man and nature and man's important role in addressing environmental issues. The concept of mindfulness involving values, attitudes, and behavior are linked to sustainable consumption (Fischer et al. 2017). The psychological dimensions of sustainability as applied to human ecology is presented (Borden 2017). However Tam and Chan (2017) in their research have found that there is a weak relationship between environmental concern and pro-environmental behavior in some societies in their cros-cultural study. The review of literature however indicated that in a majority of instances there was a positive association and hence it was hypothesized that

H1: Individual's environmental attitude will have a positive relationship on pro-environmental behavior

Research on Pro-environmental Behavior and Performance

Research carried out using pro-environmental behavior and performance was reviewed. Cli-

mate and traffic in Finland were found to be linked (Tapio 2002). The clusters present dematerialization and immaterialization to happen in the near future. Yuksel (2012) explains how environmentally friendly energy utilization can help mitigate climate change and global warming. A renewed love for nature was found to be a crucial component to be addressed for tackling the environmental crisis (Crowley 2013). That which is consumed have to be compensated back to the ecosystem so that the earth becomes replenished and sustainable.

It is not just individual consumption that needs to be addressed. Is the enormous production of various products by organizations really required? Swaffield (2016) stress the need to promote climate-protecting behavior in the workplace. Using climate change as one among the many environmental issues, six discourses were categorized as to whether they either conform to the principles of neoliberalism (reformist) or reject neoliberal ideas (revolutionary). Torres (2018) presents the type of individuals who exploit technologies to bring about environmental risks. He has classified them as apocalyptic terrorists, misguided moral actors, ecoterrorists and idiosyncratic actors. There seems to exist a relationship between individual environmental behavior and his actions. DeGiovanni and Vinzi (2012) have examined the relationship between environmental and economic performance in an organizational context. Bansal and Roth (2000) state that there is a research gap present in investigating the relationship between voluntary measures such as pro-environmental behavior of individuals and the consequences of such voluntary behavior. In this research, it was hence proposed to find the relationship between pro-environmental behavior and performance. Is better performance a consequence of positive pro-environmental behavior? This led to the hypothesis

H2: Individual's pro-environmental behavior will have a positive relationship on performance

Research on Environmental Attitude and Performance

A decision-making framework for environmental management which integrates technical, economic, political, legal and ethical decisions aiming at sustainability, efficacy, efficiency, and acceptability was proposed (Martínez de Anguita et al. 2008). Capabilities approach provides a good framework for providing environment justice along with sustainable development (Ballet et al. 2013). Kopnina (2014a) discusses the possibility of integrating deep ecology and animal rights perspectives within environmental education and education for sustainable development. He states moral reasoning in relation to sustainable development is an emerging field (Kopnina 2014b). He has stressed the need to perceive the value of the environment as an economic asset (Kopnina 2015). Economic growth and improvement in organization performance should happen without causing any damage to the ecosystem (Cairns et al. 2019).

Deep ecology predicted that new environmental ethics will change the existing paradigms and will treat the relationship between man and nature with a new perspective (Caciuc 2014). Sovacool et al. (2017) present the two sides of coin namely energy justice and climate justice, the need for inclusive energy decision making considering the rights of human as well as the rights of nature. Damjanov (2018) state that space exploration by living and inanimate non-humans including man-made objects and technologies also need to be governed from an ethical and legal context since we are making an extra-planetary presence in space.

From the theory of planned behavior, it is expected that when an individual has a positive attitude towards the environment, it will lead to a positive outcome (Wesselink et al. 2017). Porter and van der Linde (1995a, b) state when environmental regulations are introduced, people become conscious of the environmental degradation happening. This will cause them to find alternate mechanisms to conserve and preserve the environment. Also, it will result in innovation, competitiveness and increased performance (Lin and Yang 2011; Zhao and Sun 2016).
On the same lines, it is postulated that when individuals' have a positive attitude towards the environment, it will result in increased performance. This led to the hypothesis

H3: Individual's Environmental attitude will have a positive relationship on performance

If the three hypotheses are supported, then it is expected that Pro-environmental behavior

of an individual may have a mediating role and hence it is hypothesized that

H4: Pro-environmental behavior of an individual will mediate the relationship between environmental attitude and performance

METHODOLOGY

A conceptual model is obtained based on the hypotheses derived in the literature review and is given in Figure 1.

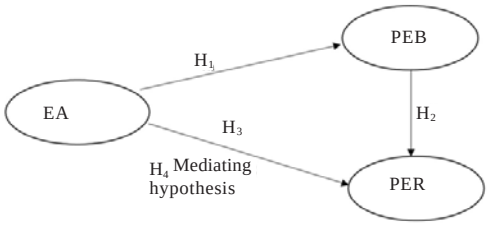

Fig. 1. Conceptual model
Source: Author

A questionnaire was designed to examine the relationship between the three constructs. The 5 items for environmental attitude was developed by the researcher. The 5 items for pro-environmental behavior was adapted from Chou (2014). The 6 items for performance was adapted from (González-Benito and González-Benito 2005; González Benito and González Benito 2006; Lai and Wong 2012). A total of 16 items (Appendix 1) was used to examine the relationship between the three constructs. In addition to this, the demographic details of the respondents were also collected. The demographic details included gender, age, education, and income. They were collected from employees working in different organizations namely manufacturing, service and IT sector. The wide spectrum of respondents was expected to cover all category of individual and they will be representative of the population. Pen and paper method was used for data collection. Convenience method of sampling was used. The questionnaire was drafted in English. The data collection process was carried out during the period from April to August 2018. Of the responses received, after removing responses that had missing data, 527 clean responses were accepted as the final dataset. Independent t-test and ANOVA was performed on the data.

Covariance-based SEM was used for testing the hypotheses. A measurement model and the structural model were developed and tested using AMOS. Cohen (1992) and Hair et al. (2010) cutoff values were used.The mediating relationship of pro-environmental behavior between environmental attitude and performance was also investigated. The direct and indirect effects were checked using bootstrap and confidence intervals.

RESULTS

Descriptive Statistics

The demographic profile of the respondents are as follows: Gender (Male= 294, Female= 233); Age (25 and below= 50, 26 to 30= 280, 31 to 35= 88, 36 to 40= 46, 41 and above = 63); Education (graduation = 345, post graduation and above = 182); income (less than Rs.15,000 = 91, between Rs.15,000 and Rs.30,000 = 237, above Rs.30,000 = 199). It was ensured that a wide range of people have been covered to represent the population. The descriptive statistics for the three study variables are as follows: Environmental Attitude (Mean = 5.977 SD = 0.872), Pro-environmental behavior (Mean = 6.044 SD = 0.9319), Performance (Mean = 5.418 SD = 0.91). Independent t-test was conducted to test if there is any significant difference between Environmental Attitude, Pro-environmental behavior, Performance and gender. The results are given in Table 1.

Table 1: Independent 't' test and ANOVA

	Test	*Test value*	*p value*
Gender			
EA	't' test	-0.815	p=0.415
PEB		-1.322	p=0.187
PER		-0.497	p=0.620
Education			
EA	't' test	-0.834	p=0.404
PEB		-2.096*	p=0.037
PER		1.447	p=0.149
Age			
EA	F test	2.599*	p=0.035
PEB		1.546	p=0.187
PER		1.701	p=0.148
Income			
EA	F test	2.082	p=0.126
PEB		2.677	p=0.070
PER		7.517*	p=0.001

*Note:** p<0.05; *t-test with df=525 and F-test with* $df_1=2$ *and* $df_2=524$

It was found that there was no significant difference among environmental attitude, pro-environmental behavior and performance with reference to gender since the p value is above 0.05. This indicated that the response for all the three constructs were almost identical by both male and female members. Similarly, t-test was conducted to test if there is any significant difference between environmental attitude, pro-environmental behavior, performance, and education. It was found that with reference to environmental attitude and performance there was no significant difference since the p value for both the constructs is above 0.05. Individuals who had done graduation and post-graduation gave almost similar responses to the two variables. However, in the case of pro-environmental behavior, it was found that based on their level of education, their response was different.

One way ANOVA was used to test if among the three variables environmental attitude, pro-environmental behavior and performance, there was any significant difference against age of the respondent. It was found that in the case of Pro-environmental behavior and Performance, there was no significant difference with regard to the age of the respondents since the p value for both the constructs was above 0.05. However, it was found that depending on the age of the individual the responses were different for environmental attitude since the p value was below 0.05. Similarly, ANOVA was used to test between the three variables environmental attitude, pro-environmental behavior and performance against income being earned by the respondent. It was found that in the case of environmental attitude and pro-environmental behavior there was no significant difference based on the income earned by the respondent since the p value for both the constructs was above 0.05. However, it was found that depending on the income of the individual the responses were different for performance.

From the t-test and ANOVA, it was found that in a few cases there was a significant difference exhibited for which detailed analysis is required by categorizing the data based on the groups. However, in this study, the data is considered homogenous since in the majority of instances there was no significant difference found. This is a limitation of the study. In the future, research can be carried out categorizing the data wherever a significant difference was found.

Model Fit

The measurement model was developed. The model fit indices for measurement model was χ^2 = 277.352; df = 85; p=0.000; χ^2 / df = 3.263; GFI= 0.878; AGFI=0.856; NFI=0.932; TLI=0.940; IFI= 0.952; CFI=0.952; RSME=0.066; SRMR=.044. It is found that the model fit is acceptable since in all cases it is within the acceptable range.

The composite reliability (CR) was found for the three variables Environmental Attitude, Pro-environmental behavior, Performance. It was found the CR value was above 0.83 indicating very good reliability. The values are given in Table 2. Similarly the average variance extracted (AVE) for all the three variables was above 0.5. The discriminant validity (DV) which indicates the variable's distinctiveness was also found to be good. Thus the model fit is found acceptable with regard to CV, AVE and DV.

Table 2: Composite reliability, convergent and discriminant validity

Construct	*CR*	*AVE*	*EA*	*PEB*	*PER*
EA	0.903	0.653	**0.808**		
PEB	0.832	0.502	0.379	**0.709**	
PER	0.831	0.504	0.566	0.221	**0.710**

Note: (i) The elements along the diagonal are the square root of average variance extracted (AVE) and is greater than the off-diagonal elements which are the correlations between constructs
(ii) All items in each variable have AVE >0.5 and CR>0.7

The structural model was developed. The model fit indices was found to be within the acceptable range (χ^2 = 277.352; df = 85; p=0.000; χ^2 / df = 3.263; GFI=0.878; AGFI=0.856; NFI= 0.932; TLI=0.940; IFI=0.952; CFI=0.952; RSME= 0.066; SRMR=.044). The relationship between the variables was next found.

The Mediating Role of PEB

The relationship between the variables is found. The unstandardized coefficients of the path for the conceptual model are found and are

given in Figure 2. It is found that the relationship between environmental attitude and pro-environmental behavior is significant with path coefficient of 0.464. Also, the relationship between environmental attitude and performance is significant with path coefficient of 0.664. However, the relationship between pro-environmental behavior and performance is not significant with path coefficient of 0.007 indicating pro-environmental behavior does not lead to performance. The full structural model with latent structure along with the standardized path coefficients is given in Figure 3.

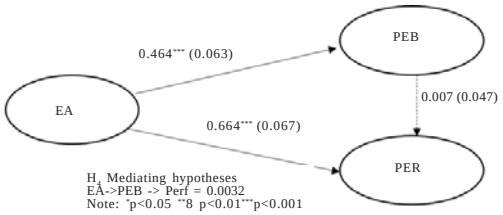

Fig. 2. Structural model
Source: Author

It is found that the relationship between environmental attitude and pro-environmental behavior is significant with path coefficient of 0.38 which indicates Hypothesis 1 is supported. Similarly, the relationship between environmental attitude and performance is significant with path coefficient of 0.56 that is, Hypothesis 3 is supported. However, the relationship between pro-environmental behavior and performance is not significant indicating Hypothesis 2 is not supported. The path coefficient was found to be 0.01. Also, the mediating hypothesis H4 is not supported. The results indicate that the individuals having a positive attitude towards the environment will have a positive pro-environmental behavior and also have a higher performance.

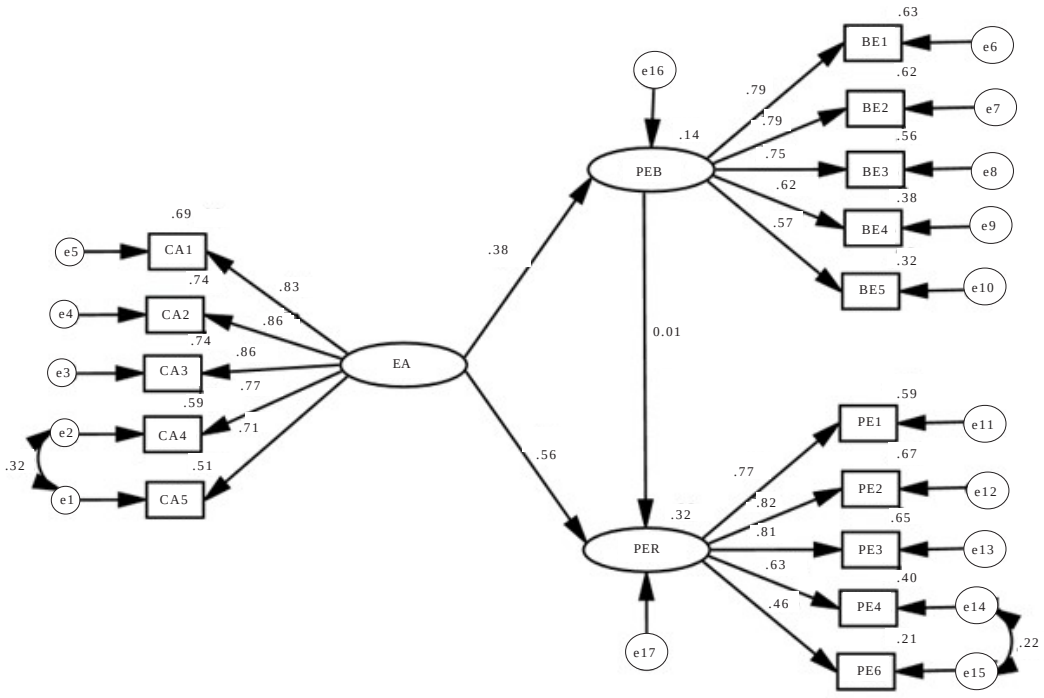

Fig. 3. Full latent structural model
Source: Author

Table 3: Mediating effect of green products using the bootstrap method

				Bootstrap BCa 95 %CI		
	Path	*β*	*SE*	*Lower*	*Upper*	
Hypothesis 1 Total (without a mediator)	EA-> PER	0.668	0.096	0.487	0.866	
Hypothesis 3 Direct effect (with a mediator)	EA-> PER	0.664	0.102	0.472	0.869	
Hypothesis 4 Indirect effect	EA- > PEB-> PER	0.003	0.025	-0.046	0.055	Hypothesis not supported

Note: Bootstrap 10000 sample, BCa – bias-corrected- accelerated CI - confidence interval

The direct, indirect and total effects of the model were found. Bootstrap method was used with 10000 bootstrap sample. The confidence was fixed at 95 percent and the model was run using AMOS. The results are given in Table 3. The direct effect and total effect of environmental attitude on performance were significant with 0.664 and 0.668 respectively. The indirect effect of environmental attitude on performance through pro-environmental behavior was insignificant with path coefficient of 0.003. This indicated pro-environmental behavior does not mediate the relationship between environmental attitude and performance. Also pro-environmental behavior and performance are consequences to environmental attitude.

DISCUSSION

From the results, it is found that there is a need for an equitable and ecologically viable future for sustainable development. The connectedness and relatedness of people with nature become essential for valuing and preserving the planet earth. Hofstra and Huisingh (2014) present the basic attitude of man as desire, reverence, humility, and concern with respect to nature. In the short-term, it is assumed that nature exists for the convenience of man. This perspective has to change. This requires a shift from anthropocentric to ecocentric approach in all our relationships with nature. When people work with their heart or spirit, they are involved emotionally (Petchsawang and Duchon 2009) and they find fulfillment in the things they do. Also Joye and Dewitte (2018) state that interacting with the natural environment has a beneficial psychological effect on mankind. This confirms our hypothesis that when there is a nature aligned attitude it will result in a positive reflection in our behavior.

The results also highlight the importance of having a positive attitude towards nature. It is found to have several fold benefits. When there is this reverential respect for the environment, there will be a feeling of profound respect. The attitude to conserve and preserve will become innate among people. When people start respecting this planet and realize our presence in this universe is for a small moment, our enjoyment of its beauty and richness becomes precious and valuable. This will also lead to environmental sustainability. Environmental sustainability can be considered as the first principle of distributive justice (Pelletier 2010). Geels et al. (2015) have carried out a critical review of sustainable consumption and production research and have identified two existing positions: reformist and revolutionary. They propose a third position 'reconfiguration' which they expect will work between the two extremes of the 'reformist' position - which focus on green eco-innovations and consumers buying eco-efficient products and 'revolutionary' - which advocates the abolishment of capitalism, materialism, and consumerism, and promotes frugality, sufficiency, and localism. The results from this study confirm that when individual's start having a positive attitude towards the environment, it will lead to sustainable consumption and an attitude of preserving the ecosystem. People will take up the reconfiguration position and come out with new innovations which will lead to improved performance.

CONCLUSION

Having a positive attitude is very important in today's consumeristic and materialistic society, to counter the ecological crisis and promote sustainable development. A positive environmental attitude will lead to higher pro-environmental behavior and improved performance. A multi-pronged approach is required to ensure every individual's small contribution towards saving this planet is synergized so that the final result is a holistic, beautiful planet. Everything created on this planet is for living beings to enjoy and survive – be it the herbs, flowers, fruits or plants with colorful and amazingly unique variety. Each is distinct in its creation, created for a human being to live and enjoy its beauty. This needs to be nurtured and maintained. It is imperative the environment is preserved and handed over to the future generations for them to enjoy its beauty for years to come. Such an attitude has to be inculcated in human beings right from their childhood. This will go a long way in the holistic development of community and the nation.

RECOMMENDATIONS

When individual's look at the environment with reverence and respect, they tend to nurture and preserve it. This will lead to environmental sustainability. It is recommended that mankind has to have a deep respect for the environment. This is the core for sustainable living by all organisms. All activities and developments should be performed keeping environmental protection and sustainability as the priority.

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APPENDIX 1 Instrument

ENVIRONMENTAL ATTITUDE

CA1	I am aware of the environment
CA2	I nurture the environment.
CA3	I take care of the environment
CA4	I am conscious of the changes that happen to the environment
CA5	I engage and participate with the environment to find meaning and richness in life

PRO-ENVIRONMENTAL BEHAVIOR

BE1	I switch off the lights and fan when not in use
BE2	I switch off the air conditioner when the outside climate is ok.
BE3	I conserve water
BE4	I walk short distances and avoid using cars
BE5	I switch off computers, stabilisers, UPS at the plug so that they are not in standby mode

PERFORMANCE

PE1	The company was able to increase the number of goods delivered on time
PE2	There has been an increase in capacity utilization to support different volumes in demand/client orders
PE3	There has been an increase in the quality of the company's products (degree of conformity to specifications).
PE4	There has been a reduction in the time required to develop and launch new products
PE5	There has been a decrease in the inventory levels maintained
PE6	There was a reduction in material wastes during production

Note: i) A 7 point scale was used for environmental attitude and performance – from strongly disagree (1) to strongly agree (7) and for pro-environmental behavior the scale used was - from very untrue of me (1) to very true of me (7)