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Determinants of Pro-environmental Behaviours – A Cross Country Study of Would-be Managers

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Abstract

Purpose: This cross-cultural based paper aims to provide an understanding of the determinants contributing to adopting pro-environmental behaviour by 'would-be managers' represented by MBA students studying in two highly carbon emitting yet contrasting countries – India and Australia. The paper particularly examines the effects of personal values, moral obligation, attitudes, and subjective norms on pro-environmental behavior of such would-be managers. Design/methodology/approach: In predicting the pro-environmental behavior of would-be managers, a conceptual model was developed by combining Schwartz's (1992) value theory and Homer and Kahle's cognitive hierarchy model of value-attitude-behaviour (VAB). Data was collected from 476 respondents consisting of 342 MBA students from India and 134 MBA students from Australia. Partial least square based structural equation modeling (PLS-SEM) was used in analysing the data. Findings: The findings reveal that the inclination of pro-environmental behaviour of would-be managers can be predicted by their personal value, moral obligation, attitudes and subjective norms, thereby providing both theoretical and empirical supports to our model in understanding the determinants of pro-environmental behaviour. Practical implications: The findings are critical in developing strategies for building capacity and willingness of would-be managers to adopt pro-environmental behaviour. In so doing, business schools may use these findings in designing effective CSR/sustainable development contents in their curriculum which will not only help educators to nurture classroom discussion but also sensitize students' critical thinking in addressing issues of climate change as well as improving environmental well-being. Originality/value: Conceptually, this paper proposes a comprehensive framework to understand the determinants of pro-environmental behavior. Empirically, it applies a novel and appropriate method for predicting such behavior in two contrasting yet highly carbon emitting countries – an important issue that receives little attention in current CSR/sustainable development literature.

Keywords

Pro-environmental behaviour, Would-be managers, India, Australia, Cross-cultural study.

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***JEL classification**:* M40

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1. Introduction and Background

A growing body of literature suggests that environmental problems in the form of global warming, urban air pollution, and natural calamities such as draught, flood, tsunami and loss of biodiversity are mainly rooted in human behaviours (Ernst & Wenzel, 2014; Steg & Vlek, 2009). Empirical research has reinforced this notion and particularly argued that human behaviours have significant effects on climate change and therefore, pro-environment human behaviour plays a key role in effectively mitigating climate change (Karl & Trenberth, 2003; Steg & Vlek, 2009). It, however, remains an imperative to understand the determinants contributing to people's pro-environmental behaviour. Further, although this field of research has gained attention in the developed nations, for example, in the United States and the European Union since the 1970s (Dunlap & Mertig, 2014; Golub, 2013); there is a paucity of such research in the developing countries, particularly the ones that are most vulnerable to climate change. Comparative research examining the intention of pro-environmental behaviour across developed and developing countries is also quite scarce. This paper contributes to this end by presenting data on the determinants of pro-environmental behaviour of would-be managers in two contrasting contexts - India and Australia.

Previous research used a number of theoretical models such as Theory of Planned Behaviour (TPB) (Ajzen, 1991), Value Attitude Behaviour (VAB) theory (Homer & Kahle, 1988) and Value-Belief-Norm (VBN) theory (Stern, Dietz, Abel, Guagnano, & Kalof, 1999). While all these thoeries have been employed mostly independently to explore environmental behaviour, building on previous work, this paper attempted to develop an integrated conceptual model that combines two widely employed value based theoretical frameworks i.e. Schwartz's Value theory (1992) and Homer and Kahle's VAB theory (1988) along with an external variable i.e. moral obligation, in understanding the determinants of pro-environmental behaviour of would be managers in two contrasting cultural contexts. According to Hofstede's culture dimensions (Hofstede & Bond, 1984), Indians value collectivism more while Australians value individualism.

This study considered MBA students as subjects for a number of reasons. The common view is that MBA students are only interested in financial gain (Lopez, Rachner & Olson-Buchanan, 2005) and they are rarely sensitive to social accountability issues (Giacalone & Thompson, 2006; Kolodinsky et al., 2010). Coupled with this, although corporate social responsibility (CSR) appears to be receiving importance in business ethics literature (Ghoshal, 2005; Rubin & Dierdorff, 2009; 2011), many MBA curriculums tend to suffer from lack of attention to environmental issues (Rubin & Dierdorff, 2009; 2011) - the Indian context is no different (Krishnan, 2008). This raises concern for the broader community who expect businesses to do more to address climate change and other sustainable development issues. MBA students of today are likely to take the leadership positions in the corporate sector in the near future, where they will play a critical role in organisational strategy formulation, specifically in delivering companies' commitment to better engage in CSR, sustainable development and corporate governance. Their personal and collective actions, which are mostly shaped by their views and attitude, will have significant social and environmental impacts on an organizations' future orientation towards pro-environmental initiatives. While the influence of practicing managers' personal values on the environment has been previously investigated (Bansal and Roth 2000, Welcomer et al. 2011), the extent to which personal values of would-be managers influence the pro-environmental attitudes is relatively unexposed, despite

the fact that personal values are the key determinants of environmental concern (Ng & Burke 2010,Papagiannakis & Lioukas 2012, Cirnu and Kuralt 2013).

The findings of this research aim to contribute to our understanding of the intention and commitment of future business leaders in addressing climate change issues (specifically by promoting environmental sustainability) and the determinants affecting such intensions**.** The findings will be critical in developing strategies for building capacity and willingness of these managers to contribute to this end.

Although cultural and economic differences exist between Australia and India, the governments and various stakeholder groups of both countries are concerned with how to minimise environmental impacts caused by business operations (for example, Australian Government, 2018). India is one of the most important emerging economies in the world in terms of rapid economic growth,[4] with significant urbanisation, a large populace, and a growing presence in the global market. However, India is the third largest carbon dioxide (CO_2) emitting country in the world and India's environmental practices are far behind those found in developed economies (Balasubramanian, Kimber & Siemensma, 2005). Thereby, India is responsible for a considerably large global environmental impact.

The Australian economy, on the other hand, is one of the most advanced market economies (ranked 12th largest) in the world and the most productive in the South Pacific, having steady economic growth. Australian residents however have the seventh largest environmental impact on the world's natural resources. Australia is one of the largest carbon dioxide (CO2) emitting (per capita) developed countries in the world (Knoema.com, 2017). Thus the uniqueness of this research lies in its application to an underexplored research setting, namely India, an emerging economy that is one of the largest carbon dioxide (CO2) emitting countries, and its comparison to a developed country, which is one of the highest CO2 (per capita) emitting countries.

2. Theoretical Background

Managers within a company have the power to influence the introduction and direction of environmental initiatives. It could therefore be argued that managers' values and perceptions play a key role in influencing the process of strategic choice and resulting organisational outcomes (Hambrick and Mason 1984). A number of studies (e.g., Cordano and Frieze 2000, Cordano et al. 2010, Papagiannakis and Lioukas 2012) considering managers' environmental attitudes and subjective norms are critical in understanding their pro-environmental behaviour. While studying the US wine industry, Cordano, Marshall and Silverman (2010) found that managers' attitudes and subjective norms were strongly related to an organisation's initiative of establishing corporate environmentalism. Several authors (e.g., Bansal and Gao 2006, Ng and Burke 2010) suggest that more attention should be paid to an individual level determinant which may influence managers' pro-environmental behaviour.

[4] The Indian economy grew by 8.5% in 2009. The World Bank has reported a 10.5% growth rate in 2010, 6.3% in 2011 and 3.2% in 2013. (http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG www.ibef.org).

In line with this argument, personal values have been considered important determinants of pro-environmental actions. Values are goals that guide our lives and influence behaviour (Schwartz, 1992). Schwartz's (1992) Value theory describes ten basic types of human values such as universalism, benevolence and conformity, and these values are differentiated by their motivational goals. It is fair to argue that personal values and moral obligation may facilitate managers' willingness to engage in pro-environmental behaviours and hence, they are integrated into our conceptual model.

One important mediator on the relationship between personal values and behaviour is one's attitude. The relationship between attitude and behaviour is explained by Ajzen (1991) in the theory of planned behaviour (TPB). TPB postulates that one's willingness to engage in pro-environmental behaviours is the function of positive attitudes towards the behaviour of interest, and perceived normative pressures from significant others to engage in the behaviour of interest over the intended behaviour.

Homer and Kahle's (1988) cognitive hierarchy model, operationalised as VAB model, integrates people's values, attitudes, and behaviour by positing a hierarchical influence of value on attitudes, leading to specific behaviour. Homer and Kahle (1988) made an attempt to integrate the interrelationships between values, attitudes, and behaviour by proposing a causal model on the influence between them. This model has been applied and validated in areas such as shopping behaviour (Homer & Kahle, 1988; Cai & Shannon, 2012), college students' environmental behaviour (Shim, Warrington et al. 1999), as well as validating in a cross-cultural context (Milfont, Duckitt et al. 2010). According to Value-Belief- Norm theory (Stern, 1999), value orientation of a human is assumed to influence attitudes and specific environmental behaviours.

The relationship between attitudes towards pro-environmental behaviour is reported to vary extensively (Bamberg & Möser, 2007). This variability is likely to represent significant differences across studies in the samples tested, the measures used and the particular behaviours examined. Similarly, it may also signify a failure to take important predictors into account and to consider fully their direction and pattern of influence. Thus, our study builds upon past research in two ways. First, much of the past work was limited to explicit self-reports of attitudes towards environmental protection. However, recent work has shown that attitudes also exist at an implicit, less intentionally available level, which has independent effects on behaviour. In our study, we associated the influence of both explicit and implicit attitudes about the environment on pro-environmental behaviour. Second, it is assumed that attitudes operate through intentions to influence behaviour. This assumption has been subject to research on attitudes and behaviour. Levine and Strube (2012), however, argued that a large number of meditational studies have been limited to explicit attitudes and the route from implicit attitudes to behaviour, if it exists at all, has not been examined. In this current study, we examined the extent to which attitudes and subjective norms mediate the link between personal value and intention to behave pro-environmental behaviour.

Research indicates that the relationship between subjective norms and behaviours may vary according to the culture. Based on Hofstede and Bond (1984) people in a collectivistic culture (e.g., India) are more likely to act based on social norms than those in an individualistic culture (e.g., Australia). The level of economic development is also critical in explaining differences in

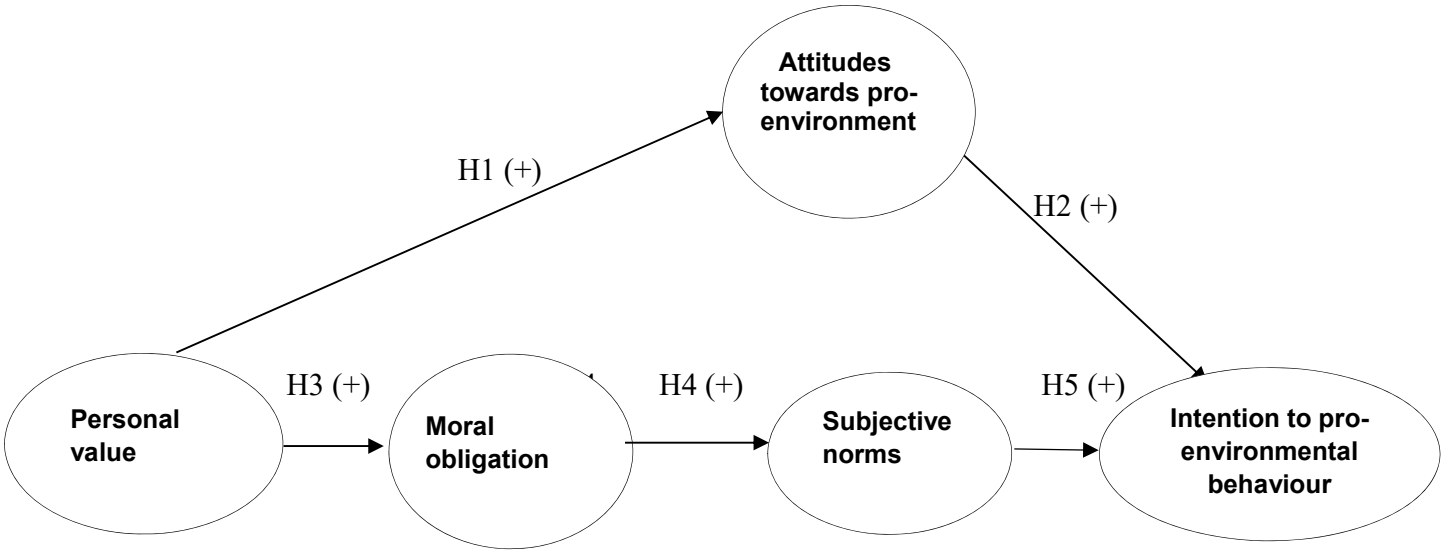
national cultural values (Inglehart and Baker, 2000). Higher levels of economic security and technological development result in embracing post-materialist values in advanced industrial economies than developing economies.

In particular, the objective of this paper is to examine the extent to which personal values, moral obligation, attitudes and subjective norms predict Australian and Indian would-be managers' pro-environmental behaviour. Prior to explicating the method used to answer this question and presenting the findings, a discussion is provided in the next section of the theoretical background, model development and research hypotheses.

3. Model and Hypotheses Development

Our conceptual model shown in Figure 1 has been developed combining Value theory (Schwartz, 1992) and VAB (Homer & Kahle, 1988) to predict the pro-environmental behaviour of would-be managers. The Value theory of Schwartz (1992) describes ten basic types of human values which are differentiated by their motivational goals such as universalism, benevolence, conformity, tradition, security, power, achievement, hedonism, stimulation, and self-direction. These values can be differentiated through their emphasis on different motivational goals. Kulin and Svallfors (2013) commented that 'the ten values can be classified into a circular continuum (quasi-circumflex) representing their dynamic relationships, where adjacent values are related, more distant values less related and diametrical values are each other's opposites and therefore directly negatively linked' (p. 157). Four higher order value types also differentiated by Schwartz in the circular scale are self-transcendence versus self-enhancement and openness to change versus conservatism. One of the most appealing features of Schwartz' theory is the integration of basic value types into a broader value system (Kulin & Svallfors 2013).

Figure 1: Theoretical pro-environmental model



The hypotheses that have emerged from our theoretical pro-environmental model have been articulated in the following sections.

Personal values, attitudes and intention

Values are defined as 'desirable trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity' (Schwartz 1994, p.21). Values are commonly recognised as important life goals or standards that act as guiding principles in people's life (Rokeach 1973). People's consideration of choosing a particular behaviour is guided by their personal values (Poortinga, Steg et al. 2004). As such, values play a pivotal role in shaping people's attitudes and behaviour of interest. With respect to pro-environmental behaviour, people's values also have a significant bearing on reducing the degree of conflict transcending self-interest (Poortinga, Steg et al. 2004). Empirical research confirmed that people's values have a significant influence on their pro-environmental attitudes and behaviour (Stern 2000, Van der Werff, Steg et al. 2013). According to Ajzen (1991), behavioural intention captures the motivational determinant required for performing a behaviour of interest; 'they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour' (Ajzen 1991, p.181). He postulates that people's behavioural intention is determined by (a) the extent to which individuals hold favourable attitudes toward the behaviour (i.e., attitudes); and (b) individuals' perceptions of the norms and conventions regarding the behaviour (i.e., subjective norms).

> Hypothesis 1: Personal values are positively associated with the attitudes of Australian and Indian would-be managers to adopt pro-environmental behaviour.
>
> Hypothesis 2: Attitudes towards the pro-environmental behaviour is positively associated with Australian and Indian would-be managers' inclination to adopt pro-environmental behaviour.

Moral obligation, subjective norms, and the pro-environmental behavioural intention

Schwartz (1977) conceptualized that moral obligations are a composition of moral norms. Moral obligation refers to the internal states of people that explain the extent to which they feel a sense of responsibility to act or or not to morally or immorally at the time of facing ethical concerns (Beck & Ajzen 1991, Leonard, Cronan et al. 2004, Haines, Street et al. 2008). Prior research indicates that moral obligation guides people to what extent they are inclined to engage in pro-environmental behaviour. For example, Hines, Hungerford, and Tomera (1987) reported a strong positive correlation between moral obligation and the pro-environmental behaviour. Beck and Ajzen (1991) found moral obligation as predictive of the college students' intention to engage in unethical behaviour such as test cheating. Leonard et al. (2004) found a significant positive influence of moral obligation on ethical behavioural intention related to the use of information technology. Haines et al. (2008) reported that moral obligation explained a significant amount of variance in moral intent. Beck and Ajzen (1991), Leonard et al. (2004), and Haines et al. (2008) provided empirical evidence that moral obligation is predictive of the intent to act on a given behaviour. Based on these empirical supports, it is predicted that moral obligation precedes the ethical decision-making, such as the pro-environmental behavioural intention.

The notion of subjective norm originates from the perceived social pressures and motivation to comply with those pressures to perform the desired behaviour (Fishbein & Ajzen 1975). For example, Flannery and May (1994) found that environmental attitudes and stakeholder influence shape organisational environmental strategies to uncover the complex environmental challenges that organizations face. Similarly, Taylor and Todd (1995) found that attitudes toward recycling were positively associated with predicting individuals' intention of recycling and composting intention. Cordano and Frieze (2000) reported pollution prevention attitudes, a subjective norm of environmental managers, significantly predicted their intention related to reducing source pollution. In line with this theory, Valle, Reis et al. (2004), White and Hyde (2012) found that attitudes and subjective norm of Australian residents significantly predicted their recycling intention and subsequent behaviour by examining the following hypotheses.

Hypothesis 3: Personal value is positively associated with moral obligation of Australian and Indian would-be managers towards the pro-environmental behaviour

Hypothesis 4: Moral obligation is positively associated with the subjective norm of Australian and Indian would-be managers influencing the pro-environmental behaviour

Hypothesis 5: Subjective norms are positively associated with the intention of Australian and Indian would-be managers' to adopt pro-environmental behaviour.

Hypothesis 6: The relationship between personal value and the inclination for adopting pro-environmental behaviour by Indian and Australian would-be managers is mediated by their attitudes and subjective norms.

4. Methods

To address our research questions and in line with prior studies in this field (see-Bhattacharyya & Cummings, 2013; Papagiannakis & Lioukas, 2012), the survey research method is used in this study. Participants were asked to complete a paper-based questionnaire comprising (1) the Schwartz (1994) value instrument; (2) a set of questions designed to assess support for environmental responsibility (SER scale); and (3) a demographic questionnaire. The items intended to assess support for environmental accountability (SER scale) were adapted from prior studies (see, Fukukawa, Shafer et al. 2007, Bhattacharyya and Cummings 2013). We examined whether a considerable amount of common variance is explained by a single factor following the methods adopted by Podsakoff and Organ (1986) and Podsakoff, MacKenzie et al. (2003). Harman's single-factor test indicates the highest amount of variance explained by a single factor is equal to 34.05%. Therefore, the risk of common method bias is unlikely to be a threat to the validity of our findings.

Sample and Data

A sample size of 476 participants (342 from India and 134 from Australia) was used in the study. The participation was voluntary. Data was collected from the MBA students of the Indian Institute

of Management[5], enrolled at its Kolkata & Ranchi campuses. Data was also collected from the city campus of Newcastle University Australia. The data was collected in the first and second trimesters. The survey instruments were distributed in the class room before students commenced their classes, and the students were requested to drop the filled-in instruments in a sealed box kept outside their lecture rooms. A total of 750 survey instruments were distributed (510 in India and 240 in Australia), and 476 completed instruments were received (the response rate was 67% in India & 56% in Australia). The majority of the respondents were between 23 and 34 years old (73%), and 28% were between 35 and 44. The majority of the participants were male (68%). Most (78%) had completed a Bachelor's degree, and 19% had completed a Master's degree before enrolling in a MBA program. Slightly more than half (56%) had previous work experience, with the remaining being recent graduates without any work experience.

Data Analysis

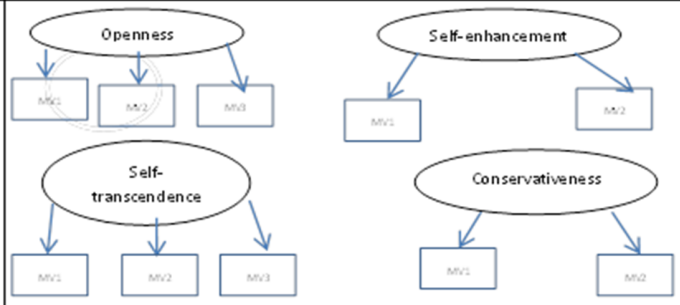
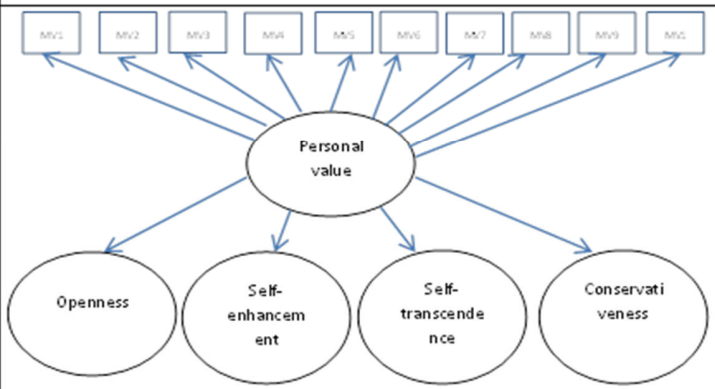
With a view to establishing research "rigor" and modelling, using confirmatory factor analysis, we found the construct "personal value" is a second-order, hierarchical reflective construct model to estimate the model parameters (Gregor, 2006, Akter, D'Ambra et al. 2010). Confirmatory factor analysis shows that all other constructs are uni-dimensional, except "personal value" which is the composition of four sub-constructs: self-enhancement, self-transcendence, openness, and conservativeness (see Figure 2).

To examine our proposed research model, we employed partial least squares based structural equation modelling (PLS-SEM) using Smart PLS-M3 (Ringle, Wende and Will, 2005). According to Hair, Sarstedt, Pieper and Ringle (2012), PLS-SEM is the preferred technique over others if the objective of a study lies in prediction as is the case for this study.

A two-step approach to partial least squares (PLS), was employed in this study to examine measurement and structural models (Anderson and Gerbing, 1988, Chin, 2010). The measurement model was assessed by calculating the convergent and discriminant validity of the scales. With respect to the assessment of the structural model, the coefficient of determination, R^2, and the path coefficients with their respective significance levels were estimated with PLS-SEM (Chin, 2010). In line with the recommendations of Hair, Ringle et al. (2011), bootstrapping resampling (resampling size = 5,000) was employed using Smart PLS software (Ringle et al., 2005; Hayes and Preacher, 2010). To examine mediating effects of multiple mediators in the proposed model, the causal step approach (Baron and Kenny, 1986) and bootstrapped confidence interval technique were employed using SPSS macro.

[5] Indian Institute of Management (IIM), India, is the highest-ranked management school in India (ranked by several independent bodies) that produces highly skilled management professionals. It has campuses across India. Data was collected from their Kolkata, Ranchi and Udaipur campuses.

Figure 2 Construction of the hierarchical reflective personal value model

Construction of the model	Personal value as a Hierarchical Reflective Model
Figure 2.1 shows that first order, reflective latent variables (LVs) (self-enhancement, self-transcendent) of personal value	 Figure 2.1: First order latent variables of personal value
Figure 2.2 shows that personal value as a second order reflective variable, which is considered by relating it to the block of the underlying first order constructs.	 Figure 2.2: personal value as a second order reflective construct

Measures

Personal values

The Schwartz value instrument (European Social Survey) instrument was adapted from Bilsky, Janik, and Schwartz (2011). To preserve coverage of the content of the 10 different values, the items included in the Schwartz value instrument were adopted. The ESS scale included Verbal portraits of 21 different people, gender-matched with the respondent. A person's goals, aspirations, or wishes were described in each portrait. For example, "Thinking up new ideas and being creative is important to her. She likes to do things in her own original way" described a person for whom self-direction values are important. Respondents' own values were inferred from their self-reported similarity to people described implicitly in terms of particular value[6]. Regarding each portrait, respondents answered the question: "How much like you is this person?" Six labelled responses (six point scale) ranged from "not like me at all" to "very much like me" were used. Two portraits operationalized each value, with three for universalism because of its very broad content. The score for the importance of each value was the mean response to the items that measured it. The Cronbach's alpha was 0.84 for personal values in this study.

[6]Schwartz (2003) discussed the rationale for this and presented evidence suggesting that it does not create a problem in this case.

Environmental attitudes
Ten items (derived from literature) assessed views on whether corporations and their executives should be held responsible for environmental issues, and whether the government should adopt and enforce formal standards for such a responsibility. Interval response scales of 1–5 (Likert scale e.g., 1 = strongly disagree to 5 = strongly agree) were used. In this study, the Cronbach's alpha was .89 for environmental attitudes.

Subjective Norm, Moral obligation and Pro-environmental intention
Subjective norm was assessed using seven items employed in the studies of Ajzen (2003) and Kwan and Bryan (2010). In this study, the Cronbach's alpha was 0.86 for subjective norm. Pro-environmental intention was measured using four items that were adopted from Ajzen (2003) with minor modification in their wording. All these items were assessed on a five-point Likert scale: 1 = Strongly disagree to 5 = Strongly agree. The Cronbach's alpha was 0.70 for the intention to pro-environmental behaviour. Moral obligation was assessed using three items on a five-point scale devised by Beck and Ajzen (1991); for example, "I would feel guilty if I do not discharge social and environmental responsibility." In this study, the Cronbach's alpha was 0.72 for Moral obligation.

5. Results

Our results presented in Table 1(a) and (b) show that all the measures in our models satisfy Fornell and Larcker's (1981) requirements of convergent validity of scales (i.e. the indicators' loading are greater than the recommended threshold value of 0.70 with a significance level < .001; the average variance extracted (AVE) and composite reliability (CR) for all of the constructs are > 0.50 and >0.80, respectively). Consistent with Fornell and Larcker (1981), both Table 1(a) and (b) also indicated that discriminant validity at the construct level was achieved as the square root of AVE of every construct exceeding the correlation with the rest of the constructs.

Table 1(a): Composite reliability (CR), Average variance extracted (AVE) and correlations[a] of the Indian samples

Constructs	**CR**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Conservation	0.81	**0.82**								
Openness	0.81	0.35	**0.77**							
Self-enhancement	0.81	0.26	0.35	**0.83**						
Self-transcendence	0.81	0.42	0.4	0.29	**0.76**					
Moral obligation	0.89	0.15	0.12	0.08	0.22	**0.89**				
Attitudes toward pro-environmental behaviour	0.91	0.16	0.17	0.13	0.21	0.52	**0.78**			
Subjective norm	0.82	0.02	0.02	0.05	0.09	0.29	0.21	**0.84**		
Pro-environmental intention	0.78	0.05	0.07	0.02	0.1	0.44	0.4	0.32	0.46	**0.8**
[a] Square root of AVE is on the diagonal										

Table 1(b): Composite reliability (CR), average variance extracted (AVE) and correlations[a] in the Australian samples

Constructs	CR	1	2	3	4	5	6	7	8	9
Conservation	0.8	**0.82**								
Openness	0.79	0.49	**0.75**							
Self-enhancement	0.81	0.23	0.38	**0.82**						
Self-transcendence	0.80	0.49	0.45	0.26	**0.82**					
Moral obligation	0.88	-0.19	0.00	0.00	0.00	**0.88**				
Attitudes toward pro-environmental behaviour	0.91	0.00	0.00	0.00	0.00	0.00	**0.77**			
Subjective norm	0.93	0.02	-0.05	-0.16	-0.16	0.42	0.05	**0.94**		
Pro-environmental intention	0.83	-0.05	0.00	0.00	0.00	0.00	0.08	0.00	0.00	**0.84**

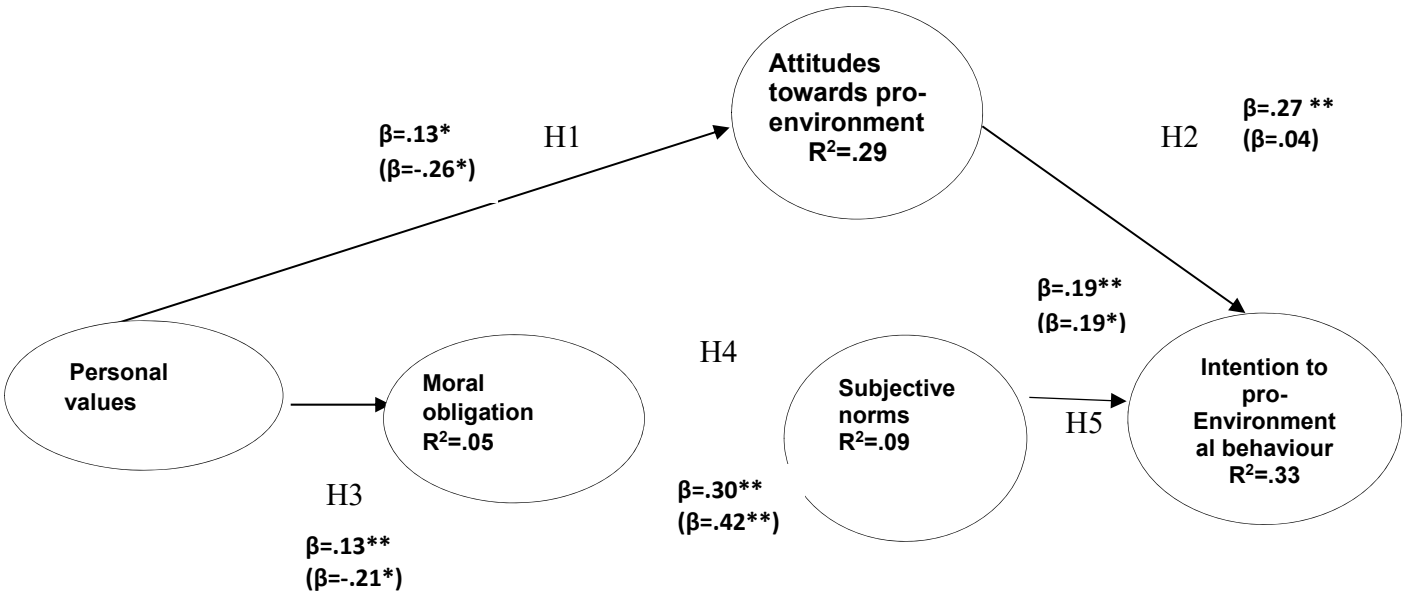
[a] Square root of AVE is on the diagonal

Our analyses (see Figure 2) further indicate the parameters of personal value as a second-order reflective hierarchical construct model. In our Indian and Australian based models, the degree of explained variance of second-order construct (i.e., personal value) is reflected in its first-order components, i.e., openness (55%, 78%), self-enhancement (33%, 61%), self-transcendence (58%, 81%), and conservation (58%, 69%). Accordingly, the variance of second-order constructs is reflected in its corresponding first-order constructs. In both models, all the path coefficients from personal values to first-order components are significant at $p<0.01$.

The findings of the hypothesized relations in the structural model are shown in Figure 3. PLS-SEM analyses revealed a significant positive path coefficient for the impact of personal value on pro-environmental attitudes in the Indian samples ($\beta=0.13$, $t=2.42$, $p<0.05$), whereas for the Australian samples ($\beta=-0.26$, $t=2.73$, $p<0.05$), the inverse significant relation is evidenced, thereby hypotheses 1 received partial support. Attitudes were found to be positively associated with the intention to demonstrate pro-environmental behaviour in the Indian sample ($\beta=0.27$, $t=5.41$, $p<0.01$). However, the relationship was not significant for the Australian samples ($\beta=0.04$, $t=0.62$, $p>0.05$). Therefore hypothesis 2 received partial support. Furthermore, personal value was found to be significantly associated with moral obligation for the Indian samples ($\beta=0.13$, $t=4.22$, $p<0.01$) but not forthe Australian ones ($\beta=0.21$, $t=2.12$, $p<0.05$) thus hypothesis 3 received partial support.

PLS analyses showed that moral obligation was positively related to the subjective norms both for the Indian ($\beta=0.30$, $t=5.64$, $p<0.01$) and Australian ($\beta=0.42$, $t=5.46$, $p<0.01$) samples respectively. Thus hypothesis 4 received full support. Similarly, our results indicate that subjective norms are significantly associated with the intention to behave pro-environmentally, both for the Indian ($\beta=0.19$, $t=3.68$, $p<0.01$) and Australian samples ($\beta=0.19$, $t=2.07$, $p<0.05$) respectively. Therefore, hypothesis 5 received partial support.

Figure 3: Findings on the theoretical pro-environmental model (combing Indian and Australian samples±)



Path significant at *p<.05 and **p<.01 (±Results on Australiam samples are within parenthesis)

Table 2 (a) presents the results of the mediation analyses of the Indian samples in which attitudes and subjective norms were found to mediate the positive relationship between moral obligation and intention to adopt pro-environmental behaviour. Results of the bootstrapped 95% confidence interval (CI) for the indirect effects for attitudes (effect 0.09) ranged between 0.04 and 0.15, and for subjective norms (0.04) ranged between 0.007 and 0.078. None of these ranges included 'zero'. By satisfying the mediating-conditions of causal step approach recommended by Baron and Kenny (1986), attitudes and subjective norms were found as mediators in the Indian samples. Table 2 (b) presents the results of the Australian samples which indicate bootstrapped 95% confidence interval (CI) for the indirect effects of attitudes (effect .004) ranged between -0.05 to 0.06, and for subjective norms (0.06) ranged between -0.008 to 0.17. This included 'zero' between the upper and lower limits. Therefore, hypothesis 6 received partial support.

6. Discussion

This study attempted to understand the determinants of pro-environmental behaviour of would-be Indian and Australian managers through a conceptual model using PLS-SEM. For a better understanding of pro-environmental behaviour, we ventured beyond the variables of extant models of the TPB and VAB, Value theory by incorporating moral obligation as an additional predictor in the proposed theoretical model of pro-environmental behaviour.

Table 2 (a): Results of mediation analysis of Indian samples (Hypothesis 6)

Steps of Baron and Kenny (1986):		B	SE	β	t	P
Step 1 [c path]	INTEN regressed on MOBLI	.42	.05	.46	8.46	.000
Step 2 [a path]	ATITUD regressed on MOBLI SUB regressed on MOBLI	.42 .26	.038 .047	.50 .30	2.42 5.64	.000 .000
Step 3 [b path]	INTEN regressed on ATITUD INTEN regressed on SUB	.22 .15	.059 .064	.27 .19	5.41 3.68	.000 .002
Step 4 [c' path]	INTEN regressed on MOBLI including mediators	.18	.06	.20	3.27	.000
Bootstrapped results for indirect effect [ab path]						
Mediator		Effect	SE	LL 95% CI	UL 95% CI	
ATITUD		.09	.02	.04	.15	
SUB		.04	.01	.007	.078	
[Note: N=342. LL=Lower Limit, UL=Upper Limit; CI=Confidence Interval; SE=Standard error. Bootstrapped sample size=5000]						

[MOBLI=Moral obligation, ATITUD=Attitudes towards pro-environmental behaviour, SUB=Subjective norm, INTEN=Intention to pro-environmental behaviour]

Table 2 (b): Results of mediation analysis of Australian samples (Hypothesis 6)

Steps of Baron and Kenny (1986):		B	SE	β	t	P
Step 1 [c path]	INTEN regressed on MOBLI	.37	.09	.35	4.34	.000
Step 2 [a path]	ATITUD regressed on MOBLI SUB regressed on MOBLI	.25 .47	.06 .09	.28 .42	2.98 5.62	.000 .000
Step 3 [b path]	INTEN regressed on ATITUD INTEN regressed on SUB	.02 .14	.09 .08	.01 .15	.11 1.73	.000 .002
Step 4 [c' path]	INTEN regressed on MOBLI including mediators	.12	.08	.12	1.48	p>.05
Bootstrapped results for indirect effect [ab path]						
Mediator		Effect	SE	LL 95% CI	UL 95% CI	
ATITUD		.04	.02	-.05	.06	
SUB		.06	.01	-.008	.17	
[Note: N=342. LL=Lower Limit, UL=Upper Limit; CI=Confidence Interval; SE=Standard error. Bootstrapped sample size=5000]						

Our findings indicated that personal values of Indian would-be mangers which capture the way people feel and react ethically toward their pro-environmental behaviour has a significant bearing on their moral obligation and attitudes to behave pro-environmentally. However, personal values are negatively and significantly related to moral obligations and attitudes of Australian would-be managers. We consider this finding interesting; however, not adequately unexpected in the Western contexts. An individual will be less concerned about environmental issues and accountability and less likely to take action on such issues if he/she highly values self-enhancement (Fukukawa et al., 2007; Papagiannakis & Lioukas, 2012). A negative relationship between both altruistic and bio-spherics concern and self-enhancement (Stern et al., 1999; Schultz, 2001) and a positive relationship between egoistic environmental concern and self-enhancement was reported by Schultz (2001). Schultz and Zelezny, (1999) also reported a negative association between two self-enhancement value types: power and achievement with environmental concern and willingness to take pro-environmental action. Individuals who place high value on power, authority, and wealth view standards as restraints on their ability to achieve their goals and thus will be less willing to support legislated pro-environmental actions (Fukukawa et al., 2007).

The result indicated that Australian participants highly valued self-enhancement value types, hence a negative relationship between values and attitude. On the other hand, Indian data showed a positive relationship. This difference in the result could be explained from two viewpoints. First, culturally an individual's attitudes towards the environment will be affected by Individualism–collectivism. Indian participants of the current study rated benevolence highest among the ten value types; which suggest that collectivism has an important influence on Indian person's perception of what is important and what is not. With belief of collectivism, Indian students still place strong emphasis upon values related to people. The lowest rating value of benevolence by the Australian participant indicates their individualistic belief. Secondly, the level of economic development and growth is also critical in explaining differences in national values (Inglehart & Baker, 2000). High levels of economic security and technological development result in the embracing of post-materialist values in advanced economies like Australia. Inglehart and Baker (2000) reported that individuals in low GNP per capita countries were more likely to support traditional and self-interested values, while individuals in high GNP per capita countries were more likely to adhere to post-materialist values.

The results of this study also indicate that moral obligation bears a positive impact on would-be Indian and Australian managers' attitudes and subjective norms to the intention of would-be Indian managers to adopt pro-environmental behaviour. Our findings further demonstrate that attitudes and the subjective norms of both the Indian would-be mangers have significant influence on the intention to adopt pro-environmental behaviour, however, only subjective norms, not attitudes, have significant effect on the intention of the Australian subjects . These findings also provided empirical support to Stern's (2000) premise that individuals with more positive environmental attitudes might influence environmental initiatives of their organisations. However, the non-significant relationship between attitudes and intention to adopt pro-environmental behaviour of the Australian managers is not unusual compared to their Asian counterparts. For example, Cummings (2008) found that compared to the Indian and Chines managers, the environmental attitudes of the Australian managers were less progressive. Cummings (2008) noted 'against what was expected, the Australian respondents on the whole were the least prominent in supporting a progressive attitude toward environmental management' (p.22).

The results of this study show little cross-cultural difference, which is inconsistent with Hypothesis 2. The countries subjective norms of the two countries depicted no difference in predictive power. This could be due to the reason that pro-environmental behaviours are not wholly dependent on norms. Attitudes determine some behaviours, whereas norms tend to control other behaviours (Trafimow and Fishbein, 1994). Attitudes were a stronger predictor of pro-environmental behaviours than norms in the Bamberg and Moser's (2007) meta-analysis. Kim et al. (2012) commented that the difference in the impact of subjective norms across cultures may have been better detected for norm-controlled behaviors (e.g., littering in public places).

Our result suggests that personal values, moral obligation, attitudes and subjective norms, were significant predictors of pro-environmental behaviour, thus extending the research of Papagiannakis and Lioukas (2012) who used personal values as the only determinant of the TPB-based model to predict pro-environmental behaviour. In line with the prior findings of TPB-based research in the environment context (eg., Cordano and Frieze 2000, Flannery and May 2000), positive significant effects of the variables of TPB such as attitudes and subjective norms have a significant positive effect on predicting pro-environmental behaviour, thus validating the TPB model in a cross cultural context to predict would-be managers' pro-environmental behaviour.

Theoretical and Policy Implications

By capturing moral obligation and personal values, our study combined the existing theoretical models of Ajzen's (1991) theory of planned behaviour, Schwartz's (1992) Value theory and Homer and Kahle's (1988) Value-Attitudes-Behaviour theory into a complex theoretical model to examine and validate in a cross cultural context. We believe it added novelty by examining the effects of external variables (i.e., moral obligation) simultaneously into a comprehensive theoretical model in environmental research.

Consistent with prior research on environmental studies, our findings indicated that pro-environmental behavioural intention is significantly influenced by causal determinants such as personal values, moral obligations, attitudes, and subjective norms. Therefore, appropriate intervention strategies could be developed to positively shape these socio-psychological determinants that guide would-be managers' pro-environmental behaviour. For example, our study shows that personal values and moral obligations of would-be managers have a significant direct effects on their attitudes, subjective norms associated with pro-environmental behaviour and indirect effect on behavioural intention related to pro-environmental behaviour. Therefore, policymakers could initiate steps to educate, develop, and improve existing value systems, ethical obligations, and attitudes contributing to pro-environmental behaviour through various intervening human development and social programs such as reforming education systems and creating awareness to protect the environment at family and community levels.

This study also has important implications for the design of environmental messages. Campaign practitioners as well as science journalists should consider preventive attitudes, perceived severity, and self-efficacy to promote pro-environmental behaviours as these variables were strong predictors of pro-environmental behavioural intentions. Considering the role that perceived severity plays in behavioural intentions, Kim, Jeong, and Hwang (2013) suggest that emphasising the seriousness of global climate change by taking a fear appeal approach may be effective in motivating behavioural changes. Many people believe that global climate change is not a severe

and imminent one but a remote threat. This type of belief may hinder the general public's pro-environmental behaviours. Nisbet (2009) has shown that the threat component can be an effective strategy for environment-relevant messages. Therefore, to increase perceived severity and motivate behavioural change, media messages can use appropriate threat components.

Although values are not an easily changeable socio-psychological factor, research indicates attitudes and subjective norms can be shaped positively through the family value system and reforming education system. This may lead us to have a pool of pro-environment managers in the course of time. Consistent with our findings and the recommendations of Oreg and Katz-Gerro (2006), the Government of both countries could initiate a redesign of their curriculum on environmental education at school level to develop more positive values, attitudes, and ethical behaviour toward protecting the environment. Besides these initiatives, we suggest that the Government may transform its large number of traditional public offices into digital offices to promote the philosophy of green organisations and pro-environmental behaviour. Moreover, the Government of both countries could introduce special tax incentives to organisations promoting pro-environmental organizational culture. Interventions of policymakers have become imminent, considering India's current (third largest emission) and Australian's (largest per capita) CO_2 emission status. The findings of the study, in conjunction with other assessment criteria (see Hind, Wilson, & Lenssen, 2007), can be used to attract and select would-be organisational managers to implement sustainable business strategies. The choice in the selection of a pro-environmental manager cannot be underscored given the ethical failures contributing to environmental disasters as noted by Ng and Burke (2010).

The limitations of the study could be taken into account while interpreting results. First, data was collected for this study from a cross-sectional survey, using the same instrument, which may raise a concern for common method bias (CMB). To address CMB, we performed Harman's single-factor test that examines whether a considerable amount of common variance is explained by a single factor. The result of our CMB test revealed that the highest amount of variance explained by a single factor is 34.05% for Indian samples and 33.80 % for Australian samples. This indicates that the validity of our findings is unlikely to be threatened by the common method bias. Second, the dependent variable used in this study is intended to be pro-environmental behaviour rather than actual behaviour itself, because of the characteristics of subjects (all our respondents are current tertiary management students). T therefore, a longitudinal study may offset this limitation in future research. Longitudinal research design could help us to have data regarding whether managers are actually behaving pro-environmentally in their future management roles. However, Ajzen (1991) asserted that through the prediction of intention, it is possible to understand the future behavioural pattern of people as intention is the closest proxy of actual behaviour. Third, our study used MBA students as proxy for working managers, because actual managers' pro-environmental attitudes may be slightly different from MBA students as they are more influenced by and aligned to the other stakeholders' expectation. Moreover, MBA students' are not exposed to actual business environment where they are subject to satisfy the expectations of varied and often conflicting stakeholder groups. Besides these limitations, our conceptual pro-environmental model facilitates our understanding of what determinants and to what extent these determinants influence the pro-environmental behaviour of would-be managers in the context of India and Australia simultaneously. Our findings have significant theoretical and methodological implications for

researchers as well as policy implications to accelerate noble initiatives for creating a sustainable planet for the future generation.

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