Effect of organizational culture in environmental awareness on pro-environmental behaviour at workplace: A new perspective on organizational sustainability

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Abstract
Environmental sustainability is one of the several significant issues with implications for organization. Encouraging pro-environmental behaviour at work can result in a symbolic reduction in environmental problems. During the establishment and development, certain kind of organizational culture eventually appears. The purpose of organizational culture is to improve consensus and coherence, and to stimulate employees' enthusiasm and creativity to improve the organization's efficiency. In addition, organizational culture vastly influences employee behaviour. This influence in behaviour can be linked with employee's green behaviour or pro-environmental behaviour in an organization. The present study examines how organizational culture facilitates more sustainable organizational behaviour. It also attempts to capture the relationship between organizational culture in environmental awareness and pro-environmental organizational behaviour.

The study involved a diverse sample of employees working in different organizations based in West Bengal. Random sampling technique has been used in collecting the data. Adapted versions of questionnaires, namely, pro-environmental organizational behaviour measure based on Blok, Wesselink, Studynka & Kemp (2014), and organizational culture in environmental awareness measure by Zsóka (2007) have been used in measuring pro-environmental behaviour and organizational culture in environmental awareness respectively.

Regression analysis on data from 100 employees indicated a relationship to exist between the two study variables. The findings of this study extend research on the effectiveness of organizational culture in environmental awareness, by addressing new perspective on the psychological mechanisms that link them with pro-environmental organizational behaviour.

Keywords: Pro-environmental behaviour at workplace, Pro-environmental organizational culture, Organizational sustainability, Environmental sustainability, Environmental organization culture.

1. Introduction
In recent times, the long term existence of organization depends highly on its implementation of environmental policies. The various environmental problems that we are facing today, such as global warming and culture change, air pollution, water shortages, depletion of natural resources, and loss of biodiversity are indeed rooted in human behaviour (Gardner and Stern, 1996). The consistency of organizational behaviour regarding the relationship of environmental awareness is at stake. Based on the literature (Maloney & Ward 1973; Winter 1987; Urban 1986) five components of environmental awareness can be identified: ecological knowledge, environmental values, environmental attitudes, willingness to act and actual behaviour. The pro-environmental behaviour (PEB) of both organization members and the whole organization are formed and reflected by the conglomeration of these five components. Many organizations have introduced or changed policies, products and processes to deal with pollution, minimize resource use, and to improve community and stakeholder relations (Crane, 2000). Several researchers, however, indicated that these changes are inadequate as they are only peripheral and not conducive to the formation of sustainable organizations and industries (Hart & Milstein, 1999; Senge & Carstedt, 2001). They argue that in order to fully respond to environmental and social challenges, organizations will have to undergo significant cultural change and transformation (Post & Altman, 1994; Stead & Stead, 1992; Welford, 1995). The central idea is that, organizations will have to develop a sustainability-oriented organizational culture when moving towards organizational sustainability (Crane, 1995).

In this study, organizational culture serves as a framework for the examination of environmental awareness and its effect on pro environmental behaviour at workplace, as it is convinced from the studies that organizational culture reflects both real and declared values of the company and its members most realistically (Zsóka 2007) [14]. Organisational culture is the system of assumptions, values, convictions and beliefs accepted and commonly interpreted by the members of the organisation. These are accepted as valid by the members of the organisations who follow and pass them on to new members as sample solutions to the problems to be followed and as desired ways of thinking and behaving (Schein 1985). When embedding environmental attitudes, there are two outstanding questions: how strong (or weak) is the given organizational culture (Deal/Kennedy 1982) and how can the issue of environmental protection be integrated into the existing organisational culture. On the other hand, pro environmental behaviour can be defined as a kind of behaviour that consciously seeks to minimise the negative impact of one's actions on the natural and built environment (Kollmuss and Agyeman, 2002). As employees spend about one third of their time in an office, it is expected that PEB in the workplace will contribute significantly to the minimization of the negative impact of employee's actions on the natural and built environment. In order to enhance PEB in
the workplace, the study focuses on specific factor (organizational culture) that may impact pro environmental organizational behaviour.

1.1 Theoretical framework

The concept of organizational culture first emerged in the 1970s and 1980s (e.g., Hofstede, 1981; Ouchi & Price, 1993; Pettigrew, 1979; Schwartz & Davis, 1981), and soon became one of the most influential but also most controversial concepts in management research and practice (Crane, 1995; Jarnagin & Slocum, 2007). The concept has been interpreted very differently and there is a lack of consensus regarding a common definition of the term (Ashkanasy, Broadfoot, & Falkus, 2000). Culture theorists have suggested a variety of definitions, ranging from notions of accepted behavioural rules, norms and rituals (Trice & Beyer, 1984), to shared values, ideologies and beliefs (Schwartz & Davis, 1981), and, at an underlying level, shared patterns of meaning or understanding (Louis, 1985; Smircich, 1983).

On the other hand, pro-environmental behaviour (or green behaviour, environmentally friendly behaviour) has been defined as a helping behaviour towards the environment (Unsworth; Dmitrieva & Adriasola 2013). Stern (2000) is more specific by defining pro-environmental behaviour as a “behaviour that intentionally pursues reductions of the negative impact of people’s actions on the natural world”. Any person or organization can behave pro-environmentally by purchasing “green” products, recycling, and not littering, among other behaviours. Although, it may seem simple to act more environmentally friendly, not many people do as much as they could, and this has prompted a large number of studies on finding how to motivate people to do so (Osbaldiston & Schott, 2012). When pro-environmental behaviour is undertaken in relation to individuals’ jobs, they become pro-environmental behaviour at workplaces (Ones & Dilchert, 2013).

Kollmuss and Agyeman (2002) examined PEB models in order to explain why people act or do not act pro-environmentally. They used the concept pro-environmental consciousness to describe the complex structure of these factors and their link to PEB. Derived from their review and other studies (Grob, 1991; Rioux, 2011; Schultz et al., 1995; Steg and Vlek, 2009), three groups of factors have been distinguished: 1) demographic factors, 2) external factors, and 3) internal human factors (V. Blok et al. 2015). In this study, only external factor is taken into account because this factor can probably be managed in order to enhance PEB at workplace. According to V. Blok et al. (2015), PEB can be performed only if the required conditions and infrastructure are available, such as boxes for recycling in the workplace, a setting in which individual employees are allowed to regulate cooling, have the possibility to buy sustainable products etc. Again, the adoption of organizational sustainability principles becomes visible through technical solutions, the publication of organizational sustainability reports, the integration of sustainability measures in employee performance evaluation, or employee training (M.K. Linnenluecke, A. Griffiths, 2010). This provides the context for the adoption of sustainability practices (Dunphy et al., 2003). On a value level, the adoption of organizational sustainability principles takes place through changes in employees’ values and beliefs towards more ethical and more responsible values (Crane, 2000). On an underlying level, the adoption of organizational sustainability principles requires a change in core assumptions regarding the interdependence of human and ecological systems (Purser, 1994). The different levels of organizational sustainability suggest a parallel to the different dimensions of organizational culture (Schein, 2004): the observable culture (the visible organizational structure, processes and behaviours), espoused values (strategies, goals and philosophies), and underlying assumptions (unconscious beliefs and perceptions which form the ultimate source of values and action). Further, Fairfield et al. (2011) argued that the future research should provide “pointed, practical advice” for business to improve their practices. They argued that because of the increasing importance of sustainability issues and their direct link to global welfare, business insights are not only warranted but critical (Fairfield 2011).

Based on the literature review, the study examines current empirical perspectives of how organizational culture might facilitate more sustainable organizational behaviour. It examines the relationship between organizational culture in environmental awareness and pro environmental organizational behaviour.

2. Research methods

2.1 Procedure and participants

The questionnaire study was conducted among 100 employees from different private and public sector organizations based in West Bengal. Respondents were invited by email to participate in this study. The subjects of the study were both managerial and non-managerial employees (male and female) working across different job levels. Random sampling technique was used for the collecting data. The gender distribution was 57.6% male and 42.4% female. The age of the respondents ranged between 25 to 52 years old. The level of education was relatively high 53% had a master degree, 17% had engineering degree and 30% had graduation degree. In our sample, we only included responses that had completed the full values scale. The data was collected from September 2016 until November 2016. About 73.2% of our respondents were from private organizations and 26.8% from government organizations. Similarly 41% of our respondents are working in Information Technology sectors like communications, electronics, software development, and other 25% are working in financial sectors which include banking, accounts and tax departments and the remaining 34% are from various other sectors like sales, marketing, pharmaceuticals etc. There were variation in the income groups among respondents, within which 42.4% belongs to the income group of Indian Rupee (INR) 40001-60000, while 28.6% settles in INR 20001-40000 income group, and remaining 13% & 16% of respondents belongs to income groups of below INR 20000 and above INR 60000 respectively. The Statistical Package for Social Science (SPSS) version 23 was used to analyze and test the relationship, in order to determine the relative association between the studied variables.
2.2 Questionnaire
In the questionnaire, structured questions were used in collecting primary data for the study, which was segmented into three sections. The first section required respondents’ demography such as gender, age, annual income and work experience. While the second set of questionnaire was used to measure pro-environmental behaviour at workplace and finally, third set was used to understand organizational culture for environmental awareness (See appendix B for questionnaires). The questions were intended to capture the actual behaviour that can be performed by the respondents on the offices and in relation to their work. Therefore, the questionnaire measure, how often they do activities related to sustainability at workplaces in relation to their organizational culture. Adapted versions of questionnaires, namely, pro-environmental organizational behaviour measure based on Blok, Wesselink, Studynka & Kemp (2014), and organizational culture in environmental awareness measure by Zsóka (2007) have been used in measuring pro-environmental behaviour and organizational culture in environmental awareness respectively. The scales consisted of twenty items each. Five-point Likert scale was used for rating the items in both the scales (1=strongly disagree to 5=strongly agree).

2.3 Findings and Analysis
Pro-environmental behaviour at workplace as the dependent variable had the mean score of 74.90 and standard deviation of 9.401, organizational culture in environmental awareness, being independent variable had mean score of 71.40, and standard deviation of 8.254. The Pearson’s correlation matrix (table 1) shows that, organizational culture in environmental awareness had correlation of .814 or 81.4, indicating the respondents’ agreement that organizational culture in environmental awareness does have influence on pro-environmental behaviour at workplace.

To test the predictive ability of the independent variable, the regression analysis was carried out. All assumptions those are pre-requisite for a regression analysis, such as multicollinearity, normality, treatment for outliers and others were all taken into account before the test was conducted. Result from table 2 shows the overall significance of the regression model (F = 192.70), implying the existence of a linear relationship between the independent variable and the dependent variable. The R^2 value (table 3) of .663 means that 66.3% of the changes in the independent variable could be assigned for the variation in the dependent variable.

As we know that, in general, values of the regression coefficient b represent the change in the outcome resulting from a unit change in the predictor and that if a predictor is having a significant impact on the ability to predict the outcome then this b should be different from 0.

To determine the influence of the independent variable on the regression model we look at its coefficients. It is not surprising that organizational culture in environmental awareness is influential. Organizational culture, where employees are systematically related to pro-environmental behaviour at workplace due to their shared values, had the influence of .927 (table 4). The outcome of the organizational culture factor could be explained by the fact that they are value and belief oriented in nature, compared to other organizational factors which are systematically less engaging. However, we believe that as organizations become more aware and concern with environmental problems that are affecting them, this factor (organizational culture) will eventually play a more significant role in contribution towards pro-environmental behaviour at workplace.

The reliability of the scales was tested by Cronbach’s alpha to confirm good internal correlation of each item in the scale. A Cronbach’s alpha above 0.7 indicates a good internal reliability (Cooper & Schindler, 2014). The Cronbach’s alpha for pro-environmental behaviour at workplace scale was .75 (table 5) and for organizational culture for environmental awareness scale was .73 (table 6) which indicates a standard reliability on both the scales.

3. Discussion and Conclusion
The presence of the organizational culture in environmental awareness can potentially play a significant role in dealing with one of the key elements of the current environmental scenario in organizations, relating to pro-environmental behaviour at workplace. The positive impact of the organizational culture in environmental awareness is not just limited at the physical and organizational level, but also has significant influence on the development of an individual’s environmental value-system. The study has tried to identify organizational culture as a factor that could further enhance the pro environmental behaviour of employees. The emphasis on this organizational factor also reflects the need for conscious participation of organizational members, working at different departments of the company, in enhancing the culture process regarding environmental awareness. The results of this study suggest that there is a convenient relationship between pro-environmental behaviour at workplace and organizational culture in environmental awareness. The implication of this for the management and organizations is that, organizational culture in environmental awareness being the vital point of interaction between the pro-environmental behaviour at workplace and the organizational sustainability. Thereby, accelerating the pro environmental behaviour of employees within the organizations will tend to reduce the environment hazards in the workplace. In the same vein, the association that exists between pro-environmental behaviour at workplace and organizational culture in environmental awareness implies that the top management in institutions should endeavour to incorporate their shared values and beliefs, in the training and development programme designed for the employees. Environmental training should be designed much more around a profound value basis, while knowledge-elements should rather serve as background. This will further, develop the organizational culture and help employees to adopt environmental norms in the workplace. Thus, being familiar with the organizational culture in environmental awareness will help employees to inculcate pro environmental behaviour, thereby helping both employees and the organizations to reach the optimum environmental sustainability. Finally, the organisation can be considered...
environmen tally aware if organisation members share a common pool of environmental values. The existence of such a pool is a precondition for the success of the entire organisation in meeting expectations. If members of subdivisions within the organisation know what they should know on environmental issues, think as they should think, believe what they should believe and act as they should act, environmentally aware behaviour will be in evidence. An organisational culture based on a shared value system is therefore of high importance in the manifestation of environmental awareness (Zsoka, 2007)[14].

The examination with such small sample size is not enough to draw general conclusions. However, findings of the study undeniably indicate the need for a stable and univocal assimilation of environmental values into the organisational culture, in order that pro-environmental organisational behaviour appears in a consistent manner in reality.

### Appendix A

**Table 1: Correlations**

<table>
<thead>
<tr>
<th>Pearson Correlation</th>
<th>pro environmental behaviour</th>
<th>Organizational culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (1-tailed)</td>
<td>pro environmental behaviour</td>
<td>Culture</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>.814</td>
</tr>
<tr>
<td></td>
<td>.814</td>
<td>1.000</td>
</tr>
<tr>
<td>N</td>
<td>pro environmental behaviour</td>
<td>Culture</td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>pro environmental behaviour</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Culture</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 2: ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5799.602</td>
<td>1</td>
<td>5799.602</td>
<td>192.704</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>2949.398</td>
<td>98</td>
<td>30.096</td>
<td>579.902</td>
<td>.000</td>
</tr>
<tr>
<td>Total</td>
<td>8749.000</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3: Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.814</td>
<td>.663</td>
<td>.659</td>
<td>5.486</td>
</tr>
</tbody>
</table>

a. Dependent Variable: pro environmental behaviour
b. Predictors: (Constant), Organizational culture

d. Predictors: (Constant), culture

**Table 4: Co-efficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>95.0% Confidence Interval for B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>8.688</td>
<td>4.801</td>
<td>1.810</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>Organizational culture</td>
<td>.927</td>
<td>.067</td>
<td>.814</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Dependent Variable: pro environmental behaviour

**Table 5: Reliability Statistics**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.750</td>
<td>.757</td>
<td>20</td>
</tr>
</tbody>
</table>

**Table 6: Reliability Statistics**

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.732</td>
<td>.730</td>
<td>20</td>
</tr>
</tbody>
</table>

**Appendix B**

**Questionnaire for Pro-environmental Organizational Behaviour**

The points of the Rating Scale are:
1 =Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree
1. I switch off my lights before leaving office.
2. I print double sided.
3. I encourage using energy efficient bulbs at my workplace.
4. I encourage my colleagues to act more environmentally.
5. I follow environmental policy of the company.
6. I make sure recycling of waste materials are done at my workplace.
7. I feel there is a lack of organizational concern for environmental sustainability.*
8. I switch off my PC at night before leaving office.
9. I support installing movement sensors at my workplace so that lights are not left on.
10. I encourage use of public transport for travelling to my workplace.
11. I want to be informed about the power consumption (electricity and gas) at my workplace.
12. I feel my organization prioritise commercial needs above environmental concerns.*
13. I encourage greater use of video conferencing at my workplace.
14. I support green energy purchasing for my workplace.
15. I feel there is lack of training regarding the importance of pro environmental behaviour at workplace. *
16. I’m in favour of behaving pro-environmentally in my workplace.
17. I prefer sustainable sourcing of my food at my workplace.
18. I prefer electronic filling in my office.
19. I encourage energy efficient air conditioning at my workplace.
20. I feel my managers provide practical support for environmental behaviour/practices.

**Questionnaire for Organizational Culture in Environmental Awareness**

The points of the Rating Scale are:
1. =Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree
2. Cleanliness and order are high priority for the employees of our company.
3. The employees of our company always respect health and safety instructions.
4. Every employee is aware of the environment protection objectives of the company.
5. The employees of the company have sufficient knowledge to realise what they are supposed to do to protect the environment.
6. The management of our company pays sufficient attention to managing environmental problems.
7. Our company deals with environment protection only because it is obliged by law to do so. *
8. When it comes to profit and cost issues, environmental considerations are ignored by the company.
9. If there was no environmental manager at the company, environmental objectives would certainly not be achieved.
10. Environment protection is equally important for everybody at the company.
11. The environmental objectives of the company are always fully achieved.
12. The employees of the company are not motivated by their internal convictions when meeting environment protection tasks but by the obligatory instructions. *
13. Employees always receive appropriate feedback concerning environmental output of their work.
14. The top management of the company often talks to employees about the importance of environment protection.
15. The environmental training launched by the company improved employees' attitudes a great deal.
16. The company asks the opinion of its employees in questions of environment protection.
17. The company applies direct incentives - rewards, acknowledgement - to motivate employees to take environment-related initiatives.
18. The introduction of the environmental management system has fundamentally changed the values of employees' vis-à-vis environment protection.
19. The company should apply various methods to encourage employees to achieve better environmental performance.
20. I think employees can better encourage one another to behave properly than rules can.

Items marked with an asterisk (*) are reversed before the scale is calculated.

**4. References**

11. Thomas A. Norton Zacher H, Neal Ashkanasy M. Organizational culture in environmental awareness and culture. The psychology of green organizations. 2015.