

Positive Spillover of Pro-Environmental Behavior Phenomenon: The Influence of Organizational and Family Factors

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Abstract. Studies have repeatedly established the existence of the spillover of pro-environmental behavior phenomenon; where employees that are actively involved with environmental activities at workplace would also show similar inclination toward performing pro-environmental behavior at home. The findings from these past studies would be of interest for policy makers and behavioral scientists, since it has shed some light in understanding ways to promote and develop a more sustainable-conscious society. This study intends to explore factors that exist at both ends of the spillover of pro-environmental behavior process. After carrying out the analysis, all three organizational climate factors (*clarity of organizational goal, training and teamwork*) were found to have very significant influence in the spillover process. On the other side, similar outcome is also observed with regard to *family support*, though at a relatively lesser degree.

Keywords: Spillover Behaviour, Family Support, Family Cohesion, Organizational Climate.

1. Introduction

Studies have repeatedly established the existence of the spillover of pro-environmental behaviour phenomenon; where employees that are actively involved with environmental activities at workplace would also show similar inclination toward performing pro-environmental behaviour at home [1], [2], [3], [4], [5]. By acknowledging the proposition that environmental behaviour is contagious, that a behavioural norm originating from one domain could spread to another domain, could give policy makers a cost-effective and socially acceptable alternative in addressing the deteriorating environmental situation. The objective of this study is to look at motivating factors that exist at both the *source* (workplace experience) and *target* (home and society) domains of the spillover process. Understanding the nature of the spillover phenomenon and factors that could facilitate its process could be considered crucial, since it focuses on human behaviour, which is the root of environmental problems and thus its solution. To the best of our knowledge no study has been carried out with this specific objective in mind.

2. Literature Review

2.1. Spillover of Pro-Environmental Behavior

Edward and Rothbard refer spillover as *effects of work and family on one another that generate similarities between the two domains* [6]. Others defined it as *reactions experienced in the work domain that are transferred to and interfere with non-work domain* and it can be either positive or negative in nature [7]. Concepts that are closely related to work-family positive spillover behaviour include “*work-family facilitation*” and “*work-family enrichment*”. Based upon theoretical writings over the past 25 years, Hanson, Hammer and Colton has successfully developed and validate four dimensions of work-family positive spillover. The four types of spillover are affect, values, skills and behaviors, which they believed could occur from work to family, or vice-versa [8]. While acknowledging the multi-dimensional nature of positive spillover, this study has operationalized it as the dependent variable with unidimensional construct.

2.2. Organizational Factors

The first predictors in this research framework are selected dimensions of organizational climate. Research has suggested that climate dimensions are associated with a variety of important outcomes at the

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individual, group and organizational level [9]. The justification for the choice of relevant organizational climate dimensions for this study is based on the essential managerial components of the successful implementation of the environmental management system (EMS) itself. The EMS requires the organization to explicitly declare and communicate its long-term commitment to environmental conservation to all its employees (ISO 14001: Clause 4.1; 4.1.2; 4.1.4 and 4.4.3). Thus the first dimension “*clarity of goals*” is operationalized as the extent employees have understood and embrace the values and aspiration embedded in the EMS policy statements. Studies have been carried out in the past to describe the relationship between employee perception of code embeddedness and its influence on their behaviour [10], [11]. “*Trainings*” as specified by ISO 14001 (Clause 4.4.2; 4.3.2.4 and 4.3.2.5) is expected to not only enhance employee skills but could also influence attitude and behaviour. The third dimension is “*teamwork*” which is operationalized as the extent of cooperation and support that exist among all level of employees implementing the EMS [9]. This is explicitly stipulated in ISO 14001 (clause 4.4.1) and ISO 14004 (clause 4.3.2.2 and 4.3.2.3). The impact of teamwork and integration on environmental attitude and behaviour has already been documented in several empirical studies [12], [13], [14].

2.3. Family Factors

The second predictors are dimensions of family factors consisting of *family cohesion* and *family support*. Family cohesion is defined as the degree of emotional bonding among family members [15]. It is also describe as the degree to which members of a family spend and enjoy time together, work well together and care for one another [16]. Studies that attempted to relate family cohesion and job-to-home (and home-to-job) spillover have resulted in some significant and interesting outcomes [17], [18]. We believe that cohesion can also occur when family members shares the same concern and values (towards the environment) and thus could have a significant influence in the pro-environmental behaviour spillover phenomenon.

Even though organizational researchers have empirically validated both socio-emotional and instrumental (or tangible) social support, this study is more concern with the former category. Emotional support is exemplified by the sympathetic and caring behaviour of family members toward the employees’ nature of work and responsibilities at the workplace [19]. Employees who have full support from their family members are found to performed better at workplace compared to those who don’t have the support of their love one [20], [21]. In fact we believe that the support given by family members could also be an indicator of their positive view and acceptance toward the organization itself. This could sometime be observed through their participation in company initiated social activities such as family day, social donations, etc.

3. Methodology

3.1. Population and Sampling Method

The population of this study is employees of two manufacturing companies operating in a northern state of Malaysia. One company is a multinational, based in Europe, while the other is locally based. Both companies implement the environmental management system (EMS) and are certified with the ISO 14001. The European based company has been implementing the EMS for the past 22 years, while the local based is certified with ISO 14001 since 2001. A proportionate stratified sampling was carried out with a total of 500 questionnaires being distributed with the assistance of the Human Resource department of the respective organizations. 306 were returned (61%) and only 247 were usable mostly due to blank response. Vast majority of the respondents were male (71%) and from the Malay ethnic group (87%). 32% have been working at their respective organizations for more the 10 years, while 37% had less than 5 years working experience. Majority of the respondents were operational workers and has only high-school education (77%) and the rest are diploma (11%) and degree (9%) holders.

3.2. Measurement Scale

A. The items used to measure the dependent variable (*spillover behaviour*) were self-constructed based on the theoretical assumption made by Hanson, Hammer and Calton [8] and attempt to measure different level of pro-environmental spillover behaviour (awareness, knowledge, concern and behaviour). Examples: *Being involved with environmental activities at this company have made me become more aware of other*

environmental issues; Ever since I have been involved with environmental activities in this company, my knowledge about environmental issues has increased and, Ever since I have been involved with environmental activities at this company, I have also started to carry out some environment friendly activities at home. The reliability test carried out resulted in the Cronbach's alpha value of .76.

B. Three deemed most relevant organizational climate variables for this particular study are clarity of organization (environmental management) goal, environmental training and, teamwork. The measures for these variables were adapted from Patterson and his colleagues [9] with each having 4 items. Examples of items for Clarity of Organizational Goal are: "*Generally, most employees have a strong sense of the company's commitment toward environmental protection*" and, "*The Company's goal to be more committed to environmental protection is clearly communicated to everyone in this organization*". The Cronbach's alpha is .71. Examples of items for Training are: "*I am satisfied with the EMS (ISO14001) trainings provided by this company*" and, "*All employees that are involved with environmental activities are adequately trained*". The Cronbach's alpha is .76. Examples of items for Teamwork are: "*In this company, employees from different departments are always prepared to share information*" and, "*I don't have any problem sharing my knowledge and ideas with other employees*". The Cronbach's alpha is .74.

C. The items used to measure the two family related variables used in this study (*family cohesion* and *family work-support*) are adapted from Olsen, Portner and Bell [22] and King, Mattimore, King and Adam [23] respectively. Examples of items for family cohesion are: "*We usually carry out "gotong royong" when cleaning our house compound*" and "*All my family members shares the same concern for the environment*". The Cronbach's alpha is .79. Examples of items for family support are: "*My family members will usually be involved in events (such as family-day) organized by the company*" and "*I feel relax after sharing my problem at work with my wife / husband*". The Cronbach's alpha is also .79.

All the items were measured using Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was also translated in Bahasa Melayu

4. Findings and Analysis

4.1. Descriptive Statistics

Spillover behaviour has the highest mean score of 3.76, indicating the respondents' agreement that work-experience does have some influence over their pro-environmental attitude and behaviour at home. Overall the mean score for the family factors are lower than the organizational factors which would eventually have some influence over the results of the next stage of the data analysis (Table 1).

4.2. Multiple Regression

To test the predictive ability of the independent variables, the multiple regressions analysis was carried out. All assumptions that are pre-requisite for a multiple-regression analysis, such as multicollinearity, normality, treatment for outliers and others are all taken into account before the test is carried out. Result from Table 1 shows the overall significance of the regression model ($F = 33.299^*$), indicating the existence of a linear relationship between all of the independent variables considered simultaneously and the dependent variable. The R^2 value of .433 means that 43% of the changes in the independent variables could be assigned for the variation in the dependent variable.

To determine which of the independent variable has the most influence on the regression model we look at its standardized coefficients. It is not surprising that organizational factors are more influential than family factors. Training, where employee are systematically expose to knowledge and skills related to environmental activities, has the most influence (beta = .268), followed by clarity of the organization's environmental goal (beta = .254) and teamwork (0.162). On the other hand, only one of the family factors has a significant effect on spillover behaviour. Family support has a lower standardize coefficient (beta = 0.132), while family cohesion was surprisingly found to be not significant. The outcome of the family factors could be explained by the fact that they are less structured in nature compared to the organizational factors which are systematically more engaging. However, we believe that as society becomes more aware and concern with environmental problems that are affecting them, these family factors will eventually play a more significant role in the spillover phenomenon.

Table 1: *Multiple regression analysis*

(Dependent Variable)	C.Alpha	Mean	
Spillover behaviour	.76	3.77	
			<u>Standardized Coefficients (Beta)</u>
(Independent Variables)			
Organizational Factors			
Clarity of Goal	.71	3.70	.254*
Training	.76	3.56	.268*
Teamwork	.74	3.60	.162*
Family Factors			
Family Cohesion	.79	3.24	.116
Family Support	.79	3.30	.132*
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R ²	.433		
F Change	33.299*		
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<i>(p < .01*)</i>			

5. Discussion and Conclusion

The existence of the spillover of pro-environmental behaviour can potentially play a significant role in dealing with one of the key elements of the current environmental crisis: *human behaviour*. The positive impact of the implementation of the environmental management system is not just limited at the physical and organizational level, but also has significant influence on the development of an individual's environmental attitude and behaviour. This study has identified factors that could further enhance this spillover phenomenon. The emphasis on organizational factor also reflects the need for conscious management roles in the spillover process. It has to be clearly emphasized here that these roles are already expected of them within the framework of the EMS (ISO 14001) formal organizational functions. Even though the initial objectives is to address technical or legal aspects relating to the environmental impact of its operation, this unexpected but positive contribution would be felt throughout homes and society. We believe that this rather *unexpected* spillover of pro-environmental behaviour would complement the organization's existing corporate social responsibility initiative, through the spreading of environmental awareness and norms among a considerable section of the society.

Even though it was initially assumed that the EMS / ISO 14001 certified organizations were generally "standardized" in nature, a comparison using F test (ANOVA) shows otherwise. Thus future studies in this area could be concentrated to the specific characteristics of the individual organizations implementing the EMS. Carrying out a qualitative study involving aspects such as, level of technology adoption, leadership style, and community characteristics could offer interesting insights into the spillover of pro-environmental behaviour phenomenon.

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