

Environmental Attitudes Among University Students In New Zealand and Australia

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Abstract

This paper develops a causal model of environmental attitudes using measures of the dominant social paradigm (DSP) of western industrial societies. Two components of the DSP framework—beliefs in economic growth and anthropocentrism—are examined regarding environmental attitudes using a sample of university students from Australia and New Zealand. The results indicate that one's belief in the DSP has a negative effect on environmental attitudes and perception of change necessary ameliorate degradation of the environment. Thus, while public policy favors increasing awareness of and interest in the environment, policy instruments may remain ineffective in producing lasting change if the components of the DSP remain unchanged. It is argued that public policy ought to be directed at changing the DSP so that its negative effects will be minimized.

Keywords: DSP, environment, attitudes, socio-economic, cosmology

Introduction

Environmental concern across countries concern has been a topic of study for the past thirty years. Interest has waxed and waned over the period, but has not disappeared. Globally consumers' environmental concern has evolved differently. For example, 31% of people in the US thought environmental issues were exaggerated compared with 24% in New Zealand, 23% in Australian and 22% in the UK. In the same poll it was suggested that 83% of Australians participate in Recycling, followed by 71% in NZ, 65% in the US and only 61% in the UK (Levine 2002).

The increasing pace of globalization means that environmental degradation will be an important issue long into the future. There have been many different approaches taken in examining the marketing and environment interface during that period. Kilbourne and Beckmann (1998) surveyed the marketing literature relating to the environment and concluded that there were three major streams of research evident. The first sought to conceptualize green marketing and green consumers. The underlying purpose in this type of research was to develop target markets for green products, but no common denominator emerged from the research. A second stream related to conservation related initiatives. These focused on engendering conservation behaviors and legislative initiatives relating to such behaviors as recycling and reducing consumption. Again, no clear agenda evolved from the research. The third stream of research began to focus on the more general area of sustainability. Here, the managerial orientation of previous environmental

research was set aside for a more macro oriented approach to the environment in marketing. It was this stream that introduced the study of environmental values and the role of the dominant social paradigm (DSP) (Dunlap and Van Liere, 1978; Pirages and Ehrlich, 1974) into the marketing literature. The DSP is defined here as the shared beliefs and values that make up a culture's worldview and functions as ideology. It is at this level that the present paper will focus.

Cotgrove (1982) and Milbrath (1984) were the first to examine the DSP from an empirical perspective, and they concluded that there were several relevant dimensions in the construct. Among them could be discerned political, economic and technological components that were later confirmed by Dunlap and van Liere (1984). The approach taken by all three studies was however, empirically driven and none developed a substantive conceptualization of the DSP or its components. The conceptualization and expansion of the DSP was begun by Kilbourne (1995) and Kilbourne, et al. (1997) who argued that the connection between marketing and the environment is through the DSP, and that to understand this relationship, more focus on the DSP side was necessary.

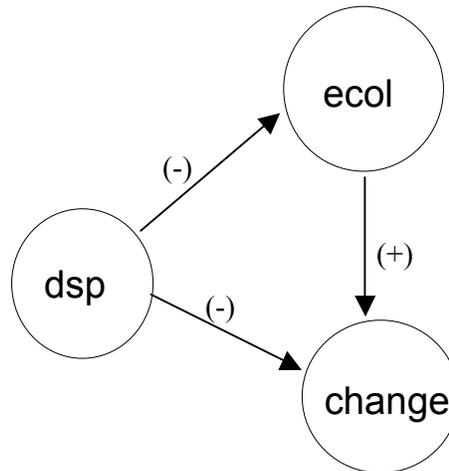
The DSP has since been described as a two dimensional construct with three components in each dimension. The first dimension is the socio-economic containing the political, technological, and economic components. The second dimension is the cosmological containing anthropocentric organization, atomistic structure, and competitive functioning as the predominant character of the cosmos in which humanity finds and orients itself. The socio-economic dimension has been examined empirically and found to be related to environmental attitudes and willingness to change consumption patterns in consumers (Kilbourne, Beckmann, and Thelen, 2002). Within this research it was indicated that the economic dimension was the most influential in determining both environmental attitudes and willingness to change.

The cosmological dimension has received far less attention both empirically and conceptually than the socio-economic dimension. Both Beckmann, et al. (1998) and Thompson, et al. (1994) have examined the anthropocentrism component of the cosmological domain and found mixed results. Beckmann, et al. (1998) concluded that anthropocentrism was negatively related to transcendent values that were positively related to environmental attitudes. This suggests that anthropocentrism is negatively related to environmental attitudes. Thompson, et al. (1994) concluded that ecocentrism was related to environmental attitudes but the anthropocentrism was not. Their conceptualization of the constructs was not, however, consistent with Eckersley's (1992) that suggests that ecocentrism and anthropocentrism are two endpoints in a single dimension rather than two separate dimensions. Kilbourne (2002) included the anthropocentrism component as part of a structural equation model of environmental attitudes across cultures and found that it contributed significantly to the DSP latent variable. The DSP was then shown to be negatively related to environmental attitudes and willingness to change consumption behavior. The empirical evidence reviewed suggests a set of hypotheses that can be empirically tested. The hypotheses are:

- 1). The DSP will negatively impact environmental attitudes.
- 2). The DSP will negatively impact expressed willingness to change.
- 3). Environmental attitudes will positively impact willingness to change.

The primary purpose of this paper is to test the hypotheses and the validity of the model across two countries, Australia and New Zealand. The model is presented in Figure 1. Included in the figure are the hypothesized influences. As can be seen, the model suggests that the DSP is negatively related to both environmental attitudes and change. The relationship between environmental attitudes and change has been examined and shown to be consistently positive.

Figure 1: Proposed Causal Model



Methodology

Sample

The respondents for the study were selected as a convenience sample of university students from Australia and New Zealand. The final sample consisted of 148 from Australia and 122 from New Zealand. The sample contained 61% males and the approximate median age was 21. The use of students was considered acceptable here because the variables of interest are basic attitudinal variables that are stable within individuals and would not change as a consequence of being a student. The additional advantage was that the procedure controlled for age because most students fall in a fairly narrow age range. Questionnaires were distributed to students in class and they were asked to complete and return them the next week. Participation was voluntary, and class credit was not given for participation.

Measurement Instrument

The questionnaire consisted of 30 questions measuring the six components of the DSP, but because of sample size limitations, only the economic and anthropocentrism scales were used in the study. Fifteen questions included to measure environmental attitudes and were derived from Milbrath (1984) and Cotgrove (1982). There were also 15 questions examining perceptions of the environment, willingness to change consumption behavior, and social change necessary to be more environmentally sensitive. The last four questions asked about demographic characteristics.

The DSP was considered a latent construct with two observed variables, anthropocentrism and economic. The individual items making up the two observed constructs were composite measures made up of the five items in each of the scales. A disaggregation procedure where subcomponents are examined separately is recommended by Bagozzi and Heatherton (1994), and reduces random error and degrees of freedom requiring a smaller sample size necessary to stay within acceptable limits. Within this study the coefficient alpha for the economic component was 0.74 and for the anthropocentrism scale was 0.82 indicating that both were reliable measures.

The environmental latent construct was derived by starting with the fifteen attitudinal items and successively reducing them to achieve an acceptable fit for both countries. We used modification indices and correlations with the construct as the criteria for eliminating variables. The final environmental attitude latent construct was measured using seven of the original items and the fit was within acceptable parameters for both countries.

The perception of change latent construct consisted of four items. The first two related to individual change and measured willingness to consume less and willingness to trade economy for ecology. The second two were social and measured the perceived social and political change necessary to ameliorate environmental degradation. These four observed variables had an acceptable fit across both countries.

After the three latent constructs were derived separately as suggested by Byrne (1999), they were combined in the structural equation model presented in Figure 1 above. We then followed the procedures suggested by Steenkamp and Baumgartner (1998) for validation the cross-cultural validity of the measurement model before examining the structural model. To do this, we first established the configural invariance indicating that the factor structures were consistent for both countries. This was used as a baseline model against which to compare succeeding models. To compare the models we used the goodness of fit index (GFI), the Tucker-Lewis Index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). To compare successively constrained models, we used sequential Chi-square difference tests (SCDT) recommended by Anderson and Gerbing (1988). The statistical results of each successively constrained model are presented in Table 1.

Table 1: Results of Invariance Tests

Invariance	GFI	TLI	CFI	RMSEA	SCDT
Configural	0.90	0.89	0.92	0.050	
Metric	0.90	0.90	0.92	0.048	0.44
Variance	0.90	0.90	0.92	0.048	0.53
Structural	0.90	0.91	0.92	0.048	0.61

Configural invariance was established indicating that the factor structure for both countries was the same. This was then used as the baseline for the SCDT on succeeding models. For comparing nomological models it is necessary to establish metric and variance invariance but not to establish scalar invariance or covariance invariance if the correlations between constructs are not of interest. We first constrained the factor loading to be equal for both countries. The results of the test indicated that full metric invariance was supported. This allows the comparison of difference

scores on the items so that differences observed in the latent variables are really differences between countries and not measurement differences. The SCDT of 0.44 indicates that the constrained model predicts as well as the unconstrained model.

We next constrained the variances to be equal for both countries. The results of this test indicated that variance invariance was supported as well. With these invariance tests completed, we then could test the structural model as well. Constraining the path coefficients in the model to be equal resulted in establishing structural invariance for the model. This indicated that the path coefficients were the same for both countries. Having established the invariance of the model across the two countries, we could then determine if the coefficients were in the hypothesized direction and meaningfully compare them across countries.

Results

The proposed structural model was shown to be invariant between the two countries, Australia and New Zealand, enabling a meaningful comparison of the path coefficients. It was also shown that all indicator items for the latent constructs were statistically significant ($p < .05$). It was hypothesized that the latent constructs DSP, environmental attitudes and perception of change would be statistically related. Specifically, the DSP would be negatively related to both environmental attitudes and perception of change. The relationship between environmental attitudes and perception of change was hypothesized to be positive. The results of the analysis confirmed all three of the hypotheses. The path from DSP to environmental attitudes was -0.69 ($p < .001$), the path from DSP to change was -0.66 ($p < .001$), and the path from environmental attitudes was 0.30 ($p < .01$). It was also shown that the same relationship was true for both Australia and New Zealand. The overall structural model met all standard criteria for fit as well.

Discussion

The results of the study have both theoretical and practical significance from a public policy perspective. Most research in the relationship between marketing and the environment has focused on the link between environmental attitudes and specific behaviors or intentions (Kilbourne and Beckmann, 1998) has found the relationship to be positive. It has been assumed that if environmental attitudes or knowledge can be improved, then individuals would change their behavior in an environmentally friendly way. While attitudes and knowledge have, over the last thirty years, increased in the US, behavior has not followed suit in any significant way. This has been referred to as the attitude behavior gap (Beckmann and Kilbourne, 1997). The results of this research offer a suggestion as to why this is the case.

The argument presented here suggests that there are antecedent variables in the environment/marketing relationship that have been left unexamined. These variables are the constituents of the DSP of Western industrial society. The model presented here suggests that efforts on the part of public policy and consumer policy officials to increase environmental awareness will be less effective than anticipated because the DSP militates against changes in both attitudes and intentions to behave. While the link between environmental attitudes and change is positive, the social force of the DSP dampens all effects. From a policy perspective,

this suggests that rather than effecting change in attitudes directly, policy makers should focus on belief in the DSP as well. Changing the commitment to the DSP would have a positive effect on willingness to change and environmental attitudes. From a theoretical perspective, the results suggest that more research should focus on understanding the DSP and its relationship to the environment. In this way, we would have a better understanding of how cultures influence specific behaviors and why policies that should be effective have little lasting impact.

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