



Understanding the internal processes of behavioral engagement in a national park: A latent variable path analysis of the value-belief-norm theory



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ABSTRACT

Theoretical advances in research on the antecedents of human behavior have offered promising explanations for why people choose to undertake environmentally friendly action. This investigation provides further insight on the psychological processes driving self-reported behavioral engagement among visitors to Channel Islands National Park in the United States. We used latent variable structural equation modeling to test the hypothesized structure stipulated by the value-belief-norm (VBN) theory of environmentalism. Biospheric-altruistic values geared toward non-human species and concern for other people positively predicted environmental worldview and pro-environmental behavior, whereas egoistic values negatively influenced moral norm activation. Consistent with previous research, findings also showed that belief structures and personal moral norms gave rise to conservation behaviors reported by visitors to the park.

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1. Introduction

Over the past four decades, social psychological theories have advanced knowledge of human behaviors that benefit and promote environmental sustainability. Investigations of attitude-behavior correspondence have gained particular traction in the context of natural resources management given their potential for guiding intervention strategies that influence biological diversity and human well-being (Schultz, 2011). A stronger understanding of the psychological factors that lead people to care more or less about the environment can inform conservation efforts via insight on stakeholder responses to policy change, technological advancements, and outreach activities (Heberlein, 2012). Although much progress has been made to explain the (dis)association between internal processes – values, beliefs, norms – and behavioral engagement, more remains to be learned about how to translate these variables into action. A substantive body of work has established only weak linkages between environmental attitudes and reported engagement (Bamberg & Möser, 2007; Oskamp & Schultz, 2005; Vining &

Ebreo, 2002), indicating a need for additional research to examine the theoretical relations among antecedent variables, and in turn, identify the facets of cognition and affect that can be targeted to effectively shape behavior that minimizes environmental degradation (De Groot & Steg, 2009; Joireman, Lasane, Bennett, Richards, & Solaimani, 2001).

Past research has indicated there are several ways to capture the variance in behavioral predictions. Psychometrically, refinements in model measurement have provided more accurate assessments of attitude-behavior congruence (Fishbein & Ajzen, 1975; Kaiser & Gutscher, 2003). That is, behavioral models typically reliant on linear combinations of observed measures can be improved with more precise statistical techniques such as latent variable modeling (Kaiser, Hubner, & Bogner, 2005; Oreg & Katz-Gerro, 2006). Compatibility among measures is another methodological consideration (Ajzen & Fishbein, 2005). Studies have shown that general attitudes coupled with general behaviors carry positive, moderate correlations (Tarrant & Cordell, 1997), whereas specific attitudes and specific behaviors yield stronger associations and more accurate predictions (Oskamp & Schultz, 2005). In addition to maintaining similar levels of specificity in item measurement, the wording of survey items warrants careful consideration to improve the reliability of measures. Shared method variance exaggerates the strength of associations between behavior and antecedent

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variables owing to similarities in item appearance rather than actual similarities among constructs (Kaiser, Schultz, & Scheuthle, 2007). Thus, potential method effects should be minimized to effectively determine the explanatory power of models predicting human behavior.

In the present study we examine the psychological factors that energize self-reported behaviors benefiting natural and cultural resources of Channel Islands National Park located in the south-western United States. Building on a well-established literature in environmental psychology, we test the value-belief-norm (VBN) theory of environmentalism (Stern & Dietz, 1994; Stern, Dietz, Abel, Guagnano, & Kalof, 1999), which suggests that overt responses to feelings of moral obligation can be expected when positively influenced by values beyond self-interest and belief structures. Using latent variable modeling techniques, we examine the integrity of measurement (i.e., reliability and validity) and relations among variables stipulated by this model to determine how internal processes shape outdoor recreationists' reported behaviors. In the following subsections, we review VBN theory and the processes driving behavior that it hypothesizes. The final subsection summarizes our study objectives.

2. Literature review

2.1. Engagement in pro-environmental behavior

We define behavior as an intent-oriented action performed as a function of internal processes (Stern, 2000). In the context of environmentalism, behaviors are further considered to be efforts that “minimize the negative impact of one’s actions on the natural and built world” (Kollmuss & Agyeman, 2002, p. 240), and can be broadly investigated under the rubric of “pro-environmental behavior” (PEB) that is socially motivated (e.g., Heberlein, 1972) rather than strictly a function of self-interest (e.g., Ajzen, 1985). There are a number of ways to organize measures of pro-environmental behavior. Stern (2000) posited that actions beneficial for the environment relate to either “private sphere” (e.g., purchasing clean energy products for a household) or “public sphere” activities (e.g., supporting environmental policies that ultimately shape the context in which choices are made) that directly and indirectly contribute to environmental change, respectively. These two forms of behaviors do not measure *actual* engagement but can be assessed using measures of self-reported activities and/or intentions as proxies.

Studies of intent-oriented pro-environmental behaviors have spanned multiple topics. Several examples of past research include studies of: (a) curbside, central location, and public recycling (Guagnano, Stern, & Dietz, 1995; Porter, Leeming, & Dwyer, 1995; Schultz, Oskamp, & Mainieri, 1995), (b) littering (Cialdini, Reno, & Kallgren, 1990; Heberlein, 1972), and (c) support for environmental protection (Guagnano, 1995; Halpenny, 2010; Stern, Dietz, & Black, 1985). In this literature, the relationship between antecedents and reported engagement has been examined across environmental problems and research contexts (Poortinga, Steg, & Vlek, 2004). Multiple factors external to an individual (e.g., persuasion, regulations, incentives) have influenced the strength of this relationship by constraining and/or promoting individual actions (Stern, 2000). As such, investigating a range of behaviors that can achieve conservation objectives in different settings will lend insight on the capacity of places such as protected areas to inspire and educate stakeholders.

2.1.1. Personal norms and beliefs

As an extension of Schwartz's (1977) norm-activation model (NAM), the VBN theory (Stern et al., 1999) hypothesizes that

reported behavior is shaped by personal norms. Although norm construction is learned from social interaction, decisions about whether or not to engage are processed at the individual level on the bases of cognition and affect. Sanctions from other people also influence personal norms by generating temporary feelings of moral obligation that reinforce sources of pressure external to the individual (Cialdini, 2003; Heberlein, 1977). Consequently, conformity with a particular personal norm can be supported by pride, security, or self-esteem, whereas rejection of that norm may result in responses such as guilt and worry (Schwartz, 1973). For example, in response to normative pressures an individual may feel inclined to undertake a pro-environmental behavior such as disposing of waste that may lead to unintended environmental consequences. In this case, negative sanctions may create dissonance if opposing actions (e.g., littering) are displayed, thus, activating a response.

To influence pro-environmental behavior, personal norms can be activated or deactivated by two related belief structures including ascription of responsibility and awareness of consequences (Schwartz, 1968, 1977). Both of these constructs are considered cognitive preconditions to moral norm activation according to the “causal chain” posited by the NAM and VBN models. The original propositions of these models assume that awareness is necessary for an individual to recognize the importance of their contributions to avert negative consequences for non-human species and other human beings, which in turn are expressed by feelings of moral obligation (Schwartz, 1977). For example, an individual may deny responsibility to find trash and/or recycling receptacles to throw away food, because s/he assumes that a sufficient number of other people are engaging in this activity (Bamberg & Schmidt, 2003) or because the potential contribution is thought to be negligible (Montada & Kals, 2000). Similarly, if this individual were unfamiliar with environmental impacts that would arise if s/he did not throw away food that may cause the spread non-native plants and/or habituate animals, then the associated response to norms would be negated. In other words, pro-environmental behavior that is consistent with normative pressures will likely be performed when an individual feels responsible for and is aware of consequences that can arise from action and/or inaction.

2.1.2. Environmental worldviews

According to the VBN theory, measures of norms and beliefs are preceded by a construct that reflects environmental worldviews and/or general beliefs about the perceived relationship between people and the environment. Worldviews are more general than norms, in that they encompass broader dispositions that are not specific to one particular area (Stern, Dietz, & Guagnano, 1995). This construct is represented by the New Ecological Paradigm (NEP) scale (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig, & Jones, 2000), which has received considerable attention over the past several decades. The NEP scale is theoretically related to principles about living in harmony with or having mastery over natural and social worlds (Schwartz, 1994, 1999). That is, NEP worldviews are situated along a continuum anchored by biocentric beliefs oriented toward environmental protection and anthropocentric beliefs geared toward people taking precedent over nature (Hawcroft & Milfont, 2010; Schultz & Zelezny, 1999). Previous research has demonstrated that the NEP scale is a reliable and valid measure of environmental worldview (Dunlap, 2008) and that it is a strong predictor of pro-environmental behavior (Dunlap et al., 2000).

The NEP scale has appeared in a variety of forms over the history of its use. The original scale contained 12 survey items that tapped three facets of belief structure, including the balance of nature, limits to growth, and human rights to rule over the rest of nature (Dunlap & Van Liere, 1978). The scale was later revised to include a

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