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Psychological distance of timber harvesting for private woodland owners

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ABSTRACT

Private woodland owners (PWOs) in the U.S.A. often do not actively manage their forests, and forest policies appeal to a small subset of owners that have management plans and participate in incentive programs. We address this policy disconnect by considering a new possible explanation; PWOs perceive forest management as an abstract and distant concept. Psychological distance (PD) is built on the premise that an individual's mental representations of objects and activities depend on four dimensions of distance between the individual and the object: spatial, temporal, social, and hypothetical. There are few applications of PD in natural resource and environmental research. Our objectives were to: 1) Understand the PD of private woodland owners; and 2) Evaluate how the four dimensions of PD are specifically related to the timber harvesting decision. We interviewed 32 PWOs in Maine, U.S.A. to understand their timber harvesting decision. Results suggest that PD can be described using frequency of harvesting, absentee ownership, co-ownership structure, and harvesting knowledge. PWOs with distant representations of harvesting require different policy mechanisms than those who are psychologically closer. PD is a useful theory in understanding forest management behavior by describing the extent to which timber harvesting is relevant to a private woodland owner. Social, temporal, and hypothetical distance can be shortened by offering frequent opportunities for woodland owner engagement like peer-to-peer networking and learning events and a deeper understanding of how timber harvesting promotes sustainable forest management.

1. Introduction

Private woodland owners (PWOs), specifically non-corporate individual and family owners, manage nearly half of United States forest land, yet few list timber harvesting as an important ownership objective, and fewer still ever intend to harvest trees from their land (Butler et al., 2016). Timber harvesting, the removal of merchantable timber beyond personal use, is a behavior of interest to forest stakeholders such as public and private foresters, the forest products industry, and policymakers who want to anticipate harvesting levels and encourage sustainable harvesting practices on privately owned land. A long, rich history of scholarship has been devoted to understanding why PWOs do or do not harvest timber from their woodland (for a review, see Fischer et al., 2010), with the general conclusion that PWO intention to harvest does not always match their actual behavior (e.g., Egan and Jones, 1995, Silver et al., 2015) due to measurement error and the length of time between the setting of the intention and the expression of the behavior.

Over 80 years of scholarship on PWOs has not yet shed light on how to better engage PWOs with their woodland (Silver et al., 2015), and use limited theories such as utility maximization and the Theory of Planned Behavior. It is imperative that new frameworks are explored. One potential reason for these prior timber harvesting research results is that these studies have not adequately accounted for the relevance of timber harvesting to a PWO. Many survey-based studies demonstrate that a proportion of PWOs are disinterested or apathetic towards harvesting timber from their woodland (e.g., Dhubháin et al., 2007), and that very few private woodland owners have management plans or participate in cost-sharing programs designed to encourage active forest management (Butler et al., 2016). Often, the timber harvesting decision is made infrequently, and is an unfamiliar concept. Given this context for the timber harvesting decision, the social-psychological theory of psychological distance (PD) offers promising insight into the complicated timber harvesting decisions made by PWOs.

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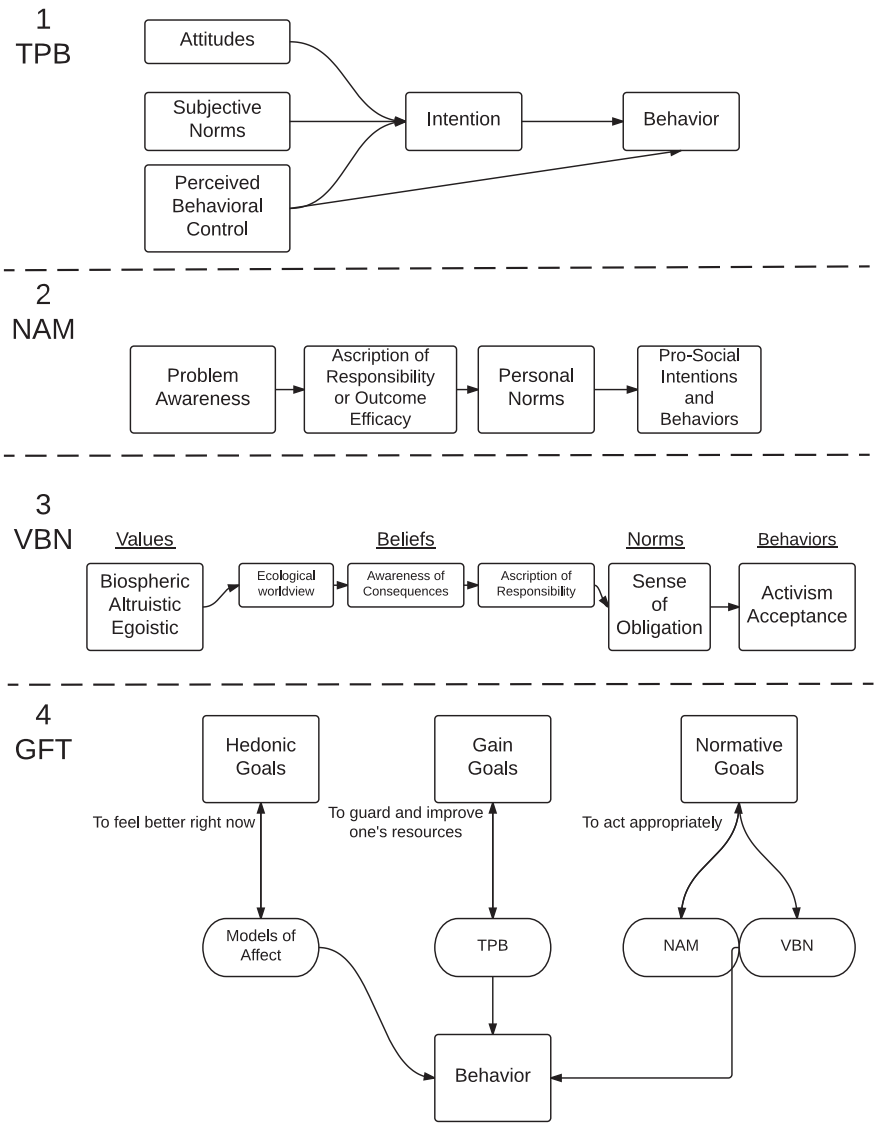

Fig. 1. Four models of environmental behavior. 1. The Theory of Planned Behavior (TPB), reproduced from Ajzen, 1985. 2. The Norm-Activation Model (NAM), modified from Schwartz (1977), Schwartz and Howard (1981), and Steg and de Groot (2010). 3. The Value-Belief-Norm Theory (VBN) modified from Stern, 2000. 4. Goal Framing Theory (GFT) after Lindenberg and Steg (2007) and Steg et al., 2012.

1.1. Cognitive theories and environmental behavior

Environmental behaviors are broadly defined as "all types of behavior that change the availability of materials or energy from the environment or alter the structure and dynamics of ecosystems" (Steg and Vlek, 2009, p. 309). Various psychological theories have been used to better understand environmental behavior, but four commonly used cognitive theories have the most relevance to the potential use of psychological distance. The long relied on Theory of Planned Behavior (Ajzen, 1985) posits that behavior is predicated by intention to engage in a behavior. This intention depends on attitudes towards the behavior, subjective norms about the behavior, and perceived behavioral control over the behavior (Fig. 1). The Norm Activation Model (NAM, Schwartz, 1977; Schwartz and Howard, 1981) suggests that behaviors are preceded by the activation of personal norms (Fig. 1). The Value-Belief-Norm Theory (VBN, Stern, 2000) was developed as an extension of the NAM. The situational factors outlined in the NAM are dependent on values and a broader ecological worldview in VBN theory (Fig. 1). Finally, Goal Framing Theory (GFT, Lindenberg and Steg, 2007) predicates the other theories above by introducing three general goals that influence behavior: hedonic, gain, and normative.

These four cognitive theories have many advantages and disadvantages (Steg et al., 2012), the disadvantages being that the constructs are rarely stable over time and none adequately measure an individual who may have multiple goals or what happens when costs of a given behavior high. All theories are built on the assumption that humans desire conceptual coherence, defined as the groupings of objects or attributes that form a meaningful category or class to the perceiver (Murphy and Medin, 1985). The reduction of cognitive dissonance is a key motivation for perception and behaviors. Based primarily on this assumption, psychological distance (PD) is defined as anything (e.g. time, places, potential activities) not directly experienced, but that exist as a mental construct, anchored at a zero-distance starting point temporally, spatially, hypothetical, or socially (Liberman et al., 2007). It has been explored in consumer choice (Dhar and Kim, 2007), and used to study probability judgment, which is also related to risk perception (Wakslak and Trope, 2009). In all cases, varying levels of PD lead to significant differences in target behaviors and PD could augment theories in the human dimensions of natural resources that fail to fully explain behavior and decision making.

Sigel (1970) described PD as the mental representation of an object, but later refinements of PD specified the mental *separation* of distinct