



The effects of mindful learning on pro-environmental behavior: A self-expansion perspective



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ARTICLE INFO

Article history:

Received 23 August 2016

Revised 8 March 2017

Accepted 8 March 2017

Available online 22 March 2017

Keywords:

Mindful learning

Mindlessness

Pro-environmental behavior

Self-expansion

ABSTRACT

This current article explores the differential effects of mindful learning on pro-environmental behavior from the perspective of self-expansion. A total of 253 participants were recruited for four experiments. In Study 1, the mindful-learning group reported greater levels of pro-environmental behavioral intentions compared to a randomized control. In Study 2, we utilized different learning materials focusing on self, humans, or the biosphere in three sub-experiments. Study 2a manipulated mindsets by a self-related focus and revealed participants in a mindfulness condition had lower pro-environmental behavioral intentions than those in the mindlessness group. Study 2b centered on “humans” and results showed that participants in a mindfulness group reported higher levels of pro-environmental behavioral intentions. Finally, Study 2c induced mindsets with a biospheric focus, showing participants in the mindful-learning condition had greater pro-environmental behavioral intentions. Combined, the studies provide empirical evidence that mindful learning could influence self-reported pro-environmental behavioral intentions both positively and negatively.

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1. Introduction

Human-related behavior has been increasingly recognized as the root cause of environmental problems (Gardner & Stern, 2002; Maloney & Ward, 1973; Schultz, 2011; Steg & Vlek, 2009). In modern society, rapidly growing rates of population, over-consumption, and the use of nonrenewable resources are causing ecological disruption and environmental degradation (Nolan & Schultz, 2014; Steg & Vlek, 2009). Such environmental issues have attracted research attention from sociologists, economists, ecologists, and psychologists. Especially in the area of psychology, researchers have argued that solving environmental problems will require that individuals change their behavior (Gifford & Nilsson, 2014 for review).

Pro-environmental behavior refers to minimizing the negative impact and intensifying the positive impact of one's activities on the natural environment (Kollmuss & Agyeman, 2002). To date, a large body of research has identified effective strategies for fostering pro-environmental behavior, including meaningful methods and practices with an emphasis on emotional and educational dimensions (Berenguer, 2007; Bruni, Fraser, & Schultz, 2008; Monroe, 2003; Tam, Lee, & Chao, 2013). Yet, research has also shown that long-term changes and pervasive cognitive barriers are important obstacles to pro-environmental actions (Campbell, 1983; Langer & Moldoveanu, 2000; Shu & Bazerman, 2011). In an effort to expand on pre-

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vious research and developed strategies, we asked whether mindful learning as a cognitive dimension could be an alternative way to facilitate pro-environmental behavior.

There are two different conceptualizations of mindfulness. One was developed from the Eastern Buddhist tradition, wherein mindfulness refers to “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003). In line with this definition, mindfulness is usually used as a way to develop clinical and medical treatments or reduce emotional distress and maladaptive behavior (Kabat-Zinn, 2003). The second conceptualization of mindfulness was derived from a purely Western Psychological perspective and first constructed by Ellen Langer (1989). Although Langerian mindfulness theory has a relatively young history, it was conceived entirely from a cognitive and information-processing framework (Haigh, Moore, Kashdan, & Fresco, 2011). The definition of Langerian mindfulness is a flexible state of mind in which people are actively engaged in the present, are sensitive to context, and notice new things (Langer, 1989). The key differences between the two definitions of mindfulness reflect meaningful differences between Eastern and Western conceptualizations of mindfulness. For example, Haigh et al. (2011) found Langerian mindfulness is generally related to affect; however, it was unrelated to symptoms of depression and anxiety (Haigh et al., 2011). This finding can represent a departure from Eastern conceptualizations of mindfulness, which have revealed stronger relationships with psychological symptoms and affect (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003).

By concerning the differences between the above two conceptualizations of mindfulness, we adopted the Langerian mindfulness in the current research. Langer’s conceptualization of mindfulness includes four specific aspects: (1) the ability to create novel categorizations and conceptions, (2) the sensitivity and perception to one’s environment, (3) the capability to think and solve problems from multiple perspectives, and (4) the openness to accept unfamiliar things (Langer, 1989, 1992; Langer & Moldoveanu, 2000; Langer & Piper, 1987; Pirson, Langer, Bodner, & Zilcha-Mano, 2012). In this line, the relationship of the above characteristics and pro-environmental behavior may indirectly evidence the association between mindfulness and pro-environmental behavior. For example, Milfont and Sibley (2012) showed that environmental engagement was strongly linked with traits of personality, such as openness. The correlation coefficient between openness and environmental engagement was 0.50 ($p < 0.001$). Moreover, another study noted a significant correlation between mindfulness and 17 daily pro-environmental behaviors (Barbaro & Pickett, 2016).

“Mindfulness achieved without meditation is discussed with particular reference to learning” (Langer, 2000). Mindful learning has been promoted and developed as an effective intervention strategy. It involves developing a flexible and open cognitive mindset through which individuals can expand their attention into novel distinctions and categorizations of context (Langer, 2000). While our focus is on pro-environmental behavior, research has previously established the benefits of mindful learning for the reduction of negative social attitudes (Djikic, Langer, & Stapleton, 2008; Geng & Zhao, 2013; Langer, Bashner, & Chanowitz, 1985) and the improvement in social cognitive skills (Geng, Zhang, & Zhang, 2011; Langer, Djikic, Pirson, Madenci, & Donohue, 2010). It is noteworthy that a recent study from Wang and colleagues showed that mindful learning can improve connectedness to nature, indicating a potential influence of mindful learning on people’s pro-environmental activities (Wang et al., 2016).

However, the effects of mindful learning on pro-environmental behavior have not yet been previously explored. Broadly speaking, people prefer to consider that understanding pro-environmental behavior is more complex than initially expected (Gifford & Nilsson, 2014). A person’s deliberate choices or actions are not always the result of motives, desires and wants (Ericson, Kjønstad, & Barstad, 2014). Nevertheless, we may develop mindful learning to extend intrinsic moral factors related to motives, desires, and wants for the purpose of strengthening external and environmental-targeted behaviors. Previous research has shown that the conceptual framework of self-expansion might correlate with inner moral justice in the face of environmental hazards (Nolan & Schultz, 2014; Schultz, 2001). Therefore, we adopted a self-expansion perspective of mindful learning to explore pro-environmental behavior.

Research investigating self-expansion has been reported by Aron and colleagues (Aron & Aron, 1986; Aron, Aron, & Norman, 2007). They defined self-expansion as a central human motivation to expand cognitively close relationships in which one identifies and includes others’ resources, viewpoints, and traits within their cognitive representation of self (Aron & Aron, 1986). Building on this foundation, Schultz and colleagues extended it to the field of environmental conservation and suggested that self-expansion may encompass three dimensions: self, humans, and the biosphere (Nolan & Schultz, 2014; Schultz, 2000). More specifically, self (e.g., me, concerning my lifestyle, my health, and so on) is included within the social-altruistic boundaries (e.g., social collectives, containing children, community and other domains of human beings); similarly, people are included within more extensive boundaries of the biosphere (e.g., animals and plants) (Nolan & Schultz, 2014). In short, within this conceptual model of self-expansion, each person has his/her own personal boundaries of self, other people, and the biosphere when confronting specific situations.

Through the self-expansion perspective (Aron & Aron, 1986; Nolan & Schultz, 2014), it is feasible to create experiential situations to examine the association between mindful learning and pro-environmental behavior, because the mindset process for creating new associations and conceptions (Bodner & Langer, 2001) about self-expansion and its three dimensions may impel individuals to react differently to pro-environmental behavior. In other words, an individual’s mindset might be manipulated to counteract the traditional thinking limits and broaden existing boundaries of self, humans, and the biosphere for some purposeful actions, such as pro-environmental behavior.

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