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The environmental action scale: Development and psychometric evaluation

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ABSTRACT

The environmental action scale measures level of engagement in civic actions designed to have a collective impact on environmental issues. These actions are seen as distinct from personal practices because environmental actions are more collective in nature and focus on system-level change. The scale includes two sub-factors: one that is connected with what we are calling "participatory actions" and one that we label "leadership actions". Each of the actions in the scale is rated for frequency of engagement. Following a rigorous six-step process, the scale was developed and proposed items were tested in a diverse North American sample. The scale was refined into the final 18-item scale which was tested on two additional samples; one international sample comprised of students from six different countries, and one consisting of known environmental activists. Analyses indicated that the final scale showed good reliability, and provided a valid measure of engagement in environmental actions.

1. Introduction

1.1. The environmental action scale: development and psychometric evaluation

In response to growing concerns about serious environmental threats such as global climate change, an increasing number of psychologists are joining the ranks of those who are promoting environmental sustainability (APA, 2010; Gifford, 2008; Harré, 2011). So far, most efforts of psychologists have focused on mitigation by fostering changes in people's personal practice, such as diverting waste through recycling and composting (Dittmer & Riemer, 2013). Increasingly, authors such as Kenis and Mathijs (2012), Ockwell, Whitmarsh, and O'Neill (2009), and Rouser-Renouf, Maibach, Leiserowitz, and Zhao (2014) point out, however, that there are significant institutional and structural barriers to changing these types of behavior. They therefore conclude that grass-root organizing and citizen activism is "the most efficient method of achieving emission reductions" (Rouser-Renouf et al., 2014, p.163). Currently, the prevalence of these types of environmental actions is relatively low in the general population (e.g., for the USA see Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Howe, 2012). In response, courses and programs are being developed to specifically encourage environmental civic actions, especially among young people (Hegarty, Thomas, Kriewaldt, Holdsworth, & Bekessy, 2011; Riemer, Lynes, & Hickman, 2013). Little empirical knowledge, however, is currently available about what types of programs are most effective in engaging people in environmental actions as compared to encouraging behavior changes at a personal level (Kenis & Mathijs, 2012; Riemer et al., 2013). One barrier to the empirical investigation of these types of program may be the lack of a psychometrically sound measurement scale for assessing engagement in environmental actions. In response, the Environmental Action Scale (EAS) was developed to provide a comprehensive, valid, and reliable measure to facilitate the empirical evaluation of programs to foster such actions and the development of theory related to engagement in environmental action. This paper describes the conceptual foundation, the development, and psychometric evaluation of the EAS.

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1.1.1. Conceptual and measurement considerations

Dono, Webb, and Richardson (2010) rightly point out that there is some conceptual confusion in the literature regarding the distinction of environmental "behaviors", "action" and "activism". Often the term environmental (or pro-environmental) "behavior" is used both as an umbrella term as well as a specific term for certain kinds of behaviors. For the purpose of presenting a scale that is intended to measure environmental "action", it is therefore important to clarify what its defining features are and how it is differentiated from the other related concepts.

For the purpose of this paper we are defining environmental actions as intentional and conscious civic behaviors that are focused on systemic causes of environmental problems and the promotion of environmental sustainability through collective efforts. These actions range from low-level participatory civic action, such as informing oneself about environmental issues and participating in community events, to highly involved and political leadership actions such as organizing a protest. Engaging in environmental actions is seen as distinct from changing personal practice, which is focused on reducing the environmental impact of individual private-sphere behaviors such as home energy use and transportation to school or work. Defining features of environmental actions are that they are civic behaviors (as compared to intentions or value) that a person consciously and intentional engages in to create a positive (mostly indirect) impact on the environment through collective and – to varying degrees – political change. Engaging in these actions often requires specific types of competencies (i.e., action competence). In the following sections we will elaborate these different conceptual features of the definition by critically reviewing the relevant literature and considering measurement related questions as appropriate.

1.1.2. Environmental

Defining the first part, that is "environmental", seems relatively straight forward. Stern (2000), for example, defines *environmentally* significant behavior (which we use here as an umbrella term as we will discuss further below) as "the extent to which it changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself" (p.408). That is, these are things humans do that have a positive impact on the natural environment, such as buying organic produce (although this definition does not provide a specific direction of impact, it is implied as positive in the remainder of Stern's article). According to Stern (2000), these impacts can be direct, such as purchasing a car that produces significantly less carbon dioxide, or indirect, such as raising awareness about environmental issues or advocating for pro-environmental policy changes (with the assumption that those indirect actions will facilitate an actual impact on the physical world). It is noteworthy that in the context of the sustainability discourse environmental issues are seen as significantly interconnected with other social issues such as social justice (Riemer & Schweizer-Ries, 2012). Consequently, taking actions related to sustainability is often more broadly defined than what we are focusing on with this current scale. Stern (2000) also points out that some behaviors are intended to have a positive impact on the environment but that impact does not actually materialize. If the organic produce, for example, is imported from a distant country and is heavily packaged, the net impact of buying an organic produce compared to a conventional one could actually be negative. As a remedy to this dilemma between intent and actual environmental impact, Stern (2000) proposes another definition for environmentally significant behavior, that is, "behavior that is undertaken with the intention to change (normally, to benefit) the environment" (p.408). While the first definition given is important when trying to assess the environmental impact of changes in human behavior –especially in regard to differentiating between low and high impact behaviors – the latter is more relevant in regard to understanding what individual and contextual factors drive people to engage in environmentally focused behaviors. For conceptual clarity, we will use Stern's term "*environmentally significant behaviors*" to refer to behaviors that fit the first type of impact-related definition while "*environmental behavior*" is used as an umbrella term to refer to any behavior intended by the actor to have a positive impact on the environment. Environmental actions are then a specific type of environmental behaviors. In most cases, the actual environmental impact of these actions is indirect and difficult to assess.

1.1.3. Actions versus changing personal practice

Providing conceptual clarity regarding the term "action" is more challenging. From a psychological perspective it is difficult to differentiate between behavior and action as one is often used to define the other. A common definition for behavior, for example, is: "the actions by which an organism adjusts to its environment" (American Psychological Association, n.d.). The main intention with this definition is to describe something that a person (theoretically) can be observed as doing such as using the voice to communicate or driving a car. This differentiates behaviors and actions from concepts such as intentions, motivation, attitudes, values and emotions, which can only be inferred (e.g., through communication). There are many different types of behaviors that are subsumed under this general category such as instinctual motor movements, communication, habits, and complex decisions. Some key distinctions are related to the level of consciousness, the degree of intentionality, the complexity, the amount of effort it takes, and the timing. When authors refer to environmental behaviors they typically mean decision-making, habits and other routinized behaviors that are related to a person's personal practice, such as house-hold energy use, producing and diverting household waste, purchasing of products and services with environmental impact, and use of transportation. These behaviors related to personal practices are also referred to as pro-environmental behaviors (e.g., Kollmuss & Agyeman, 2002),'environmental-friendly behaviors' (Tindall, Davies, & Mauboules, 2003) or 'private-sphere behaviors' (e.g., Stern, Dietz, Abel, Guagnano, & Kalot, 1999). We will refer to these as *personal practices* as the term 'pro-environmental behavior' can be misleading and sometimes has included other types of behaviors such as giving money to an environmental organization (e.g., Dono, et al., 2010).

What is confusing in the literature is whether a term such as "pro-environmental behavior" is referring to the act of changing a personal practice (e.g., making a plan to bike to work, buying a bike and relevant gear, and figuring out the bike route) or to the target practice itself (e.g., biking to work). Kollmuss and Agyeman (2002), for example, understand pro-environmental behaviour as "behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world" (Kollmuss & Agyeman, 2002, p.240), which Dono et al. (2010) rephrased as "reducing the negative impact of one's actions" (p.178) which could suggest an intended change to an existing practice. In most cases, scales intended to measure these types of behaviors ask about the target practice such as '*How often do you bike to work*?" While it may be pertinent to further explore the difference between the change in personal practice and the personal practice itself, for the purpose of this current discussion and the development of the EAS, we consider environmental actions as distinct from either as will become more clear below.

Jensen and Schnack (1997), propose to use the term "environmental action" to refer to things that a person does that are intentional, or consciously undertaken with reference to