



When do recycling attitudes predict recycling? An investigation of self-reported versus observed behavior



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ABSTRACT

We examine differences between the role of social influence and worldview (i.e., anthropocentrism) in self-reported and observed recycling behavior. Based on self-determination theory, we suggest social influence prompts a sense of controlled regulation, moderating the relationship between attitudes and self-report recycling behavior; whereas ecological worldviews prompt a sense of autonomous regulation, moderating the relationship between attitudes and observed recycling behavior. Both a laboratory-based paradigm and survey were administered to 108 participants. Results indicate that self-reported and observed recycling behavior are correlated, but not strongly. Additionally, results showed that social influence moderates the relationship between recycling attitudes and self-reported recycling behavior, but not observed behavior. Conversely, anthropocentrism moderates the relationship between recycling attitudes and observed recycling behavior, but not self-reported behavior. Implications and avenues for future research are discussed.

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1. Introduction

Issues regarding the current state of the environment are a great concern in modern mainstream society. As is often the case with issues of public concern, the condition of our environment has become a frequent topic for examination in psychological research. Indeed, some researchers (e.g., Gifford, 2011; Oskamp, 1995) argue that social scientists should take a vested interest in studying the future of our planet, as their research and theories can aid the development and implementation of environmental policies that recognize and incorporate attitudes, intentions, and behaviors that lead to environmentally responsible behavior (ERB). Researchers suggest that individuals want to act in ways that enhance environmental sustainability (Fraj & Martinez, 2007) and that individual actions can, in fact, affect large-scale environmental issues such as global warming (Barr, 2007). While many methods to promote

environmental sustainability exist (e.g., recycling, carpooling or driving hybrid vehicles, using energy-efficient appliances, making ecologically conscious purchases), a large amount of the research on ERB has focused on the behavior of recycling (Bratt, 1999; Cheung, Chan, & Wong, 1999; Vining & Ebreo, 2002).

Recycling is probably one of the most frequently measured ERBs because it involves a relatively simple behavior that is economically feasible (e.g., Iyer & Kashyap, 2007) and greatly benefits the environment (Valle, Rebelo, Reis, & Menezes, 2005). Further, recycling is a topic that has been examined internationally [e.g., in Hong Kong by Cheung et al. (1999); in Spain by Fraj and Martinez (2007); in the United Kingdom by Knussen and Yule (2008); in Ireland by Kurz, Linden, and Sheehy (2007); and in Portugal by Valle et al. (2005)]. Thus, it is truly a global concern. As such, it is important to understand the frequency with which and the reasons why individuals recycle, as understanding these issues may lead to the ability to increase recycling behavior.

The majority of studies that have examined recycling measure this behavior via self-report (e.g., Aguilar-Luzón, García-Martínez, Calvo-Salguero, & Salinas, 2012; Andersson & von Borgstede, 2010; Corral-Verdugo, 1997; Ebreo, Hershey, & Vining, 1999; Lee & De Young, 1994; Seacat & Northrup, 2010; White & Hyde, 2012). We propose that whereas self-report is one mechanism to

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understanding recycling behavior, it is not the most accurate measurement strategy. Not only does self-report of recycling only partially predict observed recycling, we propose that the two also are likely differentially predicted. Whereas attitudes have been a staple of behavior prediction (Kraus, 1995), we suggest that in the context of recycling behavior, this relationship depends on key motivating factors. Therefore one needs to examine the underlying motivational factors to understand when attitudes have a stronger relationship with self-reported versus observed behavior.

According to self-determination theory (SDT; Deci & Ryan, 1985, 2008), motivated behavior is characterized as lying along a continuum of intentional regulation ranging from autonomous to controlled (Ryan & Connell, 1989). Researchers have found that autonomous and controlled motivations can yield different outcomes, with autonomously motivated behavior leading to the most long-term and persistent behavior (Deci & Ryan, 2000; Pelletier, Fortier, Vallerand, & Briere, 2001; Seguin, Pelletier, & Hunsley, 1999; Vallerand & Bissonnette, 1992; Vallerand, Fortier, & Guay, 1997). Some researchers also have found a link between more autonomous forms of motivation and self-reported frequency of ERB (Green-Demers, Pelletier, & Ménard, 1997; Osbaldiston & Sheldon, 2003; Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998; Villacorta, Koestner, & Lokes, 2003). In the current study, we are interested in both self-reported and observed behavior. We examine the relationship between these two measures of recycling behavior, the relationship between attitudes and behavior, and the moderating effects of social influence and environmental worldview. We suggest social influence and ecological worldviews will influence the degree of autonomous motivation experienced, differentially affecting self-reported and observed recycling behavior.

2. Measuring recycling: self-report versus observation

As is the case with other behaviors, different methodologies exist to measure recycling participation. However, the most ecologically sound method is to measure the occurrence of the observed behavior (Steg & Vlek, 2009). For example, if researchers are interested in “recycling water bottles,” the most valid operationalization of this construct would be observations of “the number of water bottles an individual recycles in a given time frame.”

Unfortunately, the majority of previous research examining recycling behavior relies on self-reports, which can be problematic (Corral-Verdugo, 1997; De Oliver, 1999; Manfredo & Shelby, 1988; McGuinness, Jones, & Cole, 1977; McGuire, 1984; Oskamp, Harrington, Edwards, & Sherwood, 1991; Vining & Ebreo, 2002). Researchers question the representative accuracy of this method (Chao & Lam, 2011; McGuinness et al., 1977; Oskamp et al., 1991; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and note that self-reports are rarely equivalent with observed behavior (Armitage & Conner, 2001; Chao & Lam, 2011; Cheung et al., 1999; Corral, Bernache, Encinas, & Garibaldi, 1995; Cote, 1984; McGuire, 1984; Obregón-Salido & Corral-Verdugo, 1997; Rathje, 1989). Indeed, self-reports of recycling behavior are often overstatements of observed recycling behavior (Chung & Leung, 2007; Gamba & Oskamp, 1994; Obregón-Salido & Corral-Verdugo, 1997). Self-reports are likely used because they are generally less time-consuming and more cost-effective to gather (Paulhus & Vazire, 2007). Self-reports also enable researchers to more readily access “hard to measure” behavior such as household trash separation and recycling habits.

Several reasons exist for the need to measure observed behavioral assessments versus the more commonly used self-reporting of behavior. First, self-reports are impacted by reporting errors, such

as response bias, acquiescent responding (Paulhus & Vazire, 2007), and socially desirable responding (SDR; Paulhus & Vazire, 2007; Vining & Ebreo, 2002), factors which may be further exacerbated by the rise of recycling behavior as a social norm (De Young, 1990). Second, past research indicates that individuals’ beliefs regarding ERB may demonstrate a stronger relationship with reports of behavior than with the observed behavior itself (Obregón-Salido & Corral-Verdugo, 1997). Third, self-reports alone fail to provide an objective account of observed behavior, instead producing data reflective of respondents’ subjective interpretations of reality (Green-Demers et al., 1997). These factors likely all contribute to stronger reported attitude–behavior relationships for studies using self-report compared to those using observed measures of behavior (Kraus, 1995).

Notably only a few studies (Barker, Fong, Grossman, Quin, & Reid, 1994; Chao & Lam, 2011; Chung & Leung, 2007; Guagnano, Stern, & Dietz, 1995; Lord, 1998; O’Connor, Lerman, Fritz, & Hodde, 2010) utilize behavioral observation in recycling research, even though it holds the benefit of providing a direct measurement of behavior and has been demonstrated to be a reliable representation of an individual’s behavior (Corral-Verdugo, 1997). Even fewer studies (Barker et al. 1994; Chao & Lam, 2011; Corral-Verdugo, 1997) examine what Osbaldiston and Schott categorize as “public” recycling behavior (versus curbside or drop off recycling behavior; 2012). Furthermore, unlike self-report measures, naturalistic observation is not as affected by cultural norms or social expectations. However, increased time, funding requirements, and difficulty of measurement often make this method unrealistic in environmental studies.

Research comparing self-reports to observational data is particularly rare, and often fixated on the discrepancy between the two measures. Corral-Verdugo (1997) notes this could be due to the drastically different “realities” each method assesses. Put simply, behavioral observation solely tracks overt actions, whereas self-reports reflect individuals’ self-perception of their behavior. As a result, some studies comparing the two methods have uncovered notable differences. For example, in their research of university students, both Barker et al. (1994; American students) and Chung and Leung (2007; Chinese and American students) found self-report responses were often over-estimated accounts of respondents’ recycling behavior when compared to observational data. Further, Gamba and Oskamp (1994) and Corral-Verdugo (1997) found similar results (i.e., overestimates of recycling behavior) when examining participation in neighborhood curbside recycling programs. Finally, Yu-Long and San-Pui (2011) compared target individuals’ self-reports of their ERB to roommates’ observations of those targets’ ERB and found a discrepancy between the two, such that self-reports of ERB were higher than roommates’ observations.

Despite these discrepancies, reason suggests a significant correlation must exist between self-reports and observational data. Research by Warriner, McDougall, and Claxton (1984) affirms this notion, finding that consumers’ estimates of their household energy consumption were positively correlated with their fuel bill statement. In general, recycling studies support this finding, displaying a weak, but statistically significant positive correlation between self-reports and observed behavior (Corral-Verdugo, 1997; Gamba & Oskamp, 1994).

In summary, the relationship between self-reported and observed recycling behavior typically includes measurement error due to factors such as response bias, acquiescent responding, and SDR and researchers caution against relying solely upon self-reports of ERB (Corral-Verdugo, 1997; Yu-Long & San-Pui, 2011). Despite these limitations, there should be common variance due to the similarity in the overarching construct (i.e., recycling behavior).

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