Gender perspective on the factors predicting recycling behavior: Implications from the theory of planned behavior

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ABSTRACT

This study aimed to assess the role of some socio-psychological attributes in explaining recycling behavior of Turkish university community from a gender perspective within the context of the theory of planned behavior with an additional variable (past experience). The recycling behavior of whole sample, females and males, has been examined in 3 sessions -depending on the arguments that explain gendered pattern of private and public environmental behavior and sticking to the fact why females' stronger environmental values, beliefs, and attitudes do not translate consistently into greater engagement in public behavior. As a result of model runs, different variables shaping intention for behavior have been found, namely perceived behavior control for females and past behavior for males. Due to the low percent of the variance in explaining recycling behavior of females, they have been identified as the ones who do not carry out intentions (non-recyclers). Since intentions alone are capable of identifying recyclers accurately but not non-recyclers, there may be other factors to be considered to understand the reason for females not carrying out the intentions. The results of descriptive statistics supported the identification by attitudes toward recycling. Female attitudes were innate (recycling is good, necessary, useful and sensitive), whereas those of males were learnt (recycling is healthy, valuable and correct). Thus, it has been concluded that males' intention for recycling is shaped by their past behavior and the conclusion is supported by males having learnt attitude toward recycling whereas females' lack of intention for recycling is shaped by their perceived behavior control and is supported by their innate attitude for recycling. All in all, the results of the present study provide further support for the utility of the TPB as a model of behavioral prediction and concur with other studies examining the utility of the TPB in the context of recycling.

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1. Introduction

Educators agree that most of the environmental problems faced today mainly result from individuals' daily behavior, including consumption, waste disposal, travel, and energy use (e.g., Boldero, 1995; Guerrero et al., 2013; Nordlung and Garvil, 2002; Ojala, 2008; Klöckner and Oppedal, 2011; Marshall and Farahbakhsh, 2013; Oskamp, 2000; Swami et al., 2011). Reducing quantity of the solid waste deposited in landfills is one of the issues to manage and improve the quality of the environment (Hopper and Nielsen, 1991; Izagirre-Olaizola et al., 2014; Vining et al., 1992). Within this context, recycling has emerged as a promising approach for solid waste management (Rhodes et al., 2015; Vining and Ebreo, 1992). Due to landfill problems, recycling contributes handling environmental problems (Castro et al., 2009; Vining and Ebreo, 1991; Vining and Ebreo, 1992; Hopper and Nielsen, 1991). However, extensive research has repeatedly reported residents' unwillingness to recycle household waste. For example, earlier studies have shown that individuals perceive recycling costly, inconvenient, and messy as well as time-consuming. Furthermore, individuals think that it requires considerable amount of effort to prepare, separate, store and transport recyclable items to a recycling center (Ebreo et al., 1999; Ramayah et al., 2012). According to Boldero (1995) such properties make recycling *unique* and distinguish it from other types of behavior due to its repetitive nature. Therefore, it is plausible to assume that separating glass, metals, papers, plastics and other recyclable items from household waste may possess different precursors compared to other kinds of pro-environmental behavior (Oskamp et al., 1991). In fact, the identification of what determines recycling behavior is a growing area of research in the domain of

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both environmental psychology and environmental education. Some scholars have identified factors influencing the elements of the waste management systems (see Dahlén and Lagerkvist, 2010; Klöckner and Oppedal, 2011; Swami et al., 2011). As Guerrero et al. (2013) reported the generation of waste is influenced by family size, their educational level and monthly income. In addition, as the authors reported, certain aspects like gender, peer influence, land size, household location and environmental organization membership explain the household waste utilization and separation behavior.

Within this context, the theory of planned behavior (TPB; Ajzen, 1991) among others, offers a theoretical framework to identify determinants of the recycling behavior (Armitage and Conner, 2001; Bagozzi and Dabholkar, 1994; Chen and Tung, 2010; Boldero, 1995; Cheung et al., 1999; Greaves et al., 2013; White and Hyde, 2012; Taylor and Todd, 1995, 1997) and appears to provide a good theoretical starting point to understand recycling behavior. Accordingly, current research has investigated adults' recycling behavior within the framework of theory of planned behavior.

1.1. Theoretical framework

The theory of planned behavior, as an extension of the Theory of Reasoned Action (TRA; Ajzen and Fishbein, 1980; Ajzen and Madden, 1986), is accepted as one of the most effective socio-psychological theories that explain behavior. The theory puts a person's intention to perform a given behavior at center. In other words, the behavior of an individual depends on his or her behavior intention which is under the influence of three conceptually independent antecedents: *attitude towards behavior* (i.e. evaluation of a behavior as good or bad by the individual who is going to perform that behavior), *subjective norm* (refers the social pressure an individual perceives in relation to behaving in a certain way), and *perceived behavioral control*, (indicates how easy or difficult one finds to perform certain behavior) (Ajzen, 1991).

Since its introduction, the TPB has been applied to a wide range of behavior with significant success (Ajzen, 1991), including food waste (Graham-Rowe et al., 2015; Stefan et al., 2013; Visschers et al., 2016), healthy eating (Conner et al., 2002; McEachan et al., 2011), waste management and composting (Taylor and Todd, 1995, 1997), and recycling behavior (Aguilar-Luzón et al., 2012; Greaves et al., 2013; Ramayah et al., 2012; Rhodes et al., 2015; Stancu et al., 2016; Tonglet et al., 2004; White and Hyde, 2012). The overall findings, in general, provide evidence for the predictive power of the attitudinal factors, normative factors, and perceived behavioral control in predicting behavioral intention and behavior (Ajzen, 1987, 1991). For example, as a result of their study related to meta-analysis, of 185 independent studies on the TPB, Armitage and Conner (2001) reported that the theory accounted for 27% of the variance in behavior and 39% of the variance in intention. The perceived behavioral control was also found to explain a significant amount of variance in intention and behavior. Moreover, the relation between intention and behavior was reported as $r = 0.47$. With respect to the influence of the subjective norm on intentions, on the other hand, a relatively weak association was reported (Armitage and Conner, 2001).

Although studies reported the TPB's success in predicting intentions and behavior, the addition of some other variables have also been suggested by researchers in order to increase the explanatory power of the original model, (see Conner and Armitage, 1998); such as past experience (Ouellette and Wood, 1998; Klöckner and Matthies, 2011; Rise et al., 2010; Terry et al., 1999; White and Hyde, 2011), self-identity (Conner and Armitage,1998; Nigbur et al., 2010; Rise et al., 2003, 2010; White and Hyde, 2012; Whitmarsh and O'Neill, 2010, 2010), moral and personal

norms (Chan and Bishop, 2013; Harland et al., 1999; Vesschers et al., 2016), environmental awareness (Ramayah et al., 2012) and knowledge (Barr, 2007); ambivalent emotion (Ojala, 2008), habit (Klöckner and Oppedal, 2011; Knussen and Yule, 2008), personality (Swami et al., 2011); and the proximity of the recycling depot & planning (Rhodes et al., 2015).

In fact, Ajzen (1991, p.199) addressed this issue in his article and exactly stated that 'The theory of planned behavior is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the current variables of the theory have been taken into account'. For example, among others, the exclusion of past behavior was identified as one of the shortcomings of the TPB (see Perugini and Bagozzi, 2001). Although previously assumed to have a limited explanatory value, subsequent research has highlighted the necessity of inclusion of past behavior into the model (see Ouellette and Wood, 1998). The present study, therefore, can be seen as another effort to test tendency of past behavior to predict individuals' recycling intentions and behavior in a developing country with a relatively low recycling rate. According to Ajzen (1991; p.202) the use of past behavior in the model, designed to predict any kind of behavior, offers *a means of testing the effectiveness of the theory under the assumption of stable determinant*. Although acknowledged that past behavior could be a good predictor of later action, Ajzen and his colleagues argued that past behavior did not have the same status as other predictors found in the original model which as well *cannot usually be considered a causal factor in its own right* (Ajzen, 1991, p. 203; see also Ajzen, 2005). Nevertheless, several studies reported the tendency of past behavior to predict intentions and behavior (Carrus et al., 2008; Conner et al., 2000; Conner and Armitage, 1998; Klöckner and Matthies, 2012; McEachan et al., 2011; Ouellette and Wood, 1998; Terry et al., 1999; White and Hyde, 2012).

1.2. Research on recycling behavior

As far as inquiries into recycling behavior are considered, it has been observed that the TPB is also a promising framework to uncover factors that influence an individuals' recycling intention and behavior. For example, in one of the earlier studies, Taylor and Todd (1995) found that both attitudes toward recycling and perceived behavioral control were positively associated with individuals' recycling and composting intentions. Similarly, Boldero's study (1995) indicated that intentions to recycle newspapers directly predicted actual recycling and that attitudes toward recycling predicted the recycling intentions. The study, however, failed to demonstrate the significant effect of perceived behavioral control on predicting both intention and actual behavior. From their Hong Kong undergraduates study about wastepaper recycling behavior, Cheung et al. (1999) demonstrated attitudes, norms, and perceived behavioral control as immediate predictors of behavioral intentions. Perceived difficulty, predicting behavioral intention moderated the link between intention and behavior. No statistical significant influence of perceived control was found. Past behavior while inserting a small unique effect on behavioral intention, had a substantial impact on self-reported behavior. Recently, Chen and Tung's (2010) findings have provided further evidence for the explanatory power of the TPB to determine both factors influencing the recycling intentions and the determinants of recycling behavior; as for the case of White and Hyde's (2012) study that supported the prior studies in terms of attitude and subjective norm predicted intention to recycle and intention predicted recycling behavior. In a similar vein, the study by Klöckner and Oppedal (2011) indicated small but significant influence of perceived behavioral control on recycling behavior. Predictive power