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Social influence in the theory of planned behaviour: The role of descriptive, injunctive, and  
ingroup norms

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### Abstract

The present research investigated three approaches to the role of norms in the theory of planned behaviour (TPB). Two studies examined the proposed predictors of intentions to engage in household recycling (Studies 1 & 2) and reported recycling behaviour (Study 1). Study 1 tested the impact of descriptive and injunctive norms (personal and social) and the moderating role of self-monitoring on norm-intention relations. Study 2 examined the role of group norms and group identification and the moderating role of collective self on norm-intention relations. Both studies demonstrated support for the TPB and the inclusion of additional normative variables: attitudes, perceived behavioural control, descriptive and personal injunctive norms (but not social injunctive norm) emerged as significant independent predictors of intentions. There was no evidence that the impact of norms on intentions varied as a function of the dispositional variables of self-monitoring (Study 1) or the collective self (Study 2). There was support, however, for the social identity approach to attitude-behaviour relations in that group norms predicted recycling intentions, particularly for individuals who identified strongly with the group. The results of these two studies highlight the critical role of social influence processes within the TPB and the attitude-behaviour context.

The study of social influence and, in particular, the impact of social norms upon behaviour has been a central theme in social psychology. In the context of the relationship between people's attitudes and their behaviour, the study of social influence has been conducted predominantly within the frameworks of the theories of reasoned action (Fishbein & Ajzen, 1975) and planned behaviour (Ajzen, 1985). In these models, social influence is represented by the concept of subjective norm, which describes the amount of pressure that people perceive they are under from significant others to perform or not to perform a behaviour. According to the theory of planned behaviour (TPB), subjective norm, in conjunction with attitude (i.e., an overall positive or negative evaluation of the behaviour) and perceived behavioural control (i.e., the extent to which an individual feels able to perform the behaviour; PBC), is a key predictor of behavioural intention, which, in turn, predicts behaviour (along with perceived behavioural control). Support for the theories of reasoned action and planned behaviour has been established across a wide range of behavioural domains and in a variety of populations (see e.g., Armitage & Conner, 2001; Conner & Armitage, 1998).

Despite support for the TPB, research shows that subjective norms often exert only limited influence on people's intentions. It should be noted that Fishbein and Ajzen (1975) did argue that the relative impact of attitudes and norms on behavior should vary across behaviors and across populations, thereby accounting for some of the differences in predictive strength. However, a number of meta-analyses, collapsing across behaviors and across populations, have suggested consistently that the predictive ability of the subjective norm construct is limited. For instance, Armitage and Conner (2001) found that the average component relationship between attitudes and intentions was twice as large as that between subjective norms and intentions (see also Farley, Lehmann, & Ryan, 1981). The apparent weakness of the norm-intention link has prompted a number of interpretations, from Ajzen's

(1991) conclusion that personal factors (i.e., attitude and perceived behavioral control) are the primary determinants of behavioral intentions, to the deliberate removal of subjective norms from data analysis (e.g., Sparks, Shepherd, Wieringa, & Zimmermanns, 1995).

One conclusion is that norms may indeed have little influence over one's intentions to behave, or actually behave, in a particular way. However, an alternative conclusion is that norms are important, but that they need to be conceptualized in a different manner to that embodied by the subjective norm construct. In recent years, a number of researchers have begun to re-examine the role of social influence and normative factors in the attitude-behaviour relationship. Three dominant approaches are: (1) Cialdini and colleagues' (e.g., Cialdini, Kallgren & Reno, 1991; Cialdini, Reno & Kallgren, 1990; Reno, Cialdini & Kallgren, 1993) consideration of additional sources of norms, (2) Trafimow and colleagues' (e.g., Finlay, Trafimow, & Jones, 1997; Finlay, Trafimow & Moroi, 1999; Trafimow & Finlay, 1996) individual differences perspective, and (3) Terry and colleagues' (e.g., Terry & Hogg, 1996; Terry, Hogg, & White, 2000) social identity approach.

The present article reviews the normative component of the theories of reasoned action and planned behaviour and examines the three major approaches to the role of social influence in the attitude-behaviour relationship. Two studies designed to examine these approaches in explaining the role of social influence in the theory of planned behaviour in relation to recycling intentions and behaviour are reported.

### *The Role of Norms in the Theory of Reasoned Action/Theory of Planned Behaviour*

#### *The Additional Norms Approach*

Rather than viewing norms as a unitary construct, Cialdini and his colleagues (Cialdini et al., 1991; Cialdini et al., 1990) argued that the common definition of norms reflects conceptions of what significant others approve of and what significant others themselves do (e.g., Brown, 1988; Turner, 1991). Social injunctive norms reflect perceptions of what

significant others approve of or think one ought to do. The subjective norm component of the TPB is a social injunctive norm because it is concerned with perceived social pressures from significant others to perform the behavior. Social injunctive norms motivate action by highlighting the potential social rewards and punishments for engagement or non-engagement in the behavior. In contrast, descriptive norms reflect the perception of whether other people perform the behavior in question. Descriptive norms describe what is typical or normal and motivate action by providing evidence as to what is likely to be effective, adaptive, and appropriate action. As part of the Integrative Model of Behavioral Prediction (IM; Fishbein, 2000; Fishbein & Yzer, 2003), Fishbein had argued also for the inclusion of both injunctive and descriptive norms as important sources of normative influence in attitude-behaviour relations and suggests that these two sources of norms should be modelled together.

In addition to the distinction between social injunctive and descriptive norms, researchers have also argued for the inclusion of a third type of norm: a personal injunctive norm (see e.g., Schwartz, 1977). Personal injunctive or moral norms can be defined as an 'individual's internalised moral rules' (Parker, Manstead & Stradling, 1995, p.129) and reflect the perception that engaging in a behaviour would cause self-approval or disapproval and involve an ascription of responsibility to the self to act (Schwartz, 1977). Personal injunctive norms, or moral norms, are independent of the immediate expectations and influences of others (Manstead, 2000), and have been found to play a particularly important role in the prediction of behaviours with a moral or ethical component such as environmental behaviour.

Research has demonstrated that both descriptive and personal injunctive norms exert an independent influence on intentions over and above the influence of other TPB variables (e.g., Beck & Ajzen, 1991; Conner & McMillan, 1999; Manstead, 2000; Parker et al., 1995; Sheeran & Orbell, 1999). For example, Ravis and Sheeran's (2003) meta-analysis found that descriptive norms accounted for an additional 5% of the variance in intentions. Similarly,

Conner and Armitage (1998) found that, across 11 tests of the TPB, personal norm predicted, on average, an additional 4% of the variance in intention. However, it should be noted that very few studies to date have considered the simultaneous effects of all three sources of norms. Most tests have focused on either personal norms (Parker et al., 1995) or injunctive norms (Minton & Rose, 1997), with few examining the effects of descriptive norms.

Moreover, research on descriptive norms has focused typically on the prediction of anti-social behaviours such as littering behaviour (Cialdini et al., 1990) or illicit drug use (McMillan & Conner, 2003), with little research on the prediction of pro-social or altruistic behaviours (cf. Warburton & Terry, 2000). It is important to test the effects of all three norms simultaneously in order to provide a full test of the expanded normative component and contribute to theoretical development of the role of norms in attitude-behaviour relations.

#### *The Individual Difference Approach*

A second major response to the role of norms in the TPB has focused on individual differences in attitudinal and normative control. Fishbein and Ajzen (1975) suggested that variations in the extent to which behaviors are predominantly under attitudinal control (AC) or normative control (NC) is to be expected, an assertion that has been supported (e.g., Trafimow & Fishbein, 1994a, 1994b). However, the individual difference approach (e.g., Finlay et al., 1997; Finlay et al., 1999; Trafimow & Finlay, 1996) goes further to argue that people, as well as behaviors, can be attitudinally or normatively controlled<sup>1</sup>.

In research examining attitudes, subjective norms, and intentions for 30 unrelated behaviors, Trafimow and Finlay (1996, 2001) found that most of the respondents (79% in the 1996 study and 66% in the 2001 study) were under attitudinal control. Moreover, when normatively controlled respondents were excluded from the sample, subjective norms failed to account for a significant amount of variance in intentions. Thus, the inclusion of the minority of people who are under normative control explains the weak, but sometimes



significant, contribution of subjective norm. In addition, Trafimow and Finlay (1996) argued that the degree to which individuals are under attitudinal or normative control is influenced by measurable dispositional factors, such as the collective self.

*Collective self.* The notion of collective self comes from Triandis (1989), who suggested that there are several aspects of the self, including the private and collective self. The private self consists of private self cognitions, or individualistic self assessments regarding the behaviour, traits or states of the individual (e.g., I am introverted). In contrast, the collective self comprises collective-self cognitions, or self assessments derived from a specific group or collective (e.g., my family thinks I am introverted). Triandis (1989) argued further that, when the private self is salient, individuals are more likely to be influenced by personal goals and needs. In contrast, when the collective self is salient, individuals are more likely to be influenced by the norms and values of the collective.

Trafimow and Finlay (1996) found that the strength of an individual's collective self was associated with being under normative control – scores on a collective self scale (Singelis, 1994) correlated with a tendency for people to be under NC. In a similar vein, Ybarra and Trafimow (1997) found that priming the collective self versus the private self resulted in individuals being under normative control and attitudinal control respectively.

The strength of an individual's collective self should influence the social injunctive norm-intention and the personal injunctive norm-intention relationships. Based on the work of Triandis (1989) and previous research (Trafimow & Finlay, 1996; Ybarra & Trafimow, 1997), a strong sense of collective self should moderate the subjective norm-intention relationship, such that subjective norms will be more important for those individuals with a strong sense of collective self (but see Fekadu & Kraft, 2000, for evidence that collective self does not moderate the impact of subjective norms in a collective society). In contrast, a strong sense of personal self should moderate the personal norm-intention relationship, such that

personal norms will be more important for those individuals with a weak sense of collective self.

*Self monitoring.* Another variable that may account for individuals being under either attitudinal or normative control is self monitoring, which is the extent to which an individual's behaviour is influenced by situational versus interpersonal variables. High self-monitors are seen to be guided primarily by situational cues and attempt to fit their behaviour with social and interpersonal considerations of situational appropriateness. Low self-monitors, on the other hand, are guided primarily by internal values, feelings, and dispositions (Snyder, 1979).

In relation to the TPB, Cialdini et al. (1991) argued that self-monitoring influences the predictive ability of norms by influencing the salience of particular sources of normative influence. More specifically, as self monitoring increases (i.e., there is increased guidance by external cues), the salience of social injunctive norms increases and the relationship between social injunctive norms and intentions should increase. Conversely, as self-monitoring decreases (e.g., there is increased guidance by internal cues), the salience of personal injunctive norms increases and the relationship between personal injunctive norms and intentions should increase.

The limited research on the interplay of self-monitoring and normative influence has shown that self monitoring moderates the impact of norms on intentions. Specifically, Prislin and Kovrlija (1992) examined the efficacy of TPB in predicting class attendance for both high and low self monitors. They found that subjective norms predicted intentions to attend class only among high self monitors, with low self monitors' intentions being predicted by their attitudes (see also DeBono & Omoto, 1993). However, given the relative paucity of research on the moderating role of self-monitoring and the collective self on the impact of norms on intentions and behaviours it is important to continue to investigate the extent to which the

impact of normative factors on intentions and behaviours is influenced by individual difference variables.

### *The Social Identity Approach*

The third major response to the role of social influence in the attitude-behaviour context is the social identity approach (see e.g., Tajfel & Turner, 1979). Terry and colleagues (see e.g., Terry & Hogg, 1996; Terry, Hogg, & White, 1999) argued that the lack of strong support for the role of norms in attitude-behaviour studies reflects problems with the conceptualization of norms within the TPB. In these models, norms are seen as external prescriptions that influence behaviour. This conceptualization is inconsistent with the more widely accepted definition of norms as the accepted or implied rules of how group members should and do behave (e.g., Cialdini et al., 1991; Turner, 1991). In addition, social pressure is seen to be additive across all referents and reference groups viewed as important to the individual. As such, the model fails to reflect that individuals differ in their strength of identification with significant others and groups such that certain sources of normative influence will be more important for certain individuals. In contrast, the social identity approach does consider the role of group membership on behaviour: Norms will have a stronger impact upon the attitude-behaviour relationship if they are tied more closely to salient group memberships.

From a social identity approach, subjective norms should have little influence on intentions. Group norms, on the other hand, should have a significant impact on intentions, particularly for those who identify strongly with the group. The norms of salient social groups should influence willingness to engage in attitude-consistent behavior because the process of psychologically belonging to a group means that self-perceptions, beliefs, attitudes, and behavior are brought into line with the position advocated by the ingroup norm (Terry & Hogg, 1996). Individuals are influenced by group norms not simply because they lead to

social approval in a public context, but because they prescribe the context-specific attitudes and behaviors appropriate for group members. Thus, engagement in attitude-consistent behaviours is dependent upon perceptions of support for that attitude from a salient and important reference group.

Previous research has provided support for this perspective on the role of norms in attitude-behavior relations (e.g., Åstrøm & Rise, 2001; Johnston & White, 2003; Smith & Terry, 2003; Terry & Hogg, 1996; Terry et al., 1999; Terry, Hogg, & McKimmie, 2000; Wellen, Hogg, & Terry, 1998; White, Terry, & Hogg, 1994; see Smith & Hogg, in press for a recent review). In both field and experimental research, normative support from a relevant and specific reference group or exposure to a supportive group norm has been found to increase the expression of attitude-consistent intentions and behavior, whereas low levels of normative support or exposure to a group norm that is incongruent with one's attitude decreases the expression of attitude-consistent intentions and behavior, but only for individuals who identify strongly with the group (but see Norman, Clark, & Walker, 2006). In contrast, personal factors such as attitude and perceived behavioral control have been found to be the primary determinants of intentions and behavior for those who do not identify strongly with the group (Terry & Hogg, 1996).

#### *The Present Research*

In summary, there have been three main approaches to the role of norms in the TPB; namely the additional norms approach (e.g., Cialdini et al., 1991; Cialdini, et al., 1990; Reno et al., 1993), the individual difference approach (e.g., Finlay et al., 1997; Finlay et al, 1999; Trafimow & Finlay, 1996), and the social identity approach (e.g., Terry & Hogg, 1996; Terry et al., 2000). The present research examined each of these approaches within the context of predicting recycling behaviour amongst householders in Brisbane, Australia. Specifically, the present research investigated the utility of (1) the additional norms approach, (2) the

individual differences approach by testing the moderating influence of both collective self and self-monitoring, and (3) the social identity approach.

### *The Context of Recycling Behaviour*

In the face of increasing environmental awareness and concern there has been an increase in research that addresses attitudes and behaviours in relation to environmental actions such as so-called “green consumerism” (see e.g., Sparks & Shepherd, 1992). Indeed, examination of engagement in environmental actions is an important applied avenue for attitude-behaviour research. Engagement in household recycling is a behaviour that has received particular research attention within the framework of the theory of planned behaviour. Indeed, a number of studies have demonstrated that, on the whole, the TPB provides a good account of behavioural intentions to engage in household recycling (e.g., Knussen, Yule, MacKenzie, & Wells, 2004; Mannetti, Pierro, & Livi, 2004; Terry, Hogg, & White, 1999). In addition, these studies have demonstrated the importance of a number of other variables including self-identity (Mannetti et al., 2004; Terry et al., 1999), perceived availability of recycling facilities (Knussen et al., 2004), and group norms and social identity (Terry et al., 1999). The current research extends this research by examining a range of social influence variables proposed to operate in the attitude-behaviour context. In addition, it should also be noted that past research has failed to provide a full test of the TPB by examining the intention-behaviour relationship that is specified in the model. Study 1 addresses this issue by assessing self-reported recycling behaviour.

### Study 1

Study 1 examined the effects of social injunctive, personal injunctive, and descriptive norms in the context of the TPB and whether self-monitoring moderated the impact of social and personal injunctive norms on intentions. It was predicted that attitude, descriptive norm, personal injunctive norm, social injunctive norm, and PBC would predict intentions to engage

in household recycling (Hypothesis 1) and that intentions to engage in household recycling and PBC would predict reported recycling behaviour (Hypothesis 2). Finally, it was predicted that social injunctive norms would predict intentions to engage in household recycling more strongly for those individuals who are high self monitors whereas personal injunctive norms would predict intentions to engage in household recycling more strongly for those individuals who are low self monitors (Hypothesis 3).

### *Method*

#### *Participants*

A total of 164 individuals with household access to recycling bins participated in the first data collection wave of the study. Participants were recruited by third-year psychology students as a class exercise using a snowballing technique. More specifically, students were asked to recruit up to three individuals with access to recycling bins to participate in the study. The characteristics of the sample (e.g., age, occupational status, marital status) were compared to recent Australian census data for the city of Brisbane and were found to be broadly representative of the population (with a slight over-representation of younger, unmarried residents). The sample comprised 81 males and 83 females, with a mean age of 35.37 years ( $SD = 15.38$ ; range = 18-82 years). Of the participants who completed the first questionnaire, 129 (79%) completed the follow-up questionnaire. Participants who did and did not provide follow-up data did not differ on any sample characteristics or predictor variables.

#### *Design*

The study used a longitudinal design with two waves of data collection. The first wave of data collection assessed predictors of intentions and intentions in relation to recycling behaviour. The second wave of data collection assessed participants' self-reported recycling behaviour for the previous fortnight. Based on local council recommendations, household

recycling was defined as “putting out for recycling *all* newspaper and glass, aluminium/tin products, and plastic products that can be recycled during the next fortnight”. The measures of attitudes, personal injunctive norms (but not social injunctive norms or descriptive norms), PBC, and intention described below included this full definition of household recycling. To reduce the effects of response bias, approximately half of the items for each measure were negatively worded.

### *Measures*

*Wave one questionnaire.* Two items assessed intention to engage in household recycling. Responses were recorded on 7-point Likert scales (“Do you intend to engage in household recycling during the next fortnight”; 1 *definitely intend to* to 7 *definitely intend not to*; “I [1] *do not intend*; [7] *do intend* to engage in household recycling during the next fortnight”). Attitude was assessed by asking participants to indicate their attitude towards household recycling during the next fortnight on ten 7-point evaluative semantic differential scales (*unpleasant-pleasant*; *good-bad*; *harmful-beneficial*; *favourable-unfavourable*; *wise-foolish*; *awful-nice*; *cold-warm*; *unenjoyable-enjoyable*; *satisfying-unsatisfying*; *useful-useless*). Three items assessed perceived behavioural control in relation to recycling (“The number of events outside my control which could prevent me from engaging in household recycling during the next fortnight is:”; 1 *very few* to 7 *numerous*”; “I feel in complete control of whether I engage in household recycling during the next fortnight”; 1 *completely false* to 7 *completely true*”; “For me, to engage in household recycling during the next fortnight would be:” 1 *very easy* to 7 *very difficult*). Social injunctive norms were assessed by three items (“Most people who are important to me think that engaging in household recycling is something that one ought to do”; 1 *no, definitely not* to 7 *yes, definitely*”; “Among the people who are important to you, how much agreement would there be that engaging in household recycling is a good thing to do”; 1 *none at all* to 7 *a great deal*”; “How many of the people

who are important to you would approve of household recycling?"; 1 *none* to 7 *all*). Two items assessed descriptive norms ("How many of the people who are important to you do you think engage in household recycling"; 1 *none* to 7 *all*; "Think of the people who are important to you. What percentage of them do you think engage in household recycling?"; 1 *0%* to 7 *100%*). Two items assessed personal injunctive norms ("I do not feel a moral obligation to engage in household recycling during the next fortnight"; 1 *strongly disagree* to 7 *strongly agree*; "Not to engage in household recycling during the next fortnight would go against my principles"; 1 *No, definitely not* to 7 *Yes, definitely*). Self-monitoring was assessed with 21 items from Snyder's (1974) self-monitoring index (e.g., "My behaviour is usually an expression of my true inner feelings, attitudes and beliefs"; 1 *never true* to 4 *completely true*).

*Wave two questionnaire.* At time two, 2 weeks after the initial data collection phase, a measure of self-reported behaviour was obtained. Participants were asked to indicate, on a 7-point Likert scale, how much of their household garbage that could be recycled had been put out for recycling during the previous fortnight (1 *none at all* to 7 *everything*). Four items also assessed recycling of specific items (e.g., "During the past fortnight, how many of your newspapers have you put out for recycling?"; 1 *none* to 7 *all*). Separate items examining the extent to which they recycled each of the different types of recyclable household products were incorporated to increase the reliability of the self-report behaviour measure. Table 1 presents the means, standard deviations, reliabilities, and intercorrelations among the variables. As can be seen in Table 1, attitude, perceived behavioural control, descriptive norm, personal injunctive norm, and social injunctive norm were all correlated significantly with both intention and behaviour. However, self-monitoring was not correlated with intention and behaviour. Intention was also correlated with behaviour.

-----Insert Table 1 about here-----

### *Results*



### *Data Analysis Overview*

Two regression analyses were performed to examine the effects of the additional normative components (i.e., descriptive, personal injunctive and social injunctive norms) in the TPB. The first regression analysis examined the prediction of behavioural intentions and the second analysis examined the prediction of reported recycling behaviour. Further regression analyses examined the interactions between injunctive norms (personal and social) and self monitoring in the prediction of behavioural intentions.

*Predicting behavioural intentions.* A standard multiple regression analysis was performed with intentions as the dependent variable and attitude, PBC and the revised normative components (descriptive norm, personal injunctive and social injunctive norm) as independent variables. As shown in Table 2, PBC, attitude, descriptive norm, and personal injunctive norm were all significant predictors of behavioural intentions. Social injunctive norm was the only variable that did not emerge as an independent predictor in the analysis. In partial support for Hypothesis 1, participants had a stronger intention to engage in household recycling if they had a positive attitude toward household recycling, perceived a high level of control, perceived that significant others performed the behaviour, and felt a personal sense of obligation to engage in household recycling. However, perceptions of others' approval or disapproval related to performing the behaviour did not impact significantly on participants' intentions to engage in household recycling.

*Predicting self-reported behaviour.* To examine the predictors of reported behaviour, a hierarchical multiple regression was performed. The hypothesised predictors of behaviour, intention and perceived behavioural control, were entered in the first step of the analysis, with the measures not proposed to influence behaviour directly (i.e., attitude, descriptive norm personal injunctive norm, social injunctive norm) entered on the second step. As shown in Table 2, the combination of intention and PBC accounted for a significant proportion of

variance in reported recycling behaviour. The entry of attitude, descriptive norm, personal injunctive norm and social injunctive norm at Step 2 also accounted for a significant increment of variance in reported behaviour. When all variables were in the regression equation, intention, PBC, and personal injunctive norm emerged as the significant predictors of self-report recycling behaviour. In support for Hypothesis 2, people were more likely to engage in the behaviour if they intended to do so and perceived control over performing the behaviour. However, individuals were also more likely to report engagement in household recycling if they felt a personal sense of obligation to do so.

-----Insert Table 2 about here-----

*Injunctive norms and self-monitoring.* A hierarchical multiple regression was used to test the prediction that the effects of personal and social injunctive norms on intention would vary as a function of self-monitoring. Attitude, PBC, the additional normative components (descriptive norm, personal injunctive, and social injunctive norm) and self monitoring were entered at the first step. A multiplicative term between self monitoring and each of the injunctive norms (personal and social) was entered at the second step after controlling for the main effects. Centred variables, calculated as deviations from the mean, were used to ensure that multicollinearity between the predictors and interaction terms did not distort the results of the analysis (Aiken & West, 1991).

As shown in Table 3, the addition of the interaction terms at Step 2 did not account for a significant increase in variance in intentions. Thus, there was no support for the prediction that the effects of social and personal injunctive norms would vary as a function of self-monitoring (cf. Hypothesis 3).

-----Insert Table 3 about here-----

### *Discussion*

The aim of Study 1 was to test the additional norms approach to the TPB and to test the moderating role of self-monitoring (an individual differences variable) on the norm-intention relationships. The utility of the TPB was generally supported – attitude and perceived behavioural control predicted intentions. In addition, intentions and perceived behavioural control predicted behaviour. Consistent with expectations, a revised normative component was efficacious in predicting intentions – both descriptive and personal injunctive norms emerged as significant predictors of intention. However, although social injunctive norm was correlated with behavioural intention, it was not a significant independent predictor of behavioural intentions in the regression analyses. Finally, self-monitoring did not moderate the norm-intention relationships in the TPB.

Support for the efficacy of the standard TPB model and for the revised normative component was found in the present study. In line with Hypothesis 1, attitudes, descriptive norm, personal injunctive norm, and PBC all predicted intentions to engage in household recycling. Specifically, individuals were more likely to intend to recycle if they had a positive attitude towards recycling, perceived that they had control over the behaviour, held internalised expectations that they ought to recycle (i.e., personal injunctive norm), and felt that others important to them recycled (i.e., descriptive norm). However, contrary to expectations, the belief that others would approve of their recycling (i.e., social injunctive norm) did not predict intentions to recycle.

The failure of social injunctive norms to emerge as a significant independent predictor of intentions was inconsistent with Hypothesis 1 and with the additional norms approach. Conner and McMillan (1999) have argued that the social injunctive norm is essentially the same construct as the subjective norm typically employed in TPB studies. As such, the lack of support for the role of social injunctive norms is consistent with past research highlighting the weakness of the subjective norm construct (e.g., Ajzen, 1991). The lack of strong support for

social injunctive norms in the present study highlights the importance of considering a broader conceptualisation of normative influence than that embodied in the subjective norm construct in the TPB. Nevertheless, it should be noted that the measure of social injunctive norm employed did not, like many of the other measures, include a time component and this may have limited the predictive ability of this construct. However, it should be noted that this issue was also present for the descriptive norm, yet descriptive norms did emerge as an independent predictor of behavioural intention.

In further support of the TPB it was found that both intentions to recycle and perceived control over recycling behaviour predicted self-reported recycling behaviour (Hypothesis 2). Indeed, contrary to recent reviews (e.g., Sheeran, 2002), the correlation between intentions and behaviour was particularly strong ( $r = .69$ ), supporting the argument that intentions are the proximal determinants of behaviour. In addition, there was also a direct effect of personal injunctive norm on self-reported behaviour. Although this effect was weaker than the effect of behavioural intention, this finding is contrary to the TPB, which states that the impact of all variables on behaviour will be mediated through intention. However, this effect is consistent with Stern's (2000) Value-Belief-Norm theory, which posits that activation of a sense of moral obligation to act is sufficient to elicit the relevant environmental behaviour without reference to an explicit behavioural intention. Thus, for certain behaviours, such as those for which there is a moral component or for which there are social expectations attached to performance (such as recycling or other environmental behaviours), personal norms may be particularly influential (see Manstead, 2000).

#### *Injunctive Norms and Self-Monitoring*

Cialdini et al. (1991) argued that stable individual differences, such as the degree to which individuals are guided by external or internal cues, impact on the salience of both personal and social injunctive norms and the extent to which these different norms predict

behaviour. Study 1 tested this contention by examining whether the relative strength of effects of injunctive norms (personal and social) on intention would vary as a function of self monitoring. However, inconsistent with Hypothesis 3 and past research (e.g., DeBono & Omoto, 1993; Prislin & Kovrlija, 1992), there was no support for this contention. High and low self monitors did not differ in the extent to which social injunctive and personal injunctive norms predicted intentions to engage in recycling behaviour. Thus, it appears that a dispositional variable, self-monitoring, is not implicated in the social influence component of the TPB. However, the failure to find support for the impact of self-monitoring may reflect problems with the reliability of the self-monitoring scale, which may have limited our ability to detect a moderating effect. In addition, it is important to acknowledge that the interactions were tested using correlated variables. It is possible that stronger effects would emerge if experimental manipulations were used, such as a priming technique to vary the individual difference variable (see e.g., Trafimow, Triandis, & Goto, 1991). Thus, further research examining the moderating effect of dispositional variables on intentions is required.

## Study 2

Study 2 re-examined the additional norms approach and investigated the impact of a different dispositional variable, collective self. On the basis of Trafimow and Finlay's (1996) research, Study 2 examined the role of the collective self by not only assessing cognitive aspects of the collective self using Singelis' (1994) measure, but by also assessing affective aspects of the collective self using Luhtanen and Crocker's (1992) collective self-esteem scale. The inclusion of both cognitive and affective measures of collective self enabled a more comprehensive examination of the impact of collective self on social influence processes within the TPB.

Study 2 also tested the social identity approach to attitude-behaviour relations (Terry & Hogg, 1996). From a social identity approach, the perceived norms of a behaviourally

relevant reference group should influence intentions, particularly when the individual identifies strongly with that reference group. As in Study 1, it was hypothesised that attitude, descriptive norm, personal and social injunctive norm, and PBC would predict intentions to engage in household recycling (Hypothesis 1). Based on the social identity approach, it was hypothesised that the perceived norms of a behaviourally relevant reference group would predict intentions to engage in household recycling for those individuals who identified strongly with the reference group, such that high identifiers would report stronger intentions to engage in household recycling when the group norm was supportive of recycling than when the group norm was not supportive of recycling (Hypothesis 2).

Hypotheses 3 and 4 tested the contention that the relative strength of effects between injunctive norms (personal and social) and intention would vary as a function of the strength of interdependent self (Hypothesis 3) and level of collective self-esteem (Hypothesis 4). Social injunctive norms should predict intentions to engage in household recycling more strongly for respondents scoring high on the measures of interdependent self (i.e., more collectivist orientation) whereas personal injunctive norms should predict intentions to engage in household recycling more strongly for respondents scoring low on measures of interdependent self. Similarly, it was expected that social injunctive norms would predict intentions to engage in household recycling more strongly for respondents scoring high on the measures of collective self esteem whereas personal injunctive norms were expected to predict intentions to engage in household recycling more strongly for respondents scoring low on measures of collective self esteem.

### *Method*

#### *Participants*

A total of 175 individuals with household access to recycling bins participated in Study 2. As in Study 1, participants were recruited by third-year psychology students using a

snowballing technique. In addition, as in Study 1, the characteristics of the sample (e.g., age, occupational status, marital status) were representative of the general population. The sample comprised 89 males and 85 females. The mean age of participants was 33.29 years ( $SD = 13.28$ ; range = 15-64 years).

### *Design*

Study 2 had a single data collection phase. The questionnaire assessed predictors of intentions and intentions to engage in household recycling. Recycling behaviour was defined as in Study 1: 'put out for recycling *all* newspaper and glass, aluminium/tin products, and plastic products that can be recycled during the next fortnight'. The measures of attitudes, personal injunctive norms (but not social injunctive norms or descriptive norms), PBC, and intention described below included this full definition of household recycling. To reduce the effects of response bias, some of the items were negatively worded. Unless noted, all items were assessed on 7-point scales.

### *Measures*

Three items assessed intention to engage in household recycling ("I intend to engage in household recycling during the next fortnight"; 1 *no, definitely not* to 7 *yes, definitely*; "I [1 *do not intend*; [7 *do intend*] to engage in household recycling during the next fortnight"; "Do you intend to engage in household recycling during the next fortnight?"; 1 *definitely intend to* to 7 *definitely intend not to*). Attitude was assessed by asking participants to indicate their attitude towards recycling during the next fortnight on four evaluative semantic differential scales (*favourable-unfavourable*; *wise-foolish*; *satisfying-unsatisfying*; *useful-useless*). Five items assessed participants' perceived behavioural control in relation to recycling ("How much control do you have over whether you engage in household recycling during the next fortnight"; 1 *absolutely no control* to 7 *complete control*; "The number of event outside my control which could prevent me from engaging in household recycling during the next

fortnight is:” 1 *very few* to 7 *numerous*; “I feel in complete control of whether I engage in household recycling”; 1 *completely false* to 7 *completely true*; “If I wanted to, it would be easy for me to engage in household recycling during the next fortnight”; 1 *strongly disagree* to 7 *strongly agree*; “For me, to engage in household recycling during the next fortnight would be:”; 1 *very easy* to 7 *very difficult*). Descriptive norms (“How many of the people who are important to you would engage in household recycling during the next fortnight”; 1 *none* to 7 *all*; “Think of the people who are important to you. What percentage of them do you think engage in household recycling?”; 1 *0%* to 7 *100%*), personal injunctive norms (“I do not feel a moral obligation to engage in household recycling during the next fortnight”; 1 *strongly disagree* to 7 *strongly agree*;; “Not to engage in household recycling during the next fortnight would go against my principles”; 1 *no definitely not* to 7 *yes, definitely*), and social injunctive norms (“Do the people who are important to you approve or disapprove of household recycling,?”; 1 *approve* to 7 *disapprove*; “Among the people who are important to you, how much agreement would there be that engaging in household recycling is a good thing to do?”; 1 *a great deal* to 7 *none at all*) were each assessed by two items. Four items assessed perceived group norm (“How many of your friends and peers would think that engaging in household recycling was a good thing to do?”; 1 *none* to 7 *all*; “How many of your friends and peers would engage in household recycling”; 1 *none* to 7 *all*; “Think about your friends and peers. What percentage of them do you think engage in household recycling?”; 1 *0%* to 7 *100%*; “How much would your friends and peers agree that engaging in household recycling is a good thing to do?”; 1 *not at all* to 7 *completely*). Three items assessed group identification (Brown, Condor, Mathews, Wade, & Williams, 1986; “How much do you feel strong ties with your friends and peers?”; 1 *not very much* to 7 *very much*; “In general, how well do you feel you fit into your group of friends and peers?”; 1 *very well* to 7 *not very well*; “How much do you identify with your group of friends and peers?”; 1 *not at all* to 7 *a great deal*).



Participants also completed items assessing interdependent self and collective self-esteem. Interdependent self was assessed with 12 items (Singelis, 1994; e.g., “It is important for me to maintain harmony within my group”; 1 *strongly disagree* to 7 *strongly agree*). Collective self-esteem (Luhtanen & Crocker, 1992) was assessed with eight items (e.g., “I feel good about the social groups that I belong to”; 1 *strongly disagree* to 7 *strongly agree*).

## *Results*

### *Data Analysis Overview*

The data from two multivariate outliers were excluded from the analysis. A regression analysis was performed to examine the effects of the additional normative components (i.e., descriptive, personal injunctive and social injunctive norms) and the role of the social identity variables (i.e., group norm and group identification) on behavioural intentions. Further regression analyses examined the interactions between the measures of injunctive norms (personal and social) and (1) interdependent self and (2) collective self-esteem on behavioural intentions. The means, standard deviations, correlations and reliabilities of the variables are reported in Table 4. As can be seen in Table 4, attitude, perceived behavioural control, descriptive norm, personal injunctive norm, social injunctive norm, and group norm were all correlated with intention. However, group identification, interdependent self, and collective self-esteem were not correlated with intention.

-----Insert Table 4 about here-----

*Predicting behavioural intentions.* To examine the hypothesised predictors of behavioural intentions, a hierarchical multiple regression was performed. Attitude, PBC, the additional normative components (descriptive norm, personal injunctive and social injunctive norm) and the social identity variables (group norm, group identification) were entered at Step 1. To test the hypothesised interaction between group norm and group identification, a

multiplicative term, based on centred scores (see Aiken & West, 1991), was computed and entered at Step 2.

As shown in Table 5, a significant proportion of variance in the prediction of behavioural intentions was accounted for at Step 1. The inclusion of the Group Norm by Group Identification interaction at Step 2 was associated with a significant increase in the variance explained. After all variables were entered into the regression equation, the significant predictors were attitudes, perceived behavioural control, descriptive norm, personal injunctive norm, group norm, identification and the Group Norm X Group Identification interaction term.

The results for the independent effects partially support Hypothesis 1. Participants had a stronger intention to engage in household recycling if they had a positive attitude toward household recycling, perceived a high level of behavioural control, perceived that significant others performed the behaviour, and felt a personal sense of obligation to engage in household recycling. In addition, participants were also more likely to intend to engage in household recycling if they believed that the norms of their referent ingroup (friends and peers) were supportive of recycling. As in Study 1, social injunctive norm did not emerge as a significant independent predictor – general perceptions of others’ approval or disapproval related to performing the behaviour did not impact significantly on intentions to engage in household recycling.

In line with Hypothesis 2, group norms significantly predicted behavioural intentions, but only for participants who identified strongly with the reference group (see Figure 1). Simple slope analysis confirmed this pattern of results. The relationship between group norm and intentions was significant at one *SD* above the mean on the measure of group identification ( $t = 2.00, p < .05$ ), but not at one *SD* below the mean ( $t = .33, p = .74$ ).

-----Insert Table 5 about here-----

-----Insert Figure 1 about here-----

*Injunctive Norms and Interdependent Self/Collective Self-esteem*

To test Hypotheses 3 and 4, which predicted that the relative strength of effects between injunctive norms (personal and social) and intention would vary as a function of the strength of interdependent self (Hypothesis 3) and level of collective self-esteem (Hypothesis 4), two hierarchical multiple regressions were performed.

To test Hypothesis 3, attitude, PBC, the additional normative components (descriptive norm, personal injunctive and social injunctive norm) and interdependent self were entered at Step 1. Multiplicative terms computed to reflect the hypothesised interaction between interdependent self and both personal and social injunctive norms were entered at Step 2. As shown in Table 6, the inclusion of the interaction terms between interdependent self and injunctive norms (personal and social) did not add significantly to the prediction of behavioural intentions. Thus, the relative strength of effects between injunctive norms (personal and social) and intention did not vary as a function of the strength of interdependent self.

To test Hypothesis 4, attitude, PBC, the additional normative components (descriptive norm, personal injunctive and social injunctive norm) and collective self-esteem were entered at Step 1. Multiplicative terms computed to reflect the interaction between collective self esteem and both personal and social injunctive norms were entered at Step 2. As shown in Table 7, the inclusion of the interaction terms between collective self esteem and injunctive norms (personal and social) did not add significantly to the prediction of behavioural intentions. Thus, the relative strength of effects between injunctive norms (personal and social) and intention did not vary as a function of collective self esteem.

-----Insert Table 6 about here-----

-----Insert Table 7 about here-----

### *Discussion*

The aim of Study 2 was to test the additional norms approach, the individual differences approach, and the social identity approach to the role of norms in the TPB. As in Study 1, the results of Study 2 provided support for the TPB and for the inclusion of additional sources of norms within the TPB – attitude, PBC, descriptive, and personal injunctive norms were all independent predictors of intentions. However, as in Study 1, although social injunctive norm was correlated with intention, it was not a significant independent predictor of behavioural intentions. In addition, group norms emerged as a significant predictor of behavioural intentions. Moreover, the social identity approach was also supported – the impact of group norms on intentions varied as a function of strength of identification with the group. As expected, for high identifiers, increasing perceptions of group support for recycling was associated with increased intentions to engage in household recycling. For low identifiers, however, intentions were unrelated to perception of group normative support. However, there was no support for the moderating role of the collective self. Neither strength of interdependent self nor strength of collective self-esteem influenced the strength of norm-intention links in the present research.

Support for the efficacy of the standard TPB model and the inclusion of a revised normative component was found. Attitudes, descriptive norm, personal injunctive norm, and PBC all emerged as significant independent predictors of recycling intentions in the regression model (see Hypothesis 1). Individuals were more likely to intend to engage in household recycling if he or she had a positive attitude towards recycling, perceived that they had control over the behaviour, held internalised expectations that they ought to recycle (i.e., personal injunctive norm), and felt that others important to them recycled (i.e., descriptive norm). However, as in Study 1, the belief that others would approve of their recycling (i.e.,

social injunctive norm) did not predict intentions to recycle when entered in a regression model.

Study 2 also examined a social identity account of the role of norms in the TPB. In line with Hypothesis 2, the perceived norms of a behaviourally relevant reference group predicted behavioural intentions, an effect that emerged at high, but not at low, levels of identification. More specifically, perceptions of normative support from the group had no differential impact upon the behavioural intentions of low identifiers. However, for high identifiers, the perception that the group did not support recycling was associated with weakened intentions to recycle. In contrast, when high identifiers perceived higher levels of group support for recycling, behavioural intentions were also stronger. Although this effect does not appear to be particularly strong in the present research (the proportion of successes associated with this step in the regression was only 1.5% - see Trafimow, 2004), this finding is in line with past research (e.g., Terry & Hogg, 1996; Terry et al. 1999), conducted in both the field and the laboratory, and adds to the growing body of research that supports the social identity approach to attitude-behaviour relations (see Hogg & Smith, 2007, for a recent review).

#### *Injunctive Norms and the Collective Self*

Study 2 also examined whether the collective self, operationalised as strength of the interdependent self and collective self-esteem, moderated the relationship between injunctive norm (both personal and social) and intentions (Hypotheses 3 and 4). However, although both scales possessed adequate reliability, the collective self did not moderate the relative strength of effects between injunctive norms (both personal and social) and intention. Although this result is contrary to Trafimow and Finlay's (1996) contention that collective self should moderate the effect of norms within the TPB, it is consistent with the results of Study 1 and past research (e.g., Fekadu & Kraft, 2000). Nevertheless, given that the current tests were

based on correlated variables, it would be rash to make definitive conclusions about the role that individual differences play in the impact of different types of norms. Further research, perhaps employing an experimental paradigm, is clearly needed in this area in order to understand fully the interplay among individual difference variables and the social context in the attitude-behaviour relationship.

## GENERAL DISCUSSION

The present research examined three approaches to the role of norms in the TPB: the additional norms approach, the individual differences approach, and the social identity approach. Support for the inclusion of additional sources of norms was found. In both studies, both personal injunctive norms and descriptive norms increased the prediction of recycling intentions. Thus, social influence does not simply reflect perceived pressure from significant others, but also reflects perceptions that other people engage in the behaviour themselves (descriptive norms) and through the construction of internalised moral principles (personal norms). These results support the argument that social factors are important within the theory of planned behaviour and support the inclusion of additional sources of social influence into the TPB (see e.g., Manstead, 2000; Rivas & Sheeran, 2003).

Limited support was found for the individual difference approach to the role of norms. Two individual difference or dispositional variables were assessed in the present research – self-monitoring and the collective self. However, there was no evidence that these variables moderated the impact of norms on intentions, arguing against the view that norms are important only for a small minority of people or for particular people. However, further research is needed in this area before definitive conclusions as to the role of individual differences can be made.

More support was found for the social identity approach to the role of norms in the present research. In line with the social identity approach, group norms predicted recycling

intentions, but only for individuals who identified strongly with the group. The fact that group norms, but not subjective/social injunctive norms, predicted recycling intentions suggests that the subjective norm construct provides only a narrow understanding of social influence.

Social influence emanates from the attitudinal and behavioural characteristics of a psychologically relevant reference group rather than from the perceived pressure from other individuals. The present research suggests that the account of social influence variables provided by the social identity approach does indeed capture the role of social influence variables in the attitude-behaviour domain.

### *Potential Applications*

The results of the current research also provide suggestions on the type of variables that should be targeted in interventions designed to encourage engagement in household recycling. In the present research, there was clear evidence as to the role that perceptions of control in relation to household recycling play in both intentions to recycle and recycling behaviour. In both studies, PBC was the strongest predictor of intentions to recycle, a finding that is consistent with recent research (Barr, 2007; Knussen et al., 2004). Thus, it is clear that future interventions should attempt to address perceptions about the ease and self-efficacy of recycling. Linked to this issue is the finding that the perception that other people are engaging in recycling (i.e., the descriptive norm) was an important predictor of behavioural intention. In order to increase recycling, it might be important to increase the visibility of recycling (e.g., through kerbside collection) so that people can accurately perceive the number of people who engage in the target behaviour.

Another target for intervention attempts is personal injunctive norm, which emerged as a significant predictor of both behavioural intentions and behaviour. Thus, in line with past research and theorising (e.g., Stern, 2000), it is important to target people's sense of moral or personal obligation about environmental behaviours (i.e., that we all should play our role in

saving the environment). Given increasing concern about environmental issues, this would be a particularly fruitful avenue for intervention.

### *Strengths and Limitations*

The present research is one of few studies to test the notion that the dispositional variables of self monitoring and collective self may influence personal and social injunctive norms within the TPB. In addition, the present research is one of few studies to test the role of all three sources of norms (i.e., social injunctive, personal injunctive, and descriptive norms) simultaneously. Nevertheless, the present research had its limitations. Most notably, the present study used only a small number of items to measure several of the constructs, such as the additional types of norms, and some measures employed did not display optimal levels of reliability, which may have limited the impact of certain constructs. Future studies would benefit from the inclusion of additional items to increase the reliability of all scales. Moreover, given potential problems associated with using regression models to test for additional predictors within the TPB (see Trafimow, 2004), future researchers would be advised to employ experimental methods in order to test more rigorously the impact of additional normative variables.

### *Conclusion*

The results of the present research support the view that social influence is important within the TPB and dispel the belief that norms cannot play a consistently impactful role in the relationship between attitudes and action. These results highlight the ways in which the social identity approach and the additional norms approach provide critical insights into the processes by which norms influence behavioural decision making. A challenge for future research is to examine ways in which the approaches studied here can be integrated in order to provide a comprehensive account of social influence processes within the attitude-behaviour context.



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## Footnotes

<sup>1</sup> Other researchers argue also that individuals may also differ on the extent to which they are influenced by control factors (see e.g., Sheeran, Trafimow, Finlay & Norman, 2002).



Table 1

*Descriptive Data for Measures (Means, Standard Deviations, Bivariate Correlations and Reliabilities, Study 1)*

Predictor	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Intention	5.65	1.46	(.48 <sup>***</sup> )							
2. Attitude	5.39	.82	.41 <sup>***</sup>	(.84)						
3 Perceived behavioural control.	5.58	1.21	.58 <sup>***</sup>	.32 <sup>***</sup>	(.75)					
4. Descriptive norm	5.21	1.23	.53 <sup>***</sup>	.31 <sup>***</sup>	.44 <sup>***</sup>	(.69 <sup>***</sup> )				
5. Personal injunctive norm	5.02	1.64	.49 <sup>***</sup>	.44 <sup>***</sup>	.36 <sup>***</sup>	.38 <sup>***</sup>	(.35 <sup>***</sup> )			
6. Social injunctive norm	5.71	1.00	.39 <sup>***</sup>	.32 <sup>***</sup>	.39 <sup>***</sup>	.56 <sup>***</sup>	.29 <sup>***</sup>	(.66)		
7. Self-monitoring	2.26	.30	.02	-.04	.02	.17 <sup>*</sup>	.08	.10	(.64)	
8. Reported behaviour	5.12	1.61	.69 <sup>***</sup>	.24 <sup>*</sup>	.53 <sup>***</sup>	.51 <sup>***</sup>	.53 <sup>***</sup>	.36 <sup>***</sup>	.11	-

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note. Reliabilities reported in the diagonal. Where a construct was measured with two items, Pearson's  $r$  (and significance) is reported.

Table 2

*Multiple Regression Analyses Predicting Behavioural Intention and Reported Behaviour,**Study 1*

Step	Predictor	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> ch.	<i>F</i>	d.f.	$\beta$
Prediction of intention							
1	Attitude	.71	.50	.50	31.03***	5, 155	.12+
	Perceived behavioural control						.35***
	Descriptive norm						.26***
	Personal injunctive norm						.20**
	Social injunctive norm						.02
Prediction of behaviour							
1	Intention	.71	.51	.51	65.70***	2, 127	.46***
	Perceived behavioural control						.18*
2	Attitude	.75	.56	.05	3.47**	4, 123	-.10
	Descriptive norm						.06
	Personal injunctive norm						.24***
	Social injunctive norm						.04

+*p* < .06 \**p* < .05; \*\**p* < .01, \*\*\**p* < .001

*Note.* Beta coefficients computed after all variables in the equation.

Table 3

*Regression Analysis Examining the Interaction Between Injunctive Norms (Personal and Social) and Self-Monitoring in the Prediction of Behavioural Intention.*

Step	Predictor	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> ch.	<i>F Ch</i>	d.f.	$\beta$
1	Attitude	.71	.50	.50	25.81***	6,154	.12
	Perceived behavioural control						.35***
	Descriptive norm						.26***
	Personal injunctive norm						.21**
	Social injunctive norm						.02
	Self monitoring						-.02
2	Self monitoring x Personal injunctive norm	.71	.50	.00	.36	2,152	.06
	Self monitoring x Social injunctive norm						-.02

\* $p < .05$ ; \*\* $p < .01$ , \*\*\* $p < .001$

*Note.* Beta coefficients computed after all variables in the equation.

Table 4

*Descriptive Data for Measures (Means, Standard Deviations, Bivariate Correlations and Reliabilities, Study 2)*

Predictor	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Intention	5.79	1.36	(.79)									
2. Attitude	5.57	1.31	.39***	(.86)								
3 Perceived behavioural control	5.76	1.08	.58***	.27***	(.81)							
4. Descriptive norm	5.24	1.28	.56***	.29***	.46***	(.75***)						
5. Personal injunctive norm	5.11	1.50	.49***	.33***	.36***	.38***	(.38***)					
6. Social injunctive norm	6.00	.94	.43***	.51***	.37***	.37***	.34***	(.43***)				
7. Group norm	5.53	.93	.53***	.29***	.41***	.55***	.37***	.42***	(.80)			
8. Group identification	5.33	1.09	.06	.25**	.16*	.14	.08	.21**	.28***	(.64)		
9. Interdependent self	4.22	.88	.02	.09	-.09	.11	.12	.02	.14	.24**	(.79)	
10. Collective self-esteem	4.77	.78	-.01	.20*	.10	-.04	.06	.14	.10	.47***	.31***	(.62)

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note. Reliabilities reported in the diagonal. Where a construct was measured with two items, Pearson's  $r$  (and significance) is reported.

Table 5

*Hierarchical Multiple Regression Analysis Predicting Behavioural Intentions, Study 2*

Step	Predictor	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> ch.	<i>F Ch</i>	d.f.	$\beta$
1	Attitude	.74	.55	.55	26.54***	7,155	.13*
	Perceived behavioural control						.32***
	Descriptive norm						.15*
	Personal injunctive norm						.18**
	Social injunctive norm						.05
	Group norm						.25***
	Group identification						-.13*
2	Group norm x Group identification	.77	.59	.05	18.03***	1,154	.23***

\* $p < .05$ ; \*\* $p < .01$ , \*\*\* $p < .001$

*Note.* Beta coefficients computed after all variables in the equation.

Table 6

*Hierarchical Multiple Regression Analysis Examining the Interaction between Injunctive Norms (Personal and Social) and Interdependent Self in the Prediction of Behavioural Intentions, Study 2*

Step	Predictor	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> ch.	<i>F Ch</i>	d.f.	$\beta$
1	Attitude	.71	.51	.51	26.50***	6,148	.12+
	Perceived behavioural control						.34***
	Descriptive norm						.23***
	Personal injunctive norm						.22**
	Social injunctive norm						.08
	Interdependent self						-.01
2	Interdependent self x Personal injunctive norm	.72	.51	.00	.39	2,146	.06
	Interdependent self x Social injunctive norm						-.02

+*p* < .08 \**p* < .05; \*\**p* < .01, \*\*\**p* < .001

*Note.* Beta coefficients computed after all variables in the equation.

Table 7

*Hierarchical Multiple Regression Analysis Examining the Interaction between Injunctive Norms (Personal and Social) and Collective Self Esteem in the Prediction of Behavioural Intentions, Study 2*

Step	Predictor	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> ch.	<i>F Ch</i>	d.f.	$\beta$
1	Attitude	.72	.52	.52	26.94***	6,147	.15*
	Perceived behavioural control						.31***
	Descriptive norm						.27***
	Personal injunctive norm						.23***
	Social injunctive norm						.05
	Collective self esteem						-.08
2	Collective self esteem x	.73	.53	.00	.40	2,145	.06
	Personal injunctive norm						
	Collective self esteem x						-.02
	Social injunctive norm						

\* $p < .05$ ; \*\* $p < .01$ , \*\*\* $p < .001$

*Note.* Beta coefficients computed after all variables in the equation.

Figure 1. Interaction between group identification and group norm on behavioural intention, Study 2.

