

INTERACTIVE EFFECTS OF PERCEIVED SOCIAL EXCLUSION AND SELF-CONSTRUAL ON RECYCLING BEHAVIOR

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Findings from previous studies demonstrating the effects of perceived social exclusion on social behaviors have been inconsistent. We used self-construal as a moderator to test the effects of perceived social exclusion on recycling behavior. A survey of 606 participants was conducted in Beijing, China. Results show that, for the independent self-construal group, perceived social exclusion had significantly negative effects on their recycling attitudes and subjective norms; in contrast, for the interdependent self-construal group, significantly positive effects were identified. In addition, because of differences in their attitudes toward recycling, their subjective norms, and their perceived behavior control, there was a significant difference in recycling behavior between people with a predominantly independent self-construal and people with a predominantly interdependent self-construal. These findings fill gaps in the literature concerning the effects of perceived social exclusion on recycling behavior.

Keywords: perceived social exclusion, self-construal, recycling behavior.

Perceived social exclusion is an emotional state in which people's need for a sense of belonging is threatened, or they feel ignored or rejected by society (Lee & Shrum, 2012). Previous researchers have shown that perceived social exclusion has both positive and negative effects on social behaviors. Although there could be psychologically significant negative effects (Lee & Shrum, 2012), such as aggressive behavior (Twenge, Baumeister, Tice, & Stucke, 2001),

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perceived social exclusion has also been found to result in prosocial behavior, thus exerting a positive impact on social behavior (Knowles, 2014). However, few researchers have thus far explored the reasons underlying these inconsistent findings. We investigated the effects of perceived social exclusion on recycling behavior, as recycling is a type of behavior related to social norms and society (Cialdini, Reno, & Kallgren, 1990), yet the effects of perceived social exclusion on recycling behavior have received little attention in previous research (Park & Baumeister, 2015).

As the inconsistent findings on perceived social exclusion are believed to result from moderating effects, we therefore introduced self-construal as a moderator to explore the effects of perceived social exclusion on recycling behavior. *Self-construal* can be further classified into interdependent self-construal and independent self-construal (Triandis, 1999). Previous researchers have shown that these two types of self-construal could produce a moderating effect on social behavior (Arnocky, Stroink, & DeCicco, 2007), which may lead to inconsistent findings concerning the effects of perceived social exclusion.

Literature Review and Conceptual Framework

Perceived Social Exclusion

Social exclusion is related to people's need for a sense of belonging; when that need cannot be satisfied, people feel excluded (Lee & Shrum, 2012). Prior researchers have revealed that perceived social exclusion has a significantly negative impact on people's social behavior and may even trigger aggressive behaviors (Twenge et al., 2001), resulting in a refusal to participate in society (Wang & Wang, 2016). It may also distort people's perception of social networks (O'Connor & Gladstone, 2015) or lead them to develop a strong prevention motivation, that is, the feeling of a need to protect themselves (Park & Baumeister, 2015).

However, some other researchers believe that perceived social exclusion may cause prosocial behavior. For example, Mead et al. (2011) suggested that perceived social exclusion may lead people to sacrifice their own interests for the good of society. Jugert et al. (2016) maintained that when people's self-esteem and sense of belonging are threatened, they are more likely to exhibit prosocial behavior to deepen their connection with society. Knowles (2014) argued that, in order to avoid social exclusion, it is much easier for socially excluded people to adopt others' perspectives than it is for those who do not feel socially excluded. Lee and Shrum (2012) found that when people are indirectly rejected, they are more willing to offer help or donations via prosocial behavior; Narayanan, Tai, and Kinias (2013) discovered that perceived social exclusion encourages people to seek more opportunities to associate with society.

To date, researchers have reached varied conclusions about the effects of perceived social exclusion on social behavior. However, none of them has attempted to justify such inconsistent findings (Lee & Shrum, 2012; O'Connor & Gladstone, 2015; Wang & Wang, 2016).

Self-Construal

Self-construal consists of interdependent self-construal and independent self-construal, and people can be separated into different groups according to these categories (Triandis, 1999). People with an *interdependent self-construal* are accustomed to forming close relationships with others and society, which in turn influences their behaviors (Lu, Fung, & Doosje, 2017). In contrast, people with an *independent self-construal* usually have little connection with others and tend to avoid other people.

Previous researchers have found that differences in self-construal may lead to different social behaviors. Chuang, Xie, and Liu (2016), for instance, discovered that people with an interdependent self-construal exhibit more supportive behaviors. Arnocky et al. (2007) stated that people with an independent self-construal did not care if their behaviors harmed nature (egoistic environmental concerns), whereas people with an interdependent self-construal were willing to engage in recycling behavior. Moreover, Park and Baumeister (2015) demonstrated the positive connection between independent self-construal and recycling attitudes, as well as the positive effects of interdependent self-construal on subjective norms and social attitudes.

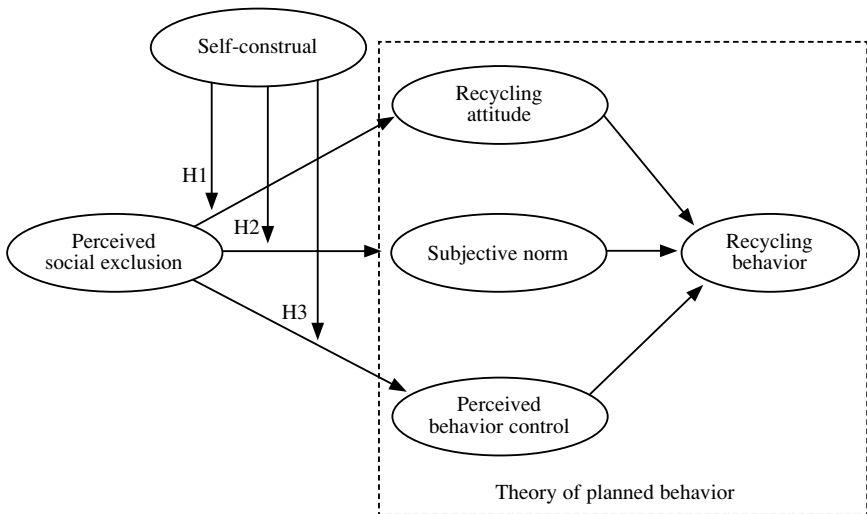


Figure 1. *Extended planned behavior model.*

As only a few researchers (e.g., Park & Baumeister, 2015) have examined the moderating effect of self-construal on perceived social exclusion in a recycling context, we explored the moderating effects of self-construal to explain the inconsistent findings on perceived social exclusion.

Conceptual Framework

We constructed a conceptual framework based on an extension of the theory of planned behavior (Greaves, Zibarras, & Stride, 2013) as is shown in Figure 1. In our conceptual model, perceived social exclusion is an exogenous variable affecting recycling attitudes, subjective norms, and perceived behavior control; self-construal is a moderator in the model.

Research Model and Hypotheses

Effects of Perceived Social Exclusion on Recycling Attitudes

Recycling attitudes refer to people's positive or negative feelings towards recycling; attitude may significantly affect recycling behavior (Greaves et al., 2013). As people with a predominantly independent self-construal often focus on their own needs (Triandis, 1999), they tend to avoid society and reject prosocial behavior (Wang & Wang, 2016). When their perceived social exclusion is at a high level, they will adopt a more negative attitude toward prosocial behavior (Twenge et al., 2001). In addition, they tend to be egoistic in terms of environmental protection and may exhibit an unwillingness to share resources and a tendency toward antisocial behaviors (Arnocky et al., 2007). We, therefore, inferred that when people with an independent self-construal perceive social exclusion, they will exhibit increased reluctance toward recycling. Perceived social exclusion thus has a negative effect on people's recycling attitudes.

In contrast, people with a predominantly interdependent self-construal usually take into account the needs of others and society rather than focusing on their own needs. They show a strong sense of social responsibility (Triandis, 1999). When they perceive social exclusion, they will easily exhibit prosocial behaviors to create closer ties with others and to reduce their sense of exclusion (Mead et al., 2011). For example, they may choose to offer help and donations (Lee & Shrum, 2012) and to participate in recycling activities (Arnocky et al., 2007). Previous researchers have indicated that people with a predominantly interdependent self-construal are more likely to adopt a proactive attitude toward recycling. Hence, perceived social exclusion exerts a positive effect on their recycling attitudes, leading to the following hypothesis:

Hypothesis 1: Regarding recycling attitudes, perceived social exclusion will have a positive effect among people with a predominantly interdependent self-construal, whereas it will have a negative effect among people with a predominantly independent self-construal.

Effects of Perceived Social Exclusion on Subjective Norms

Subjective norms refer to the social pressure a person feels that may influence his or her decision about whether or not to perform a certain action (Greaves et al., 2013). The stronger the subjective norms are, the more likely it is that people will be influenced by their community or society and that they will be willing to observe those social norms of behavior.

People with a predominantly independent self-construal believe that their own needs outweigh social needs (Triandis, 1999) and they may prefer to perform actions that will fulfill their own needs rather than moral or social norms. When perceiving social exclusion, they react conservatively to the outside world and adopt a strong preventative motivation to resist outside influences (Park & Baumeister, 2015). Therefore, for people with a predominantly independent self-construal, social exclusion will exert negative effects on their social behavior.

However, people with a predominantly interdependent self-construal tend to satisfy the needs of society more often than their own (Triandis, 1999). They are inclined to strengthen their connection with society via prosocial behavior (Jugert et al., 2016). Therefore, when perceiving social exclusion, people with a predominantly interdependent self-construal conform to subjective norms in order to maintain close relationships with others. We therefore proposed the following hypothesis:

Hypothesis 2: For people with a predominantly independent self-construal, perceived social exclusion will have a negative effect on subjective norms, whereas for people with a predominantly interdependent self-construal, perceived social exclusion will have a positive effect on subjective norms.

Effects of Perceived Social Exclusion on Perceived Behavior Control

Perceived behavior control reflects people's perception of the difficulty level of achieving a goal (Greaves et al., 2013). As the quantity of resources and opportunities that they believe they have increases, they will expect fewer obstacles and have stronger perceived behavior control.

People with a predominantly independent self-construal will have little interaction with others when perceiving social exclusion. Therefore, their perceived control of social resources will decrease; moreover, they will then find it more difficult to control the external environment under conditions of social exclusion (Lee & Shrum, 2012). In that case, perceived social exclusion is believed to have a negative effect on their perceived behavior control.

For people with a predominantly interdependent self-construal, their ability to acquire resources to better satisfy the demands of society and others will be strengthened (Triandis, 1999). When perceiving social exclusion, they will seek to have social resources under control while reducing social exclusion. From this perspective, we predicted that perceived social exclusion would exert positive effects on perceived behavior control.

Hypothesis 3: For people with a predominantly independent self-construal, perceived social exclusion will have a negative effect on their perceived behavior control, whereas for people with a predominantly interdependent self-construal, perceived social exclusion will have a positive effect on their perceived behavior control.

Method

Participants and Procedure

We conducted a survey to collect data for our study. The survey consisted of four parts. Part 1 contained the survey instructions, and explanations of recycling behaviors and relevant activities, such as recycling of waste paper and metal. Part 2 included an introduction to the measurement of self-construal and perceived social exclusion. In Part 3, the measurement variables related to the planned behavior model were covered. Demographic variables were described in the final part.

The sample was drawn from 13 residential communities in different districts in Beijing, and the survey was conducted with permission from the management department of each community. Aided by the neighborhood watch committee of each residential community, we conducted street-intercept, face-to-face surveys using a paper-based survey. We distributed 650 survey forms, and 606 valid forms were collected. Each participant was given 10RMB (approximately US\$2) as an incentive. Of the valid sample population, people aged between 18 and 30 years accounted for 20%, those aged between 31 and 40 years represented 44.5%, those aged between 41 and 50 years made up 22.8%, and the remaining 12.7% of the sample were over 50 years of age. In regard to gender, 42.2% of participants were men, and the other 57.8% were women. The results showed that 317 participants had a predominantly interdependent self-construal and 289 had a predominantly independent self-construal.

Instruments

All measurement scales were based on those in relevant literature, and these are described in detail in the following paragraphs. All items were measured on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Prior to the survey, a pretest was conducted with 45 participants to ensure content validity. One of our team of researchers first translated the items into Chinese, and then another team member translated them back into English to ensure that the translated versions were equivalent to the original items.

Interdependent self-construal. We used three items to measure interdependent self-construal (Singelis, 1994). The items are “My happiness depends on the happiness of those around me,” “I will sacrifice my self-interest for the benefit

of the group I am in,” and “Even when I strongly disagree with group members, I avoid an argument.”

Independent self-construal. We used two items to measure independent self-construal (Singelis, 1994). The items are “I do my own thing, regardless of what others think,” and “I prefer to be direct and forthright when dealing with people I’ve just met.”

Perceived social exclusion. Our design was derived from a study by Lee and Shrum (2012) on perceived social exclusion measurement, and participants responded to the following items, “I always find my suggestions and opinions neglected by others,” “I am sad or angry because my suggestions are often ignored,” “I always feel that my requests are constantly rejected,” and “I feel sad or angry because my requests are often rejected.”

Recycling behavior. We used three items to measure recycling behavior (Zhang, Zhang, & Yu, 2013). The items are “For the past two weeks, I have recycled household waste correctly,” “For the past two weeks, I have recycled household waste in a planned way,” and “For the past two weeks, I have recycled household waste after sorting it.”

Recycling attitude. We used three items to measure recycling attitudes (Zhang et al., 2013). The items are “Proper recycling is very good,” “Proper recycling is worth praising,” and “Proper recycling is useful.”

Subjective norms. Two items were used to measure subjective norms (Greaves et al., 2013), “Most of my friends think it is right to recycle properly,” and “My family thinks it is right to recycle properly.”

Perceived behavior control. To measure perceived behavior control, we adopted the method used by Zhang et al. (2013) and participants responded to three items, “I have many chances to recycle properly,” “I clearly know where to recycle properly,” and “I clearly know how to recycle properly.”

Methods for Data Analysis

Structural equation modeling was adopted for the data analysis, starting with a factor analysis and test of reliability and validity, followed by a multiple group analysis with AMOS 18.0 and a comparison of differences between the group of people with a predominantly interdependent self-construal and those with a predominantly independent self-construal. We subtracted the two variables to differentiate people with a predominantly interdependent self-construal from people with a predominantly independent self-construal (Singelis, 1994).

Results

Reliability and Validity

The overall analysis revealed that every factor loading was above 0.60; the

Table 1 . Statistics for the Measurement Model

	Factor loading		Cronbach's alpha		AVE	
	Total	Group 1	Group 2	Total	Group 1	Group 2
Social exclusion						
SE1	.78	.71	.83			
SE2	.78	.75	.81	.77	.82	.87
SE3	.70	.74	.74			
SE4	.68	.71	.79			
Independent construal						
IDC1	.68	.68	.69	.70	.71	.70
IDC2	.73	.80	.76			
Interdependent construal						
ITC1	.68	.74	.71			
ITC2	.67	.78	.76	.71	.78	.75
ITC3	.74	.69	.66			
Perceived behavior control						
PBC1	.62	.63	.78			
PBC2	.65	.88	.88	.75	.84	.88
PBC3	.54	.88	.85			
Subjective norm						
SN1	.77	.78	.88	.88	.80	.88
SN2	.74	.85	.89			
Recycling attitude						
RA1	.74	.78	.75			
RA2	.70	.79	.73	.82	.83	.76
RA3	.53	.81	.68			
Recycling behavior						
RB1	.85	.79	.87			
RB2	.83	.84	.84	.91	.84	.88
RB3	.83	.78	.83			

Note. Group 1 = independent construal; Group 2 = interdependent construal; PSE = Perceived Social Exclusion; IDC = Independent Construal; ITC = Interdependent Construal; PBC = Perceived Behavior Control; SN = Subjective Norm; RA = Recycling Attitude; RB = Recycling Behavior.

Table 2. Multiple Group Analysis: Results of the Unrestricted Model

Relationship	Total (independent construal)		Group 1 (independent construal)		Group 2		χ^2	<i>p</i>			
	coef.	SE	coef.	<i>t</i>	coef.	SE			<i>t</i>		
Perceived social exclusion → Recycling attitude	-.13**	0.05	-2.83		-2.25**	0.11	-3.07		2.40	20.19**	.002
Perceived social exclusion → Subjective norm	-.19***	0.06	-3.40		-.19**	0.13	-2.49		2.25	19.45**	.013
Perceived social exclusion → Perceived behavior control	.07	0.08	.98		.03	0.17	.39		.69	2.31	.696
Recycling attitude → Recycling behavior	.22***	0.03	6.74		.35**	0.16	2.85		1.98	13.16**	.015
Subjective norm → Recycling behavior	.19***	0.09	10.79		.04**	0.11	3.21		3.33	16.27**	.009
Perceived behavior control → Recycling behavior	.34***	0.04	8.62		.38***	0.04	6.06		8.35	8.38**	.024
The goodness-of-fit of the measurement model and a multiple group analysis of the model	GFI = .953; AGFI = .923; RMSEA = .058; NFI = .951; CFI = .967; IFI = .967; PNFI = .670; PGFI = .0587; $\chi^2/df = 2.7$		GFI = .934; AGFI = .903; RMSEA = .043; ECVI = .038; NFI = .927; CFI = .959; IFI = .960; TLI = .985; PNFI = .715; PGFI = .631; CN = 328; $\chi^2/df = 2.133$; AIC = 95.321								

Note. RMSEA = root mean square error of approximation, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normed fit index, CFI = comparative fit index, IFI = incremental fit index, PGFI = parsimony goodness-of-fit index, PNFI = Parsimony normed fit index, TLI = Tucker-Lewis index, CN = critical N, ECVI = expected cross-validation index. * *p* < .05, ** *p* < .01, *** *p* < .001.

analysis of variance of each factor was not only greater than 0.50 but also greater than the absolute values of the correlation coefficients of other factors. This meant that both convergent validity and discriminant validity met the requirements (McDonald & Ho, 2002). In addition, each factor had adequate reliability (see Table 1) with a Cronbach's alpha for each above .70. The analysis of discrimination in the sample between the two types of self-construal produced a similar result.

Hypotheses Testing

Based on the analyses of the whole sample and the self-construal subsamples, the statistical test indicators were in line with established requirements (see Table 2), with the numerical value of χ^2/df between 1 and 3; values of normed fit index, comparative fit index, incremental fit index, goodness-of-fit index, and adjusted goodness-of-fit index all greater than .90; root mean square error of approximation at .058, which was less than .08; and numerical values of parsimony goodness-of-fit index and parsimony normed fit index greater than .50 (McDonald & Ho, 2002).

The analysis of the overall model (see Table 2) demonstrated that perceived social exclusion had significant negative effects on people's recycling attitudes and subjective norms, but its effect on perceived behavior control was not significant. Recycling attitudes, along with subjective norms and perceived behavior control, had significant positive effects on people's recycling behavior.

For people with a predominantly independent self-construal, perceived social exclusion exerted a significantly negative effect on their recycling attitudes; for people with a predominantly interdependent self-construal, it produced a significantly positive effect. In addition, there were significant differences in the influence coefficients between these two groups. Therefore, Hypothesis 1 was supported. Furthermore, for people with an independent self-construal, perceived social exclusion had a significantly negative effect on their subjective norms; for people with an interdependent self-construal, however, the effect was significantly positive. With significant differences in the influence coefficients between these two groups of people, Hypothesis 2 was also supported. However, for both people with an independent self-construal and people with an interdependent self-construal, the effect of perceived social exclusion on their perceived behavior control was nonsignificant and the difference between the two path coefficients was nonsignificant; as a result, Hypothesis 3 was not supported.

Table 2 shows the significant differences in the effects of subjective norms, recycling attitudes, and perceived behavior control on recycling behavior between people with a predominantly independent self-construal and people with a predominantly interdependent self-construal. The effects

of recycling attitudes on recycling behavior for people with a predominantly independent self-construal were significantly greater than those for people with a predominantly interdependent self-construal. However, the effects of subjective norms and perceived behavior control on recycling behavior for people with a predominantly independent self-construal were significantly smaller than those for people with a predominantly interdependent self-construal.

Discussion

In the current study, we used self-construal as a moderator to test the effects of perceived social exclusion on recycling behavior. The analysis shows that perceived social exclusion has a significantly negative effect on both recycling attitudes and subjective norms. However, the results are different according to type of self-construal. For people with a predominantly independent self-construal, social exclusion had a negative effect on their recycling attitudes and subjective norms. In contrast, for people with a predominantly interdependent self-construal, perceived social exclusion had a significantly positive effect on both their recycling attitudes and subjective norms.

The results also show that the effects of recycling attitudes, subjective norms, and perceived behavior control on recycling behavior are significantly different for people with a predominantly independent self-construal and for people with a predominantly interdependent self-construal. Recycling attitudes had a significantly greater effect on recycling behavior of people with a predominantly independent self-construal than on recycling behavior of people with a predominantly interdependent self-construal. Because recycling attitudes involve internal perceptions rather than external resources and norms (Greaves et al., 2013), this factor exerts a stronger effect on people with a predominantly independent rather than interdependent self-construal. On the contrary, external resources and norms are more relevant to people with a predominantly interdependent self-construal; therefore, the effects of these factors on recycling behavior were significantly less for people with a predominantly independent self-construal than for people with a predominantly interdependent self-construal. These results indicate that self-construal exerts a moderating effect on the association between perceived social exclusion and recycling behavior.

The results are also different from those in previous studies. Some researchers have suggested that perceived social exclusion has a negative effect on social behavior (see e.g., Twenge et al., 2001; Wang & Wang, 2016), but other researchers have found that perceived social exclusion leads to positive social behavior (see e.g., Knowles, 2014; Mead et al., 2011). Our findings indicate that the negative or positive effects of perceived social exclusion on social behavior are determined by people's self-construal. This result fills a gap in the

literature. People with a predominantly independent self-construal have strong self-help awareness and self-interests, and they seldom concern themselves with societal needs; thus, they display negative social behavior when their perception of being socially excluded is strong. In contrast, people with a predominantly interdependent self-construal have prosocial inclinations and pay more attention to societal needs. They tend to engage in prosocial activities to avoid social exclusion; thus, they exhibit positive social behavior when their perception of social exclusion is strong.

In sum, we sought to account for the inconsistent findings in previous research concerning the effects of perceived social exclusion. We found that self-construal moderated the effects of perceived social exclusion, which can explain why perceived social exclusion has a negative effect on recycling behavior sometimes and a positive effect at other times.

This study has some limitations. First, other factors, including knowledge of recycling and income level of the participants, have not been taken into account. These factors could be further studied in the future. Second, all surveys were completed in a residential community; there are some limitations to this approach because of the source of the sample, and it is necessary to conduct further research using samples from other sources. Third, recycling behavior is only one type of social behavior; whether these results are in line with the effects of other social behaviors should be further tested.

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