

On the Risks of Recycling Because of Guilt: An Examination of the Consequences of Introjection¹

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The present study sought to examine the influence of introjected beliefs on individuals' vulnerability to counterattitudinal arguments. University students' reasons for engaging in proenvironmental behaviors were assessed prior to their reading excerpts from a counterattitudinal article. The excerpts were written by a personally attractive or unattractive author and contained either weak or strong arguments against recycling. Our results show that individuals who were highly introjected about recycling (e.g., "I recycle because I would feel guilty if I didn't") were influenced by the personal attractiveness of the source but not by the strength of the specific arguments. Specifically, a thought-listing procedure revealed that introjection was associated with generating more favorable thoughts and fewer counterarguments about the anti-recycling message when the author was personally attractive than when he was unattractive.

Recycling has become a way of life on most university campuses. Students and faculty are encouraged to recycle their paper, coffee cups, and bottles. Reminders are posted and collection bins are strategically placed to ensure that recycling is made easy. The success of such campus recycling programs depends on students and faculty having internalized the value of behaving in proenvironmental ways. However, the extent to which people have truly internalized this value may become apparent only when the behaviors related to these values are challenged (Green-Demers, Pelletier, & Ménard, 1997).

Based on self-determination theory (Deci & Ryan, 1991, 2000; Ryan, 1993, 1995), the present investigation seeks to examine individual differences in the

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ways that people have come to value proenvironmental behaviors. In particular, we examine whether an introjected form of internalization (operationalized as recycling because "I would feel guilty if I did not") makes people vulnerable to arguments questioning the value of recycling.

A great deal of social development concerns the assimilation of culturally transmitted behavioral regulations that are neither spontaneous nor inherently satisfying (Ryan, 1995). The particular regulations and values that individuals are called upon to internalize vary across development, however. For example, young children are required to internalize relatively concrete regulations regarding conscientious and agreeable behavior (e.g., "Brush your teeth," "Make your bed"), whereas teenagers are called on to internalize more abstract concerns, such as the importance of developing a coherent and personally meaningful set of religious and political beliefs (Marcia, 1980). One value that becomes increasingly salient as individuals approach young adulthood is the need to protect and preserve the environment. The importance of protecting and preserving the environment by supporting recycling programs is actively promoted at most American and Canadian universities. Self-determination theory suggests that even young adults who do not find environmental concerns intrinsically interesting will still be motivated to internalize the cultural value placed on protecting and preserving the environment because of their desire to relate effectively to their social group (Deci, Eghari, Patrick, & Leone, 1994; Deci & Ryan, 2000). That is, the theory posits that people are motivated to internalize the regulation of important activities, even those that are initially perceived as uninteresting.

Internalization is conceptualized as the process of transforming external regulations into internal regulations (Deci & Ryan, 1991). Successful internalization involves the integration of formerly external regulations into one's sense of self, typically in the form of important personal values (Ryan, 1995). However, the internalization process often goes awry, resulting in a value or regulatory process being taken in but not accepted as one's own. *Introjection* is the term used to describe such partial internalization of regulations and beliefs. Introjection is characterized by approval-based pressures that result in behavioral regulation based on guilt/anxiety avoidance and self-esteem maintenance (Ryan, Rigby, & King, 1993).

A recent study showed that introjection was associated with distinctive patterns of thoughts, emotions, and actions regarding political participation (Koestner, Losier, Vallerand, & Carducci, 1996). Canadian voters' reasons for following political events were assessed prior to the 1992 Constitutional referendum and the 1993 federal election. Results show that introjection was associated with relying on the influence of important others, experiencing conflicted emotions about political outcomes, and vulnerability to persuasion.

The results related to persuasion are particularly interesting because they suggest that introjection moderated the persuasive impact of messages. Koestner

et al. (1996) examined the extent to which university students who were preparing to vote in an election would have their attitudes swayed by exposure to the arguments of politicians. Given that introjection represents only a partial internalization of political beliefs, it was hypothesized that voters with more introjected reasons for following the elections might be especially vulnerable to the persuasive messages of politicians. Participants were required to observe two 10-min segments from a debate among the five political leaders. They reported their opinions of the leaders on three issues prior to and following the debate. Only two of the three issues were actually the subjects of the debate segments; the third undiscussed issue was intended to serve as a control. The results show that all participants were somewhat swayed by the arguments of the politicians and thus reported greater approval after watching the issues debated than before. However, it was also found that highly introjected participants were especially likely to be influenced by viewing the debate.

The Koestner et al. (1996) study was not designed to examine whether distinct aspects of the persuasive communication affect the way in which introjected individuals process persuasive information. It is likely that the study actually tapped into a superficial processing of information because the persuasive material was taken from a televised political debate in which there were five candidates who spoke rapidly and who frequently interrupted one another. This frenzied context probably limited participants' ability to process information in a thorough, systematic manner. It may well be that introjection would not relate to information processing in other persuasive contexts, particularly ones that focus on thoughtful, rational analysis of arguments.

The heuristic/systematic model proposed by Chaiken (1980; Eagly & Chaiken, 1993) suggests that there are two processes by which persuasive communications can modify attitudes. *Systematic processing* is a cognitively demanding approach that involves understanding and elaborating the semantic content of persuasive messages. *Heuristic processing* is a less demanding approach that does not depend on careful scrutiny of persuasive arguments. That is, simple decision rules, such as "Likable people can be trusted," are used to judge the validity of messages (Eagly, 1992). Different cues in a persuasive situation are relied upon depending on whether an individual engages in systematic or heuristic processing (Chaiken, 1980). Message cues such as the strength and logic of arguments are important for someone taking the systematic approach, whereas noncontent cues that can potentially provide information about the message exert more influence on someone taking the heuristic approach. In particular, attributes of the source of the communication (e.g., their attractiveness, likability, credibility) figure more prominently in evaluating the message (Eagly, 1992).

In an early experimental test of the heuristic/systematic model, Chaiken (1980) presented low- versus high-involved participants persuasive messages from either a likable or an unlikable communicator who presented either two or

six arguments. Results show that low-involved participants showed significantly greater attitude change in response to the likable than the unlikable communicator, but were unaffected by the number of arguments. In addition to direct attitude change, the vulnerability of low-involved participants to the communication of a likable communicator was evident on a measure of the number of favorable versus unfavorable thoughts about the message. The attitude change of highly involved participants was influenced by the number of arguments presented but not by the likability of the communicator. Chaiken (1980) concluded that a low level of issue involvement represents a motivational factor that predisposes individuals toward heuristic processing of information, using relatively general rules developed through past experience rather than engaging in a systematic, detailed analysis of the arguments.

The present study is intended to examine the influence of introjected beliefs related to recycling on individuals' vulnerability to arguments questioning the value of recycling. It is modeled after Chaiken's (1980) study in that we varied characteristics of both the source and the content of persuasive messages. We theorized that introjected recyclers would be highly involved in issues of protecting the environment, but in a superficial, inauthentic manner. That is, although introjection can lead individuals to espouse a strong concern for recycling, the value of recycling does not become a truly integrated aspect of the self. Therefore, we expect that introjected recyclers will behave much like low-involved individuals in previous studies of heuristic versus systematic processing. That is, we expect that highly introjected individuals will rely on heuristic rather than systematic processing when confronted with a counterattitudinal message. Specifically, we expect that an analysis of the thoughts that highly introjected individuals have while reading the messages will reveal that they have made greater use of noncontent cues related to the personal attractiveness of the author of the message, rather than content-related information based on the strength of arguments.

To examine this question, university students' internalization styles toward recycling and other proenvironmental behaviors were assessed with the Motivation Toward the Environment Scale (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998). Participants were then presented with persuasive messages arguing against recycling. These messages differed in the personal attractiveness of the source and in the strength of their arguments. Personal attractiveness was manipulated by varying the source's physical attractiveness and place of work (environmental organization vs. petroleum company). Strength of argument was manipulated by varying the percentage of strong and weak arguments (7 of 9 vs. 2 of 9). Message processing was assessed by coding the number of favorable thoughts and unfavorable thoughts that participants reported while reviewing the counterattitudinal messages. In sum, the design allowed us to test whether introjection moderates reliance on heuristic versus systematic processing in the face of counterattitudinal arguments.

The extent to which participants currently engaged in recycling behaviors was also assessed to rule out alternative interpretations of the results. Previous research suggests that attitudes formed by direct experience are more resistant to a counterattitudinal appeal than are those formed by indirect experience (Wu & Shaffer, 1987). There is also evidence that individuals are most sensitive to the quality of a persuasive message when the issues discussed have relevance to their everyday personal lives (Leippe & Elkin, 1987). It was therefore important to show that introjection made people vulnerable to persuasion, despite their high levels of direct experience and issue involvement with recycling.³

We expected to replicate Chaiken (1979, 1980) by showing that personal attractiveness of a source would directly impact people's opinions. That is, individuals are generally expected to have more favorable thoughts about a communication made by a personally attractive source rather than an unattractive one. More importantly, we hypothesize that highly introjected individuals will be especially likely to be influenced by the personal attractiveness of the messenger, rather than by the strength of the arguments presented. Such a pattern of results would be interpreted as reflecting a linkage between introjection and heuristic, rather than systematic processing of information.

Method

Participants

Participants in a study concerning "attitudes toward the environment" were 116 undergraduate students. An advertisement was placed in a university newspaper, and individuals who called to participate were scheduled for a 1-hr laboratory visit. They were told that their participation would involve answering questionnaires and reading a short text. Testing was done with groups of 2 to 6 participants, all of whom were seated in a way that ensured the confidentiality of their responses. Participants were predominantly female (28 males, 88 females) between the ages of 17 and 37 years, with a mean age of 21 years.

Procedure

Upon their arrival at the laboratory, participants were greeted by two female experimenters who reminded participants that the purpose of the study was to

³Two other personality scales that have been shown to moderate the impact of persuasive messages were also included. The first 63 participants completed the Need for Cognition Scale (Petty & Cacioppo, 1986), which measures individuals' tendency to engage in issue-relevant thinking after exposure to persuasive messages. The other 53 participants completed the Need for Closure Scale (Kruglanski & Webster, 1996), which measures individuals' desire for definite knowledge on some issue. Correlational analyses indicated that neither the need for cognition or the need for closure was related to introjection with regard to environmental behavior ($ps > .20$).

assess individuals' attitudes toward the environment. After they completed the Motivation Toward the Environment Scales (MTES; Pelletier et al., 1998), the group of participants was randomly assigned to one of four experimental conditions. They were told to read over excerpts from an article twice, a first time in order to "get the gist of it" and then once again more carefully. Participants were then asked to complete a second set of questionnaires, starting with thought listing and then the attitude questions. All questionnaires and excerpts were presented on paper booklets that were assembled by the experimenters.

Individual-Difference Measures

Internalization scale. Prior to reading the excerpts, participants completed the MTES (Pelletier et al., 1998), which determines participants' motivational styles (intrinsic motivation, integrated, identified, introjected, external regulation, or amotivation) when they engage in environmentally friendly activities. Introjection was assessed with four items. On a 7-point Likert-type scale ranging from 1 (*does not correspond at all*) to 7 (*corresponds exactly*), participants rated the degree to which the proposed reasons described in the scale correspond to their reasons for engaging in environmentally friendly behaviors. For example, introjected responses are "Because I would feel guilty if I didn't" and "Because I would feel bad if I didn't do anything." In the present study, participants' scores on introjection ranged from 1.75 to 7.00, with a mean of 4.66 and a standard deviation of 1.25. The reliability and validity of the MTES have been shown to be satisfactory (Pelletier et al., 1998). In the present study, the introjection scale yielded an internal reliability (Cronbach's alpha) of .86.

Recycling behavior questionnaire. A 17-item survey assessed the frequency with which participants engaged in recycling and other proenvironmental behaviors. For example, participants were asked to indicate the frequency with which they returned deposit bottles and reused plastic containers. Responses were made on a 7-point Likert-type scale ranging from 1 (*not very often*) to 7 (*very often*). Participants' scores on this questionnaire ranged from 2.35 to 6.24, with a mean of 4.66 and a standard deviation of 0.85. The recycling behavior questionnaire displayed adequate internal reliability ($\alpha = .87$).

Experimental Manipulations

Each participant was presented with one booklet containing nine excerpts taken mostly from an anti-recycling article published in the *New York Times Sunday Magazine* on April 6, 1996. Before the presentation of the excerpts, a "title page" containing a photograph of recycled newspapers, bottles, cans, and jars, along with the title of the article, the publication source, and the author's name was presented. On the second page appeared the author's name, a photograph of

the author, the title of the article, and the publication source ("Recycling programs and the battle to save the environment," by John Tierney from the *New York Times*). The next two pages contained the transcribed excerpts. The booklets given to the participants differed in two ways: the personal attractiveness of the author of those excerpts (personally attractive vs. personally unattractive), and the quality of the arguments in the excerpts presented (predominantly weak vs. predominantly strong).

Personal attractiveness of the source. The first manipulation involved personal attractiveness. The personally attractive condition showed a photograph of a physically attractive man, whose occupation was listed as "Director of Greenpeace, Northeastern Canada division." For the unattractive condition, a photograph was provided of a relatively physically unattractive man, whose job was listed as "Director of the Petroleum Products Corporation." Pretesting indicated that the personally attractive man was rated as significantly more personally attractive, likable, and worth getting to know than was the personally unattractive man by a sample of 20 university students, $t(18) = 4.54, p < .0001$ (combined $M_s = 4.53$ and 2.86 on a 7-point scale ranging from 1 to 7). As mentioned previously, a communicator's characteristics (e.g., physical attractiveness, place of employment, credibility) are all heuristic cues in attitude formation. Physical attractiveness and place of employment were combined in order to create a powerful cue in this persuasive context.

Strength of arguments. The second manipulation involved the strength of the arguments contained in the excerpts that participants read. The excerpts contained in each booklet were pilot tested with a group of graduate students in order to determine the perceived strength of the arguments. An example of a strong argument against recycling is "Recycling is not cost efficient and forces communities into debt." An example of a weak argument is "People are sick and tired of sorting through their garbage." For the strong-argument condition, booklets contained seven strong arguments against recycling and two weak arguments. For the weak-argument condition, booklets contained seven weak arguments against recycling and two strong arguments. The strong arguments were taken directly from the *New York Times* article, whereas the authors constructed the weak arguments.

Pretesting was used to confirm that the strong arguments were rated as significantly stronger than the weak arguments. Specifically, each argument was evaluated on five adjectives by 12 raters. The adjectives were *powerful*, *strong*, *convincing*, *effective*, and *persuasive*. Ratings were made on 7-point Likert scales ranging from 1 (*not at all*) to (*extremely*). Ratings across the five dimensions were combined. A paired t test revealed that the strong arguments were judged to be significantly more powerful (combined $M = 5.1$) than the weak arguments (combined $M = 3.21$), $t(10) = 4.02, p < .01$.

Thus, there were four different booklets: One booklet contained predominantly strong arguments written by a personally attractive author; the second

booklet contained predominantly strong arguments written by an unattractive author; the third booklet contained predominantly weak arguments written by an attractive author; and the fourth booklet contained predominantly weak arguments written by an unattractive author. Participants were randomly assigned to read one type of booklet, thus forming four experimental groups.

Dependent Measures

Thought listing. After reading the excerpts, participants were presented with a thought-listing measure modeled after the procedure used by Petty & Cacioppo (1986). Participants were asked to write down all of the thoughts they recalled thinking while reading the excerpts. Specifically, the following instructions were given:

We are interested in what you were thinking about while you were reading the excerpts. You might have held completely similar views, completely contradictory views, or a combination of the two. Any case is fine; simply list what it was that you were thinking during the last few minutes. Below is the form we have prepared for you to record your thoughts and ideas. Simply write down the first idea that comes to mind in the first box, the second idea in the second box, etc. . . . You should try to record only those ideas that you were thinking in the last few minutes. Please state your thoughts and ideas as concisely as possible—a phrase is sufficient. Ignore spelling, grammar, and punctuation. You will have three minutes to write your thoughts. (8 boxes were provided)

Two judges, blind to experimental group and internalization style, coded the thoughts into *favorable*, *unfavorable*, and *irrelevant* categories. Interrater reliability was excellent for both the favorable ($\alpha = .90$) and unfavorable categories ($\alpha = .89$). Reliability was lower for the irrelevant category ($\alpha = .68$). The number of favorable thoughts ranged from 0 to 7 ($M = 2.37$, $SD = 1.85$). The number of unfavorable thoughts ranged from 0 to 7 ($M = 2.68$, $SD = 1.79$). The number of irrelevant thoughts ranged from 0 to 5 ($M = 1.06$, $SD = 1.17$).

Results

The present study was designed to examine the influence of introjection on the way in which individuals process messages that question the value of recycling to help the environment. Cues were varied so as to elicit either heuristic (personally attractive vs. personally unattractive source) or systematic processing strategies (weak vs. strong arguments). Information processing was assessed by

coding thoughts reported while reviewing arguments. Current recycling behavior was assessed for use as a covariate. We hypothesized a significant two-way interaction for introjection with personal attractiveness of the source.

Preliminary Analyses

Introjection was significantly positively related to level of recycling behavior ($r = .27, p < .01$). Favorable and unfavorable thoughts about the message were significantly negatively related ($r = -.56, p < .001$). Irrelevant thoughts were significantly negatively related to unfavorable thoughts ($r = -.23, p < .01$), but unrelated to favorable thoughts ($r = -.13, ns$).

Central Analyses

To test our hypotheses, three hierarchical multiple regression analyses were performed with favorable thoughts, unfavorable thoughts, and irrelevant thoughts as dependent variables. Regressions were preferred over ANOVAs for significance testing because they treat level of introjection as a continuous rather than categorical variable. Preliminary regression analyses revealed no main effects or interactions related to participants' gender, so this variable was not included in the analyses described here. Level of recycling activity, level of introjection, strength of arguments, and personal attractiveness of the source were entered as a first set of predictors. Two-way interactions among introjection, strength of arguments, and personal attractiveness were created using product terms and entered together as a second set of predictors. (Three-way interactions were also tested but are not reported because none were significant.)

Favorable thoughts about the anti-recycling message. The regression for favorable thoughts was significant, $F(7, 108) = 3.23, p < .01$ (multiple $R = .42$). A significant main effect was obtained for level of recycling activity ($\beta = -.24$), $t(114) = -2.50, p = .01$, reflecting the fact that participants who were more active in recycling in their everyday lives had significantly fewer favorable thoughts regarding the anti-recycling communication. A significant main effect also emerged for the personal attractiveness of the source ($\beta = .20$), $t(113) = 2.18, p < .05$. Participants reported a significantly greater number of favorable thoughts about the anti-recycling message when the source of the message was personally attractive ($M = 2.67, SD = 1.76$) rather than unattractive ($M = 2.06, SD = 1.67$). No other main effects approached significance ($ps > .10$). However, the regression also revealed the predicted interaction between introjection and personal attractiveness ($\beta = .28$), $t(108) = 3.16, p < .01$.

To interpret this interaction, a median split was performed on the level of introjection for the sample ($Mdn = 5.00$). Figure 1 presents the mean number of favorable thoughts for low versus high introjected participants in the unattractive

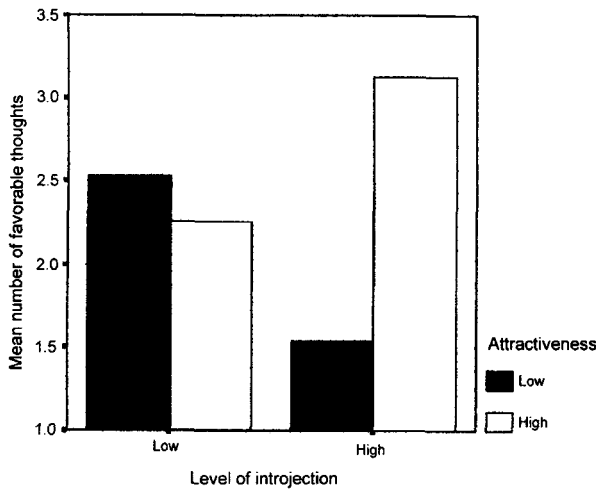


Figure 1. Mean number of favorable thoughts by level of introjection and personal attractiveness of the source.

versus attractive source conditions. It can be seen that for those low in introjection, the level of attractiveness of the source made little difference in the number of favorable thoughts they generated (unattractive $M = 2.53$; attractive $M = 2.26$). By contrast, highly introjected participants generated twice as many favorable thoughts about the anti-recycling message when the author was personally attractive rather than unattractive (unattractive $M = 1.53$; attractive $M = 3.12$).

Unfavorable thoughts about the anti-recycling message. The regression for unfavorable thoughts was significant, $F(7, 108) = 4.20, p < .001$ (multiple $R = .46$). A significant main effect was obtained for level of recycling activity ($\beta = .27$), $t(114) = 2.86, p = .01$, reflecting the fact that participants who were more active in recycling in their everyday lives had significantly more unfavorable thoughts regarding the anti-recycling communication. No other main effects approached significance ($ps > .10$). However, the regression also revealed the predicted interaction between introjection and personal attractiveness ($\beta = -.26$), $t(108) = -3.04, p < .01$.

Figure 2 presents the mean number of unfavorable thoughts for low versus high introjected participants in the unattractive versus attractive source conditions. It can be seen that participants low in introjection tended to have more unfavorable thoughts in response to the personally attractive ($M = 2.69$) than the personally unattractive source ($M = 2.16$). By contrast, highly introjected participants reported fewer unfavorable thoughts in response to the personally attractive source ($M = 2.60$) than the personally unattractive source ($M = 3.30$).

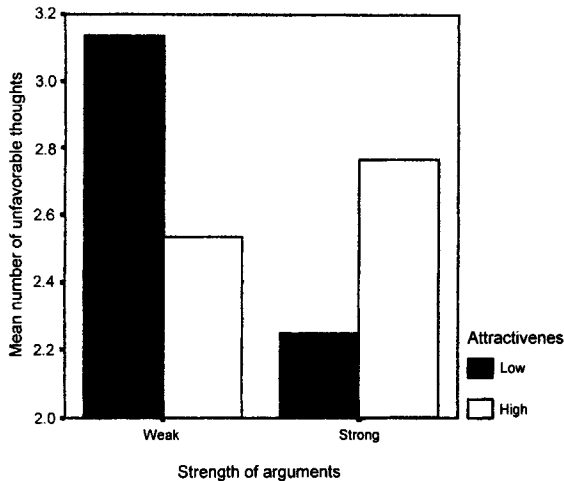


Figure 2. Mean number of unfavorable thoughts by level of introjection and personal attractiveness of the source.

The regression for unfavorable thoughts also revealed an interaction effect between strength of arguments and the personal attractiveness of the source. It can be seen in Figure 3 that participants generated the greatest number of unfavorable thoughts in response to weak arguments made by a personally unattractive author.

Irrelevant thoughts about the anti-recycling message. The regression for irrelevant thoughts was not significant, $F(7, 108) = 1.31$ (multiple $R = .28$). No main effects or interactions approached significance.

Discussion

The present study examined whether introjection would influence the way individuals respond to a message that challenges the value of recycling. A persuasive situation was created in which college students were exposed to counterattitudinal arguments that varied in their strength and in the personal attractiveness of the author. We expected that introjection would moderate the influence of the personal attractiveness of the messenger, reflecting a tendency toward heuristic processing of information, but exert no influence on the impact of weak versus strong arguments.

The results reveal that an attractive source influenced students' cognitive response to the counterattitudinal message. Thus, individuals reported significantly more favorable thoughts about the anti-recycling messages when they were attributed to a personally attractive source rather than an unattractive one. The results also show the expected moderating effect of introjection on the

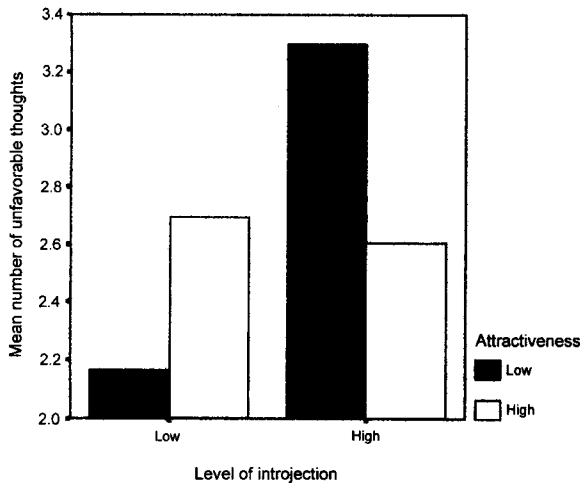


Figure 3. Mean number of unfavorable thoughts by strength of arguments and personal attractiveness of the source.

impact of source attractiveness. Thus, the personal attractiveness of the source was found to significantly influence the number of favorable and unfavorable thoughts that highly introjected individuals reported regarding the anti-recycling arguments they read. That is, highly introjected students reported more favorable thoughts and fewer unfavorable thoughts when the article was attributed to a personally attractive rather than unattractive author, whereas students low in introjection showed little difference in their response to an attractive versus unattractive author.

It is important to note that introjection was strongly positively related to the extent to which participants reported engaging in recycling and other proenvironmental behaviors in their everyday lives. Moreover, the effects observed for introjection were obtained after controlling for participants' level of environmental behavior. It was important to ensure that whatever effects emerged for introjection were not a result of differential amounts of direct experience or issue involvement with recycling. The distinction between low and high levels of introjection does not simply reflect whether or not a person cares about and participates in proenvironmental activities. Rather, it is a distinction that captures the extent to which people have learned to care about the environment in a pressured manner that involves self-regulation through guilt.⁴

⁴A six-item measure of attitudes toward recycling was also included in this study. Introjection was significantly positively related to having more positive attitudes ($r = .20, p < .01$). The results for the thought-listing measures were unchanged when participants' attitudes were controlled for in the regressions.

What are the possible long-term consequences of relying on heuristic processing when processing environmental information? Chaiken (1980) points to the economic advantages associated with the minimal exertion of cognitive effort that is required for heuristic processing. However, she cautioned that it might be a less reliable method for judging the validity of communications about the environment. In the long run, an overreliance on simple decision rules can lead people to accept messages that they would have rejected otherwise if they had invested the time and effort to scrutinize the message.⁵

Limitations

The present study suffers from two main limitations. First, the manipulation of the personal attractiveness of the source was built by varying both physical attractiveness and place of work (which was thought to affect credibility). Although the ingredients in this compilation reflect source characteristics and thus constitute the type of noncontent cues that would be expected to relate to heuristic processing, it is impossible to determine exactly which specific ingredient accounted for the experimental effects. A more elegant design would have independently varied physical attractiveness and source credibility.

Second, the present study did not directly assess change in participants' attitudes about recycling. Instead, cognitive responses were sampled on the assumption that people's attitudes are a function of the cognitions they generate about the objects of their attitudes. Messages that evoke predominantly favorable rather than unfavorable thoughts can be viewed as having been persuasive (Eagly, 1992). A design in which we pretested participants' attitudes toward recycling would have allowed us to confirm the linkage between cognitive responses and attitude change.

Implications and Future Directions

Recycling has become a valued behavior for many young adults. However, it remains to be seen whether commitment to recycling and acting to preserve the environment can be sustained throughout the lifespan. Researchers have found that attitude formation through heuristic processing is associated with less persis-

⁵It is important to note that introjection is very different from amotivation. The EMS also assesses *amotivation*, which reflects a lack of interest in or a feeling of helplessness about recycling issues. Amotivation was unrelated to introjection ($r = -.11, ns$). Unlike introjection, amotivation was significantly related to having negative attitudes toward recycling ($r = -.40, p < .001$) and engaging in fewer recycling activities ($r = -.47, p < .001$). When confronted with the anti-recycling arguments, individuals high in amotivation reported having significantly more favorable thoughts ($r = .25, p < .01$) and fewer unfavorable thoughts ($r = -.32, p < .01$) about the messages. Amotivation did not interact with either personal attractiveness or strength of arguments to influence information processing.

tence of these attitudes and related behaviors than attitude formation through the systematic route (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). This implies that introjection will be associated with greater instability of attitudes and lower levels of attitude-behavior consistency. Indeed, recent research in the political domain has linked introjection with greater instability of attitudes (Losier, Perreault, Koestner, & Vallerand, 2001). Furthermore, previous research using a general personality measure related to introjection has revealed a relation to inconsistency between attitudes and behaviors (Koestner & Zuckerman, 1994; Koestner, Bernieri, & Zuckerman, 1992). Finally, studies that induce introjection by means of ego-involving instructions have also uncovered a tendency toward inconsistency between attitudes and behavior (Joussemet, Koestner, Lekes, & Houliort, 2000; Ryan, Koestner, & Deci, 1992). Together, these studies provide compelling evidence of the fragility of attitudes and behaviors that are based in introjected self-regulation.

To engage in a lifetime of environmentally friendly activities, it is important that individuals develop a motivational style based on true integration, rather than introjection. Recyclers must feel that they are doing it because it is personally important and related to their values, not because they feel guilty. Integration develops when parents, teachers, and mentors are autonomy-supportive with their children or students (Deci et al., 1994; Grolnick & Ryan, 1987, 1989; Joussemet et al., 2000). Being autonomy-supportive entails taking the other person's perspective when asking them to perform a certain behavior, and it also entails giving them the freedom of choice on how this behavior should be done. This atmosphere of autonomy and choice encourages children and students to develop integrated values. However, if parents, teachers, and mentors act in controlling and coercive ways, students may develop an introjected rather than integrated form of self-regulation (Deci & Flaste, 1995). The present study suggests that individuals who merely introject a value are unable to resist a challenge to their beliefs when a highly attractive messenger makes it.

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