

When environmental messages should be assertive: examining the moderating role of effort investment

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The research reported in this article examined whether environmental advertisers who use assertive language can expect to have varying persuasive impacts depending on how much effort message recipients invest in completing environmentally friendly requests. The findings indicate that assertive messages cause individuals to show more favorable attitudes and behavioral intentions toward recycling when they invest significant effort in following the requests. In contrast, nonassertive messages are more effective for individuals who invest little effort. Furthermore, perceived issue importance mediates the interaction between message assertiveness and effort investment for predicting attitudes toward recycling, and in turn enhances intentions to recycle.

Keywords: environmental advertising persuasion; message assertiveness; effort investment; perceived issue importance

Public concern about environmental issues has substantially increased over the past decade (e.g., Carlson, Grove, and Kangun 1993; Chan 2000; Gillroy and Shapiro 1986; Newman et al. 2012). Although most people consider themselves to be indigenous environmentalists and express support for environmental protection, their environmental concerns do not always prompt sustainable behaviors, such as recycling, energy conservation, and waste reduction (Baca-Motes et al. 2013; Davis 1995; Kollmuss and Agyeman 2002). Many cities worldwide promote recycling programs, but people often fail to comply (Schultz, Oskamp, and Mainieri 1995; White, MacDonnell, and Berscheid 2011). In 2012, for example, approximately 76% of US consumers discard most recyclable materials after using them only once (Environmental Protection Agency 2014).

Considerable effort has gone into developing and implementing green campaigns to persuade people to be environmentally responsible (e.g., Chang 2012; Hartmann and Apaolaza-Ibáñez 2009; White and Simpson 2013). Persuasive campaigns often use assertive language, which is known to convey a single meaning that can open the advocated view to critical scrutiny (O'Keefe 1997) and leave little doubt as to the intentions (Miller et al. 2007). In particular, assertive slogans and messages have frequently been used to promote environmental issues, such as the Ad Council's 'Only You Can Prevent Forest Fires,' Greenpeace's 'Stop the Catastrophe,' and Denver Water's campaign 'Use Only What You Need' (Kronrod, Grinstein, and Wathieu 2012a).

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Ironically, scholarly evidence has suggested that assertively phrased messages typically generate lower compliance. A wide range of domains have documented that assertive language has boomerang effects, including physical exercise (Quick and Considine 2008), safe sex (Quick and Stephenson 2007), flossing/alcohol consumption (Dillard and Shen 2005), and personal requests (Wilson and Kunkel 2000). Requests that are too assertive and too explicit can cause people to fear that such obtrusive commands threaten their freedom, and react with anger and rejection of the advocacy (Brehm and Brehm 1981; O'Keefe 1997).

The current research attempts to reconcile this contradiction between environmental practices and findings from scholarly research regarding compliance with assertive language. In particular, we highlight the role of effort investment, which may cause individuals to be more intensely motivated to conform to green requests. Given that people can be highly motivated by their own efforts toward desired outcomes, they are likely to value outcomes more when they are required to invest more effort (Kim and Labroo 2011). Therefore, the primary purpose of this study is to investigate whether the effect of assertive language depends on how much effort recipients must invest in complying with the advocated behavior. Specifically, this study demonstrates that assertive language persuasively promotes pro-environmental behaviors, depending on whether people invest more or less effort in adopting initial green requests.

The current investigation makes several contributions to the literature on green advertising and sustainable consumer behavior. First, we integrate conceptual perspectives from two streams of thought – language expectancy theory and effort justification hypothesis – to understand when and why more or less assertive language might exert persuasive effects on attitudinal and behavioral compliance with environmental advertising. Second, we go beyond past research that focus on the boomerang effect of assertive language (e.g., Brehm and Brehm 1981; Dillard and Shen 2005; Quick and Considine 2008; Quick and Stephenson 2007; Wilson and Kunkel 2000; Yoon, Choi, and Song 2011) and provide a more optimistic view that compliance-seeking strategies using assertive language may actually promote green behaviors. In particular, we identify effort investment as a factor that boosts the effectiveness of assertive advertising. Finally, the current work is the first, we believe, to identify a key mediator – perceived issue importance – and to explain how the two factors – message assertiveness and effort investment – interactively shape receptivity to eco-friendly messages. In doing that, we combine two lines of evidence from previous research – moderation and mediation – and offer a unified, more comprehensive understanding of the underlying mechanism. In the next section, we provide the first line of evidence: the argument that perceived issue importance moderates the persuasiveness of assertive language (Kronrod, Grinstein, and Wathieu 2012a). For the second line of evidence, we discuss the communication literature arguing that perceived importance, also called 'involvement' (Mitchell 1979; see also Batra and Ray 1983) can significantly mediate persuasion communication and consumer behavior. We use the mediated moderation approach to conceptually distinguish between effort and issue importance and empirically test how issue importance mediates the assertiveness–effort moderation on pro-environmental attitudes and behavioral intentions.

Consequently, the current research sheds new light on the prediction that perceived issue importance, when integrated into a unifying framework of language expectancy theory and effort justification hypothesis, can account for how assertive messages and effort investment jointly form eco-friendly attitude and behavioral intention.

Literature review and hypotheses

Overview of environmental advertising

Natural resource depletion and environmental pollution are seriously threatening humanity. Accordingly, government agencies, nonprofit organizations, advertisers, and consumers worldwide are giving significant attention to environmental sustainability. A wide variety of public policies are geared toward environmental protection: direct regulations such as disposal bans and percentage recycling requirements, market incentives such as advanced disposal fee/rebates and emission tax credits, and education efforts such as media-based interventions and outreach resources for students and educators (Cochran et al. 2007). At the consumer-action level, pro-environmental advertising campaigns often strive to increase public awareness of recycling benefits and to persuade citizens to participate in municipal recycling programs. To communicate their goals effectively, organizations use mass media marketing campaigns such as public service announcements and behavioral promotions such as asking consumers to make pledges. Particularly relevant to our study, the US Environmental Protection Agency website highlights recycling for sustainability (Trudel and Argo 2013). The agency additionally uses television, radio, and print materials to broadcast a series of PSAs designed to inform and persuade consumers to adopt recycling behaviors.

For decades, researchers investigating environmental advertising strategies have found that message features have different persuasive effects, depending on whether environmental advertisers use gain versus loss framing (Davis 1995; Lord 1994; White, MacDonnell, and Dahl 2011), injunctive versus descriptive appeal (Cialdini 2003; White and Simpson 2013), promotion versus prevention messages (Newman et al. 2012), or substantive versus associative claims (Carlson et al. 1996). Clearly, both practitioners and scholars recognize the importance of advertising linguistics. Although pro-environmental advertising campaigns frequently use assertively phrased messages, researchers have paid relatively less attention to when and how assertive messages effectively promote environmentally friendly behaviors (see Kronrod, Grinstein, and Wathieu 2012a for an exception). In this paper, we aim to fill the gap in the persuasion literature. Specifically, we provide data to test diverse theoretical perspectives and reconcile seemingly paradoxical findings from previous research.

Compliance with assertive language

Assertive language that uses imperatives rather than propositions or indirect suggestions explicitly pressures individuals to conform to commands or orders (Miller et al. 2007). Examples of assertively phrased ads and slogans include Nike's 'Just Do It,' Sprite's 'Obey your thirst,' and Wendy's 'Do what tastes right' (Kronrod, Grinstein, and Wathieu 2012b). Highly assertive, directive messages could be viewed as controlling, and might contribute to a sense of helpless dependence rather than confident independence (Lanceley 1985).

Much literature has examined the effects of message assertiveness on compliance-seeking requests. Compelling evidence shows that when assertive messages are used frequently, consumers are less likely to comply (e.g., Bensley and Wu 1991; Dillard and Shen 2005; Quick and Considine 2008; Quick and Stephenson 2007; Wilson and Kunkel 2000). Since assertive messages clearly and directly tell individuals what to do, the messages tend to be perceived as a threat to freedom and to trigger reactance. Psychological

reactance produces a boomerang effect and actually causes recipients to behave in opposite ways from the behaviors endorsed by the persuasive communication (O’Keefe 1997; Yoon, Choi, and Song 2011). To illustrate, Dillard and Shen (2005) investigated how a perceived threat to freedom, prompted by assertive language, influenced the effectiveness of health messages advocating flossing and responsible drinking. Their study demonstrated that reactance, comprising anger and negative cognitions, mediates the interactive effects of the perceived threat to freedom and reactance traits on attitudes toward the message and behavioral intentions. Similarly, controlling language has been shown to be perceived as a greater threat to freedom, generating greater levels of anger and more negative evaluations of message fairness (Miller et al. 2007).

Although the extant literature has provided empirical evidence that assertive language yields lower compliance with the advocated behavior, some boundary conditions have been identified for the impact of assertive language. Namely, past work has revealed that language assertiveness – defined as the quality of language that indicates the direction and degree of distance from neutrality (Bowers 1963) – can enhance compliance in some cases. For example, assertive language was found highly effective in motivating sun-safety behavior among those who already intended to engage in such behavior, but facilitated a reactant response from those not intending to practice sun safety (Buller, Borland, and Burgoon 1998).

Language expectancy theory provides the basis for explaining how language intensity and expectations interact to enhance or inhibit persuasion effects (Burgoon 1995; Burgoon, Denning, and Roberts 2002). Central to this theory is that language is ‘rule-governed,’ based on macro-sociological expectations and preferences involving the persuasive message strategies used. Cultural and sociological norms influence expectations; cultural values and societal standards influence preferences (Burgoon, Denning, and Roberts 2002). Linguistic diversity variables reflect expectancy effects such as source credibility and fear arousal. The pretreatment message can determine whether a persuasive message confirms or disconfirms the receiver’s expectations and can thus influence the tendency to comply (Burgoon, Denning, and Roberts 2002).

In a related vein, a stream of research examined how assertive messages interact with perceived issue importance in determining environmental compliance. Assertive messages were found to be more persuasive than nonassertive messages when the recipients perceived the environmental issue to be important. In contrast, if they perceived the issue to be unimportant, they were less likely to comply with an assertive green request. Kronrod, Grinstein, and Wathieu (2012a) concluded that higher compliance occurs when the message is congruent with the recipient’s perception of the issue’s importance. Most recently, in a study of expectations involving hedonic consumption, Kronrod, Grinstein, and Wathieu (2012b) found that messages can have different effects depending on whether recipients felt that the request phrasing and the communication seemed to fit together: assertive language resulted in greater compliance than nonassertive language when the mood and communication expectations complied with the message assertiveness.

Kronrod, Grinstein, and Wathieu (2012a, 2012b) provide insights into how message recipients’ dispositional (i.e., issue importance) and situational (i.e., hedonic consumption) variables interact for making message assertiveness effective. But whether and how effort investment changes the dynamics of message assertiveness is still unclear and provides the key variable of our work here. People are motivated to invest greater resources and effort to achieve the goal (Locke and Latham 2002; Zhang et al. 2011) because well-justified effort can enhance the value of an expected outcome (Kim and Labroo 2011).

The expectancy-value theory of motivation explains that expectancy – the belief that ‘effort’ will attain the outcomes or rewards (Locke and Latham 2002) – plays a critical role in influencing subsequent attitude formation (Fishbein and Ajzen 1975; Yoon and Vargas 2010).

In this study, we propose that the initial effort the consumer invested before being exposed to the environmentally friendly request can moderate the persuasiveness of message assertiveness, altering communication expectations. Our study builds on prior work elucidating that the effort invested in attaining the desirable goal or outcome is associated with its expectations (e.g., Kim and Labroo 2011; Taylor and Brown 1988; Van Dijk, van der Pligt, and Zeelenberg 1999) and that the amount of effort that consumers invest in acquiring a product and their expectations exert a profound impact on consumer satisfaction (Cardozo 1965).

The moderating role of effort investment

Effort investment can be broadly conceptualized as how well people are motivated to expend time, energy, and resources to attain the value of the recommended behavior (Zhang et al. 2011). Similarly, the construct identifies the inconvenience or difficulty people experience when they invest effort in pursuing goals (Kim and Labroo 2011).

A substantial body of research has acknowledged the importance of effort investment in determining motivation changes (e.g., Kivetz, Ueminsky, and Zheng 2006; Kruger et al. 2004; Zhang et al. 2011). Effort typically is a positive cue relating to motivation (Kim and Labroo 2011): people try harder because they believe their efforts will be fruitful. In an environmental context, for example, when people collect and sort recyclable materials diligently, they justify their diligence by believing they are enhancing pro-environmental outcomes and contributing to the collective well-being. In contrast, more invested effort might intensify disappointment if desirable outcomes fail to match expectations because people will feel that their efforts have been a waste of time or money (Bell 1985; Van Dijk, van der Pligt, and Zeelenberg 1999).

In a related vein, the effort justification hypothesis (Kruger et al. 2004; Rosenfeld, Giacalone, and Tedeschi 1984) has suggested that people tend to favor choices made with effort over those made without effort. Note that the effort justification hypothesis stems from cognitive dissonance theory (Festinger 1957), which postulates that individuals feel discomfort, called *cognitive dissonance*, when they behave inconsistently with their attitudes. One way to reduce cognitive dissonance is to justify the effort required to perform the behavior (Rosenfeld, Giacalone, and Tedeschi 1984). For instance, those who believe that recycling benefits the environment but still neglect to recycle may experience cognitive dissonance. If they work harder to recycle, their pro-environmental behaviors will be more consistent with their attitudes and they will feel that their invested effort is justified. Furthermore, effort expended on a prior task can justify current efforts when the two tasks are related (Kim and Labroo 2011). In line with the principle of effort justification, when individuals invest high rather than low effort in a task, they will prefer its outcomes (e.g., Aronson and Mills 1959; Beatty and Smith 1987; Kivets and Simonson 2002).

Following the preceding discussion and empirical evidence, we chose to examine how message assertiveness about recycling has varying persuasive effects depending on recipients’ efforts in receiving the green requests. Our key tenet is that effort investment can be the motivational force that intensifies expectations for positive outcomes because highly motivated people tend to become more optimistic about attaining positive outcomes when they sense ongoing effort (Kim and Labroo 2011; Taylor and Brown 1988).

In addition, drawing on language expectancy theory, we contend that the investment of more effort in responding to the initial request will generate expectations about subsequent persuasive requests. Recipients are more likely to follow assertive messages when they match already formed attitudes (Fazio 1986, 1995).

Taken together, we expect that those with high-effort investment will be more compliant with assertive advocacy messages. Clearly, people are likely to invest more effort to attain desirable outcomes. Trying hard makes attaining the desirable outcome more likely, and thereby increases expectations (Van Dijk, van der Pligt, and Zeelenberg 1999). When individuals perceive that they must invest significant effort, they may view the effort they have already expended as an already-incurred emotional cost. Consequently, loss-averse individuals might perceive greater benefit from complying with the advocated behaviors (i.e., sunk cost effect). The opposite occurs for those with low-effort investment; more polite, nonassertive messages will more effectively lead to subsequent expectations. Since those with low-effort investment lack initial conviction, they will be more attentive to a nonassertive message that emphasizes autonomous choices with decreased psychological reactance. Research has shown that autonomous choices lead to higher subsequent motivation and engagement in task completion (e.g., Taylor and Brown 1988; Zhang et al. 2011). However, the mismatch between message assertiveness and effort investment seems to violate expectations about the subsequent communication behavior, thereby leading to greater resistance to persuasion and lower compliance. In this sense, we anticipate that an assertive message results in more favorable attitudes toward recycling and greater intentions to recycle for those with a high level of effort investment. The converse will occur for those with a low level of effort investment. Therefore, we put forth the following hypothesis to examine the interplay between message assertiveness and effort investment in promoting environmentally responsible attitudes and behaviors:

H1: Message assertiveness and effort investment will significantly interact with attitudes toward recycling and intentions to recycle. Specifically:

- (a) For individuals who have high levels of effort investment, assertive messages will elicit more favorable attitudes toward recycling and greater behavioral intentions to recycle than will nonassertive messages.
- (b) For individuals who have low levels of effort investment, nonassertive messages will elicit more favorable attitudes toward recycling and greater behavioral intentions to recycle than will assertive messages.

Mechanism underlying the interaction effects

In addition to the moderation hypotheses, we expect to observe an underlying interaction between message assertiveness and effort investment on recycling attitudes and intentions with perceived issue importance, which refers to subjective concern, caring, and belief in the issue's significance (Boninger et al. 1995; Lecheler, de Vreese, and Slothuus 2009). As mentioned earlier, perceived issue importance potentially moderates the effect of message assertiveness (Kronrod, Grinstein, and Wathieu 2012a). Extending that idea, we propose that perceived issue importance could be an integral underlying mechanism for the message assertiveness effect, particularly when coupled with effort investment. As suggested by Obermiller (1995), higher perceived environmental concern has been shown to

mediate the persuasive effects of environmental communication appeals and prior issue salience.

Importantly, higher perceived issue importance may evolve from how much effort recipients invest in promoting the issue. Greater effort expended to understand certain information results in higher levels of perceived importance; individuals are more likely to consider information more important when they associate effort rather than ease in understanding the information (Labroo, Lambotte, and Zhang 2009). When people invest significant effort to comply with the advocated message, their increased effort makes the message more important and valuable because they feel a need to justify their efforts (Kim and Labroo 2011).

Although strong effort investment often reflects perceived issue importance, the two constructs are fundamentally different. First, effort investment could be an extrinsic force that intensifies the value of the focal behavior (Zhang et al. 2011). In contrast, perceived issue importance signals inherent relevance and/or interest toward the focal issue. Similar to the conceptualization of issue involvement (Segev, Wang, and Fernandes 2014), perceived issue importance depends on intrinsic needs, values, and concerns about the issue (Simões and Agante 2014; Zaichkowsky 1985). Thus, people might view the environmental issue as important but still put little effort into responding to green requests. On the other hand, the 'IKEA' effect showcases the possibility that individuals who expend more effort in completing the task are generally committed to it; infusing products with their own labor evokes greater valuation that greatly strengthens commitment (Norton, Mochon, and Ariely 2012). Following that logic, individuals should be more strongly committed to recycling if they have already invested significant effort in completing a recycling-friendly request. However, perceived issue importance does not necessarily drive high-level commitment. Likewise, individuals who view the environmental issue as important do not always stay committed to environmentally friendly behaviors. In fact, the most knowledgeable and environmentally conscious individuals may sometimes fail to recycle and are no more likely to conserve energy (e.g., Baca-Motes et al. 2013; Costanzo et al. 1986; De Young 1988). In sum, individuals who invest more effort in completing environmentally friendly tasks, such as writing pledges, are more likely to perceive that the environmental issue is important. Nonetheless, issue importance does not necessarily lead to greater effort investment. People may infer that effort conveys value. That is, they can (mis)attribute effort to how much they value the expected outcome. They can (mis)interpret the amount of effort invested in the task as indicating that the outcome has high motivational significance (Kim and Labroo 2011; Labroo and Kim 2009). Regardless of whether they perceive the focal issue as important, they strongly need to justify the effort they have invested in a difficult and labor-intensive task.

We also add a causal link from attitude to behavioral intention, grounded in the theories of reasoned action (Fishbein and Ajzen 1975) and planned behavior (Ajzen 1991). Perceived issue importance is more likely to cause attitude-behavior consistency (Boninger et al. 1995). Along these lines, it is expected that combining message assertiveness with effort investment leads to greater perceived issue importance, which translates into more favorable attitudes toward recycling. Such a sequential pathway will yield greater behavioral intentions. Hence, the following hypothesis is proposed.

H2: The interactive effect of message assertiveness and effort investment on behavioral intentions will be mediated by the pathway from perceived issue importance to attitudes toward recycling (interaction → perceived issue importance → attitude → recycling intention).

Method

Research design and participants

A 2 (effort investment: high versus low) \times 2 (message assertiveness: assertive versus nonassertive) between-subjects design was used in the context of recycling. A total of 249 college students (57.8% male and 42.2% female) enrolled in marketing courses at a northeastern US university participated in exchange for extra credit. They ranged in age from 18 to 35 ($M = 20.8$). A priori power analysis for an effect size of 0.50 indicated that a sample size of 64 per group was required to achieve the suggested level of 80% power with an alpha level of 0.05 (Cohen 1988). Since we actually had cell sizes of 62 or 63, the sample size for each experimental group is considered sufficient for hypothesis testing. The experiment was conducted in a research lab. Participants were randomly assigned to one of the experimental conditions. On arrival at the research lab, participants first completed the effort investment induction tasks. Next, we informed participants that they would view and respond to questions about a print ad. The ads featured either assertive or nonassertive recycling messages. Participants completed a questionnaire that included measures of attitudes toward recycling, behavioral intentions to recycle, manipulation checks, and demographics. After they completed the questionnaire, participants were debriefed, thanked, and dismissed.

We used an experimental software (MediaLab – www.empirisoft.com) designed so that participants could take as much time as they wanted to review the ad, beyond the experimenter's control. Once they clicked the 'continue' button appearing at the bottom of the screen, however, they could not return to previous pages to review the stimuli, questions, or answers.

Manipulations

Effort Investment

Following Zhang et al.'s (2011) induction procedure for their experiment 2, we manipulated the degree of initial effort that participants invested in responding to the recycling pledge prior to target ad message exposure. In the high-effort investment condition, participants transcribed the content of the recycle pledge (e.g., 'I will recycle my plastics, paper, and metal cans; I will use recycled-content products; I will avoid the use of disposable products whenever possible; I will tell people about how important it is to recycle'), and signed their names at the bottom of the page. In contrast, participants in the low-effort investment condition read the recycling program pledge and signed their names at the bottom. The rationale was that participants who transcribed the content of the recycling pledge would feel they had exerted more effort and were more inconvenienced than those who simply read the pledge.

Message assertiveness

The target ad included headline copy, an image of a recycling bin, and a paragraph describing recycling benefits. Only the degree of message assertiveness varied in the copy. Adopted from Miller et al. (2007), the assertive message contained imperatives and controlling terms, including *must*, *should*, and *ought*:

Recycle what you can: You have to recycle plastic containers, paper, cardboard, aluminum, and steel cans. You should definitely recycle more actively to conserve natural resources,

such as water, timber, and minerals. You must recycle as much as possible to reduce greenhouse gas emissions that contribute to global climate change. All you have to do is to place the clean and dry material loose into the recycling bin. In addition, you ought to remove lids and caps from containers when you recycle. There is really no choice! Do something to recycle!

Alternatively, the nonassertive message included terms that emphasized autonomous actions, including *could*, *might want to*, and *worth*:

It's worth recycling what you can: You could recycle plastic containers, paper, cardboard, aluminum, and steel cans. You might want to recycle more actively to conserve natural resources, such as water, timber, and minerals. You could recycle as much as possible to reduce greenhouse gas emissions that contribute to global climate change. It's worth placing the clean and dry material loose into the recycling bin. In addition, it makes sense to remove lids and caps from containers when you recycle. The choice is yours! You can do something to recycle!

Except for the message assertiveness manipulations, all other aspects of the ad stimuli were invariant with respect to size, layout, and background. (See the Appendix for the two ads used in the experiment.)

Dependent measures

Adopted from Blankenship and Wegener (2008), attitudes toward recycling were measured using seven-point semantic differential items anchored with 'bad/good, foolish/wise, negative/positive, unfavorable/favorable, unnecessary/necessary, harmful/beneficial, and undesirable/desirable.' Cronbach's alpha for this scale was 0.96. The seven items were averaged to form an index for attitudes toward recycling.

Behavioral intentions to recycle were assessed using Bezzina and Dimech's (2011) measure. Participants were asked to indicate their agreement with each of the following statements on a seven-point scale (1 = strongly disagree; 7 = strongly agree): 'I intend to recycle more in the next few weeks; I will consider participating in the recycling program in the future; I would recommend participating in the recycling program to my friends or relatives; I am likely to make an effort to recycle to protect the environment.' Cronbach's alpha for this scale was 0.90. The four items were averaged to form an index for behavioral intentions to recycle.

Perceived issue importance was measured by two items adopted from Lecheler, de Vreese, and Slothuus (2009). Participants were asked, 'How important is the issue of recycling? How meaningful is the issue of recycling?' All questions were answered on a seven-point scale (1 = not at all; 7 = extremely). Cronbach's alpha for this scale was 0.94. The two items were averaged to form an index for perceived issue importance.

Results

Manipulation and confound checks

To verify our manipulation of effort investment, participants indicated how much effort they invested in signing (i.e., after transcribing or reading) the pledge to support recycling (1 = not at all; 7 = very much). As expected, participants in the high effort investment condition – those who transcribed and signed – felt that they made more effort in pledging to support recycling than did those in the low-effort investment condition – those

who read and signed – ($M_{\text{high effort investment}} = 4.47$, $M_{\text{low effort investment}} = 2.97$; $t(247) = 7.01$, $p < 0.01$).

As a check on message assertiveness, participants indicated their agreement with each of the following statements: ‘The ad message was forceful; The ad message was intense; The ad message was powerful’ ($\alpha = 0.94$). The mean score for the assertive message was greater than the mean score for the nonassertive message ($M_{\text{assertive}} = 4.86$, $M_{\text{nonassertive}} = 3.44$; $t(247) = 6.36$, $p < 0.01$). Thus, our manipulations were successful.

We also examined and ruled out a key alternative explanation by considering that the effort investment manipulation may have inadvertently influenced processing fluency; that is, the ease with which information is processed (Fang, Singh, and Ahluwalia 2007) – a variable associated with effort involved in a focal motivation and behavior (Song and Schwarz 2008). Processing fluency can generate more favorable judgment, attitude, and behavior (Lee and Aaker 2004). To assess whether the effort investment manipulation influenced processing fluency as a potential confound, participants completed a measure of processing fluency (‘difficult to process/easy to process’ and ‘difficult to understand/easy to understand’; $\alpha = 0.83$; Lee and Aaker 2004). The analysis showed no evidence that the effort investment manipulation influenced processing fluency ($M_{\text{high effort investment}} = 5.47$, $M_{\text{low effort investment}} = 5.46$; $t(247) = 0.01$, $p = 0.99$), suggesting that processing fluency did not account for the intended effect of effort investment manipulation. Similarly, no difference occurred in processing fluency between assertive and nonassertive messaging conditions ($M_{\text{assertive}} = 5.56$, $M_{\text{nonassertive}} = 5.37$; $t(247) = 1.16$, $p = 0.25$).

Tests of hypotheses

We performed a two-way multivariate analysis of variance (MANOVA) to test the hypotheses. The analysis treated the levels of message assertiveness and effort investment as the independent variables, and attitudes toward recycling and recycling intentions as the dependent variables. In line with the recommendation of Hair et al. (1998), a series of underlying assumptions for MANOVA was first checked (Baek and Reid 2013; Baek, Shen, and Reid 2013; Lee 2014). First, Box’s M test for homogeneity of the variance–covariance matrices showed no significant differences across treatment groups (Box’s $M = 5.32$, $p = 0.75$). Second, Bartlett’s test of sphericity was performed to test the correlation of both dependent variables. Finally, a significant level of intercorrelation was found between the two dependent variables ($r = 0.69$, $p < 0.01$). Accordingly, the basic assumptions of MANOVA were confirmed. Since the MANOVA yielded a significant interaction between message assertiveness and effort investment (Wilks’s $\lambda = 0.95$, $F(2, 244) = 6.24$, $p < 0.01$), we further conducted separate univariate tests to examine the simple effects on each dependent variable.

Regarding attitudes toward recycling, we found no main effect of message assertiveness ($F(1, 245) = 0.27$, $p = 0.60$) and effort investment ($F(1, 245) = 0.01$, $p = 0.99$). As expected, however, a significant interaction between message assertiveness and effort investment emerged ($F(1, 245) = 10.59$, $p < 0.01$). As Figure 1 shows, planned contrasts revealed that the assertive message ($M_{\text{assertive}} = 5.80$, $SD = 0.88$) resulted in more favorable attitudes toward recycling than the nonassertive message ($M_{\text{nonassertive}} = 5.38$, $SD = 1.39$) in the high-effort investment condition ($t = 1.99$, $p < 0.05$, $d = 0.36$). Conversely, the nonassertive message ($M_{\text{nonassertive}} = 5.88$, $SD = 1.19$) led to more favorable attitudes toward recycling as compared with the assertive message ($M_{\text{assertive}} = 5.30$, SD

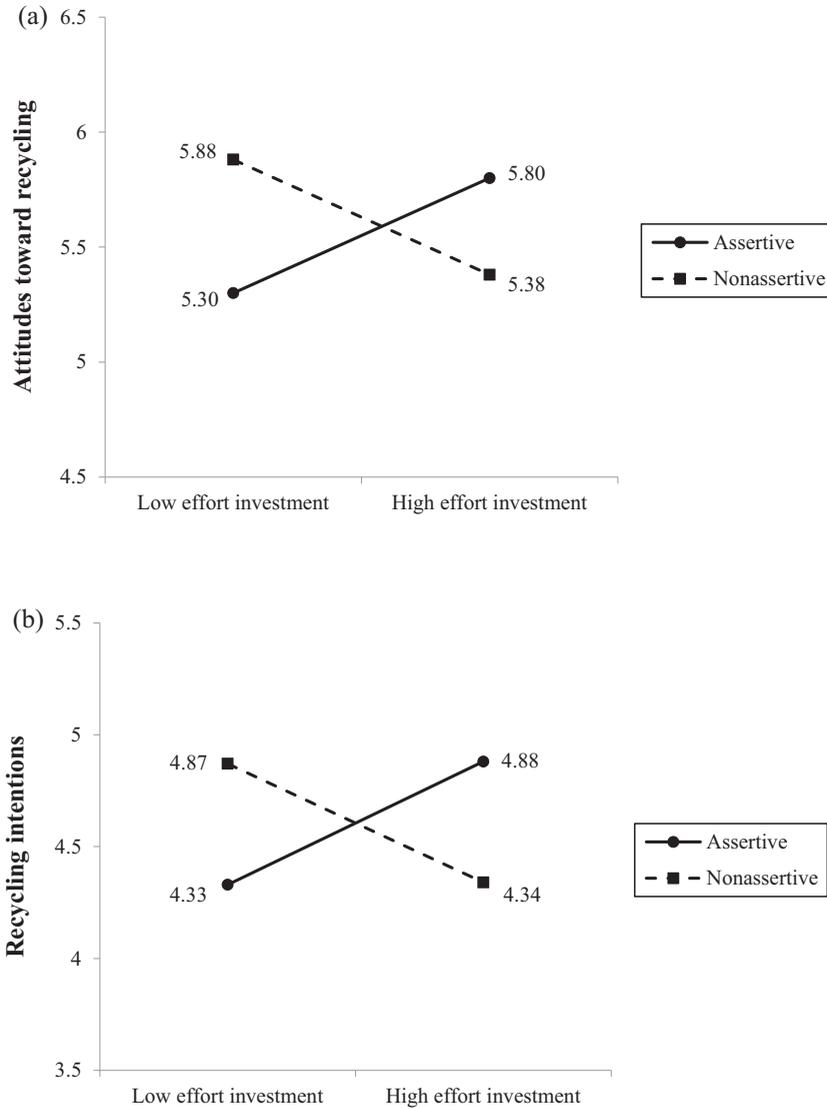


Figure 1. (a) Interaction of message assertiveness and effort investment on attitudes toward recycling. (b) Interaction of message assertiveness and effort investments on recycling intentions.

= 1.25) in the low-effort investment condition ($t = 2.61, p < 0.05, d = 0.48$). Accordingly, H1a and H1b for attitudes toward recycling were also supported.

On the other hand, there were no main effects of message assertiveness ($F(1, 245) = 0.01, p = 0.99$) and effort investment ($F(1, 245) = 0.03, p = 0.96$) on behavioral intentions to recycle. As predicted, however, the interaction between message assertiveness and effort investment was statistically significant for recycling intentions ($F(1, 245) = 9.48, p < 0.01$). Specifically, planned contrasts showed that the assertive message ($M_{\text{assertive}} = 4.88, SD = 1.16$) resulted in greater recycling intentions than the nonassertive message ($M_{\text{nonassertive}} = 4.34, SD = 1.71$) in the high-effort investment condition

($t = 2.05, p < 0.05, d = 0.37$). In contrast, the nonassertive message ($M_{\text{nonassertive}} = 4.87, SD = 1.33$) led to greater recycling intentions than the assertive message ($M_{\text{assertive}} = 4.33, SD = 1.24$) in the low-effort investment condition ($t = 2.33, p < 0.05, d = 0.42$). This pattern of findings supported H1a and H1b for behavioral intentions to recycle.

Mediated moderation analysis

We proposed that the interaction between message assertiveness and effort investment is mediated by perceived issue importance to anticipate attitudes toward recycling, which in turn leads to behavioral intentions to recycle. Structural equation modeling was employed to test for the mediated moderation effect (Baek and Reid 2013; Baron and Kenny 1986; Muller, Judd, and Yzerbyt 2005).

Each structural path coefficient was examined with fit indices of the proposed model: $\chi^2(5) = 21.3$ ($p < 0.001$), goodness-of-fit index (GFI) = 0.97, root mean square error of approximation (RMSEA) = 0.08, normed fit index (NFI) = 0.96, comparative fit index (CFI) = 0.97, and standardized root mean square residual (SRMR) = 0.03. Note that the value of χ^2 (i.e., the likelihood ratio chi-square) in the above analysis was statistically significant. The significant χ^2 value could mean that the estimated model does not fit well with the observed data. However, χ^2 is sensitive to sample size, which may lead to rejection of the model (Hair et al. 1998). For this reason, the value of χ^2 should be divided by the degree of freedom to reduce the sensitivity of χ^2 to sample size, and a variety of fit indices (e.g., GFI, RMSEA, NFI, and CFI) should be assessed altogether. Bentler and Bonnet (1980) offered good guidance in this regard: the $\chi^2/\text{degree of freedom}$ ratio that does not exceed 5.0 indicates acceptable model fit. Given that the $\chi^2/\text{degree of freedom}$ ratio was 4.26 in this model and other goodness-of-fit measures (i.e., GFI, RMSEA, NFI, CFI, and SRMR) met the recommended cutoff criteria for fit indexes (Hu and Bentler 1999), we could conclude that the model was satisfactory despite the significant χ^2 value.

As shown in Figure 2, the message assertiveness \times effort investment interaction significantly predicted perceived issue importance (*standardized estimate* = 0.25, $p < 0.05$), which in turn significantly predicted attitudes toward recycling (*standardized estimate* = 0.73, $p < 0.01$). Next, attitudes toward recycling significantly predicted behavioral

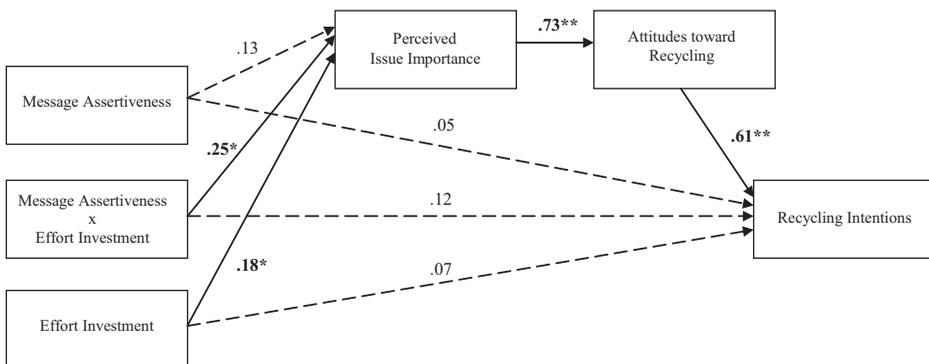


Figure 2. Mediated moderation model.

Notes: $\chi^2(5) = 21.3$ ($p < 0.001$), GFI = 0.97, RMSEA = 0.08, NFI = 0.96, CFI = 0.97, and SRMR = 0.03; all path estimates are standardized; insignificant path estimates are indicated with dashed lines; * $p < 0.05$, ** $p < 0.01$.

intentions to recycle (*standardized estimate* = 0.61, $p < 0.01$). However, the direct relationship between the message assertiveness \times effort investment interaction and behavioral intentions to recycle was not statistically significant (*standardized estimate* = 0.12, $p = 0.16$).

We also tested the significance of indirect effects by using the bootstrapping method with Amos 17.0 following the recommendations of Cheung and Lau (2008). In this model, 5000 bootstrapped samples were used to estimate the bias-corrected 95% confidence intervals (Baek and Morimoto 2012; Baek and Reid 2013; Preacher and Hayes 2008). Since the confidence interval did not contain zero, the indirect impact of the message assertiveness \times effort investment interaction on behavioral intentions to recycle through perceived issue importance was significant (95% CI = 0.02 to 0.22), as was the indirect impact of perceived issue importance on behavioral intentions to recycle through attitudes toward recycling (95% CI = 0.34 to 0.54). However, the direct path from the message assertiveness \times effort investment interaction to behavioral intentions to recycle was not significant (95% CI = -0.04 to 0.30). This pattern of our results reveals indirect-only mediation (Zhao, Lynch, and Chen 2010). In sum, our findings suggest that the interactive impact of message assertiveness and effort investment on behavioral intentions to recycle was fully mediated by perceived issue importance and, in turn, attitudes toward recycling. Therefore, H2 was supported.

Discussion

Our objective in this research is to better understand how effort investment influences the persuasiveness of environmental advertising featuring assertive versus nonassertive language. In addition, we aim to demonstrate message assertiveness and effort investment as explanatory mechanisms underlying successful persuasion toward environmentally responsible attitudes and behaviors. The findings show that an assertive message, compared with a nonassertive message, fosters more favorable attitudes toward recycling and greater behavioral intentions to recycle for individuals with high-effort investment. In contrast, a nonassertive message is more effective than an assertive message for those who invest low-effort. Accordingly, our results suggest that environmental advertising persuasion is enhanced when more assertive phrasing is aligned with the extent of effort needed to comply with green requests.

Theoretical implications

The findings of this research have several important theoretical implications. First, although past research draws on various theoretical perspectives such as information processing theory, psychological reactance theory, and reinforcement expectancy theory to understand how people respond differently to assertive versus nonassertive language, to the best of our knowledge, ours is the first research to untangle language expectancy theory and effort justification hypothesis to explain when and why assertive language prompts higher or lower compliance. In particular, we extend past research by demonstrating that language assertiveness has varying effects depending on whether people invest more or less effort in responding to initial green requests. The findings thus broaden our understanding of how message assertiveness and effort investment interplay in determining compliance with green messages.

Second, our research adds to a growing body of sociolinguistic literature on compliance-seeking requests. The findings of this study suggest that requests are more

persuasive when they use language that fits the receiver's expectations (e.g., Brown and Levinson 1987; Forgas 1998; Kronrod, Grinstein, and Wathieu 2012b). Assertive phrasing of advertising messages might better fit receivers' linguistic expectations if the message highlights that the receiver must invest significant effort in completing the initial green request. Our results align with previous research asserting that people expect desirable outcomes in relation to their efforts and inputs (e.g., Walster, Walster, and Berscheid 1978; Kivetz 2003). We argue that pre-emptively asking people to expend effort in responding to the recommended behavior is likely to increase their expectations regarding their response to the following advertising. Effort investment would serve as a proxy causing people to infer their attitudes and behavioral intentions when they subsequently encounter the advertising. In terms of the expectancy disconfirmation framework (Anderson 1973), the amount of effort people have invested before they encounter the advertising motivates them to confirm or disconfirm their expectations about the subsequent messages. In line with this reasoning, our results suggest that when recipients are exposed to assertive messages that imply concern and urgency, those already involved in more initial effort tend to develop their linguistic expectation accordingly and have reinforced motivation to comply with the behavior advocated.

Furthermore, we provide additional support for prior work on the important influence of already-formed attitude and behavioral intention on effectiveness of assertive language. As noted previously, advertisers can affect the persuasive impact of assertive language by altering the stage of intention to adopt the focal behavior (Buller, Borland, and Burgoon 1998) or pre-existing attitude toward the focal behavior (Fazio 1986, 1995). Our findings clearly demonstrate that initial effort invested in completing the focal task plays a pre-emptive role in triggering the motivation to change attitudes and behavior intentions. In essence, our research clearly differs from Buller, Borland, and Burgoon (1998). Inspired by psychological reactance theory, Buller, Borland, and Burgoon (1998) showed that baseline behavioral intentions can moderate the effects of message features involving language intensity and logical style. However, we focus on both effort invested for environmental goal pursuit as the motivational driver and on whether the effort expended to perform the difficult (easy) task is more persuasive when consumers are exposed to more (less) assertively phrased messages. Our findings also shed light on how effort justification biases subsequent behavioral intention by demonstrating that individuals have stronger liking for goals they have worked hard to attain.

Finally, one of our main contributions beyond the work of Kronrod, Grinstein, and Wathieu (2012a) is to show that message assertiveness and effort investment interact through perceived issue importance in indirectly affecting attitude and behavior. Although those authors reported that perceived issue importance interacts with assertive language in shaping environmental intentions, our findings identify the motivational conditions causing perceived issue importance to be more or less likely to translate environmental attitudes into behavioral intentions. The results of our mediated moderation analysis suggest that individuals are more concerned about recycling when message assertiveness and effort investment match. This, in turn, generates enhanced compliance with the recycling behavior advocated in the ad.

Practical implications

The findings of this research have important practical implications for environmental advertisers. First, when using an assertive voice to craft environmental messages, green advertisers should consider using sequential compliance-gaining strategies by allowing

message recipients to expend extra effort by commenting on or transcribing pledge statements. Such added steps with a pre-ad exposure task will likely improve compliance. To highly committed individuals induced by initial effort investment conditions, assertive messages rather than non-assertive messages may more persuasively correlate with their goals. As a result, those who expend significant effort at the initial stage are more likely to show a higher level of compliance. However, assertive messages would differently affect those who expended no effort previously because they perceive less benefit and are less motivated to comply. They might respond better to indirect and non-assertive messages intended to induce autonomous actions with reduced psychological reactance.

Although the experiment was administered in a controlled lab setting with minimal confounding noise, we used stimuli closely resembling real-world applications of environmental ads. Environmental campaigns commonly use pledge cards to reinforce the issue's importance. Our stimuli differ from real-world versions only in that we randomized manipulations of message assertiveness. This study provides green advertisers with key insights on when to use and when to avoid assertive appeals in conjunction with the effort the target audience invests. Specifically, many environmental organizations, such as National Environmental Education, craft precisely tailored messages for school-aged children. Similarly, green advertisers should fine-tune their environmental message strategies by carefully tapping into how the effort–assertiveness interaction might be enhanced or suppressed depending on the age of the audience. For example, the persuasion-enhancing effect of effort–assertiveness might be more pronounced among a younger audience familiar with pledges in their educational setting (e.g., Cub Scouts who are accustomed to the Pledge of Allegiance).

Global advertisers should exercise caution before utilizing our findings. First, research is still needed to discover whether mere differences in language structure might interfere with our results. For example, English speakers would immediately notice the assertive tone of the message, because verbs indicating assertiveness tend to appear early in imperative English sentences. In some East Asian languages (e.g., Korean), the message recipient must hear the whole sentence before recognizing whether the message is assertive (Kim, Han, and Yoon 2010). Such language differences can alter the role of assertiveness in persuasive communication. Second, our findings might be culture-specific. In high-context cultures, assertive expressions are considered rude, and thus are not used as often as they are in the US marketplace. Similarly, pledges in ads are uncommon in many non-US cultures. Accordingly, advertisers should be sensitive to cross-cultural differences when dealing with standardized ad campaigns.

Public policy implications

Our results suggest innovative ways for policymakers to develop educational interventions and environmental policies that can increase awareness of recycling opportunities. Our findings indicate that we cannot simply assume that assertively phrased messages will be persuasive just because they are designed to increase environmentally friendly practices. Assertive and forceful messages for recycling education may discourage individuals who are reluctant to actively work for environmental protection. How can we reconcile the reactance effects of assertive messages with the potential for effort investment? We suggest that policymakers and government agents using assertive messaging interventions should be aware of how extensively people are willing and able to allocate their resources, time, and physical/mental effort for attaining environmental goals. Incentive-based environmental regulation may encourage autonomous recycling

actions, leading in turn to greater effort investment because individuals perceive that the efforts they invest in the autonomous condition reflect their values (Zhang et al. 2011). For instance, school-based recycling programs may pair assertive ad message strategies with public commitment tasks, such as transcribing the pledge statements we used in this study. One caveat to this recommendation is that effort investment should relate to the approximate level of task difficulty: the highest level of effort should occur when the task is moderately difficult; the lowest level of effort should occur when the task is either very easy or very hard (Locke and Latham 2002). Otherwise, similar to the foot-in-the-door technique, providing less-assertive information for environmental education programs may nurture a recycling culture among recipients already committed to an easy task and thus encourage them to subsequently accept other environmental behaviors.

Limitations and directions for future research

The current research is not without limitations. First, we drew the samples from a population of college students, which limits the generalizability (Myers, Royne, and Dietz 2014). Although college students constitute one of the largest segments pursuing environmental initiatives such as recycling and energy conservation (Wysor 1983), they are not the only intended audience for environmental communication campaigns. Further research is needed to replicate the interactive effects of message assertiveness and effort investment using nonstudent samples with a broader demographic or psychological spectrum to enhance external validity. Second, the findings are limited to the promotion of recycling behaviors. It remains a question for further exploration whether the results of this study can be generalized to other domains of behavioral advocacies (Lee, Haley, and Yang 2013), such as energy saving, forest protection, and social activism for an environmental cause.

Our findings are based on a single study. Thus we do not know whether our findings will hold true in different settings. Further study regarding ecological validity is warranted, as some research suggests that recycling intentions and actual behaviors can be inconsistent (e.g., Davies, Foxall, and Pallister 2002). A conceptual replication in a field setting and/or a follow-up survey might validate our observation.

Finally, our study may have social desirability bias in that participants transcribing the recycle pledge might have been primed to provide more socially desirable responses compared with those who read the recycling pledge. Following the recommendation by Nederhof (1985), our effort investment-induction task was self-administered. That is, to minimize social desirability bias and to ensure the anonymity of follow-up responses, participants were not required to complete the task. However, caution is advisable when assessing general social desirability tendencies. Future research should consider whether the two conditions – the transcribing and reading conditions – create varying degrees of social desirability bias.

On the positive side, these limitations provide several intriguing directions for future research. First, investigating whether other individual difference factors simultaneously influence the combined effect of message assertiveness and effort investment might prove fruitful. For example, holistic thinkers tend to engage in effortless, global, and fast processing, whereas analytic thinkers tend to use effortful, detail-oriented, and deliberative processing (Chaiken 1980; Chaiken and Maheswaran 1994; Maheswaran and Chaiken 1991; Ein-Gar, Shiv, and Tormala 2011; Yoon 2013). Analytic thinkers are likely to work harder than holistic thinkers in completing focal tasks. Accordingly, future research should examine whether assertively phrased messages vary in effectiveness using

individual differences in holistic and analytic processing as an additional proxy for effort investment.

Another area for fruitful future research is to investigate other ways to more realistically simulate effort investment in real-world situations. For example, Kim and Labroo (2011) manipulated the degree of effort by using a blurry versus clear picture of the product advertisement. Beyond the manipulation of context-induced effort investment we used in this study, it would be interesting to explore the potential influence of ad-induced effort by incorporating such visual cues into assertive versus nonassertive messaging. In mobile/social media advertising, advertisers might increase message recipients' effort investment by inserting additional layers before exposing them to the ad. For example, advertisers might design games for consumers to play before they see the promotional message, challenging them with varying levels of difficulty (Choi, Yoon, and Lacey 2013). Those who complete the qualifying games might view their effort in playing the game as a sunk cost, which would increase their perceived benefit from complying with the subsequent promotional message.

Conclusion

As recycling is becoming increasingly important, the current research provides new insights for understanding when and why messages using assertive versus nonassertive language will most effectively shape eco-friendly attitudes and intentions. In particular, this study highlights that assertively phrased messages can be a double-edged sword to green marketers: sometimes assertive messages induce more compliance but they can also make people withdraw from participating in pro-environmental practices by increasing their resistance to persuasion. What determines increased or decreased compliance? Our findings demonstrate that message assertiveness in environmental advertising will vary in persuasive impact depending on the amount of effort the consumer has already invested before being exposed to the green request. Assertive ad messages may be persuasive for consumers who have already invested significant effort but may backfire for consumers who have invested little effort. The present work also explains the underlying mechanism causing this interaction: issue importance is central to the interaction between message assertiveness and effort investment. The results of the current work suggest promising strategic guidelines in environmental advertising campaigns: assertive language can be more persuasive if steps are taken to activate the target audience's optimal level of effort involved, for example by asking them to merely transcribe a green pledge.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on Contributors

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Appendix

Assertive message

RECYCLE WHAT YOU CAN!

Recycling not only saves the environment, but also reduces landfill waste. It involves collecting, sorting and processing waste material and remanufacturing them into new products.

- You **have to recycle** plastic container, paper, cardboard, aluminum and steel cans.
- You **should definitely recycle more actively** to conserve natural resources, such as water, timber, and minerals.
- You **must recycle as much as possible** to reduce greenhouse gas emissions that contribute to global climate change
- **All you have to do is to place the clean and dry material loose** into the recycling bin. In addition, **you ought to remove lids and caps** from containers when you recycle.

**THERE IS REALLY NO CHOICE!
DO SOMETHING TO RECYCLE!**



The image shows three recycling bins in red, green, and blue, each with a white recycling symbol. To the right of the bins is a collection of various recyclable items, including newspapers, magazines, plastic bottles, and cans.

Nonassertive message

IT'S WORTH RECYCLING WHAT YOU CAN!

Recycling not only saves the environment, but also reduces landfill waste. It involves collecting, sorting and processing waste material and remanufacturing them into new products.

- You could recycle plastic container, paper, cardboard, aluminum and steel cans.
- You may want to recycle more actively to conserve natural resources, such as water, timber, and minerals.
- You could recycle as much as possible to reduce greenhouse gas emissions that contribute to global climate change
- It's worth placing the clean and dry material loose into the recycling bin. In addition, it makes sense to remove lids and caps from containers when you recycle.

**THE CHOICE IS YOURS!
YOU CAN DO SOMETHING TO RECYCLE!**

