



I saw the sign: Promoting energy conservation via normative prompts



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ABSTRACT

The focus theory of normative conduct proposes that normative influence can be enhanced by focusing people's attention to social norms. In a quasi-experimental field study, four normative prompts were compared on their ability to promote energy conservation behavior in public bathrooms. In line with an attention-reactance proposition, prompts that included both prescriptive and proscriptive content (i.e. dualinjunctive) elicited higher compliance compared prompts including either prescriptive or proscriptive content (i.e. single-injunctive). Study 2 assessed participants' experience of the prompts, indicating support for attention and reactance processes. Moreover, a clear incongruence between results of study 1 and respondents' assessment of the most influential prompt was found. Taken together, these findings add to the focus theory of normative conduct, suggesting one technique to increase compliance. On the applied level, these findings propose that the content used in prompts can have large effects on energy conservation behavior.

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1. Introduction

Energy consumption constitutes a substantial source of carbon dioxide emissions (IPCC, 2007). The impact on the environment could be significantly reduced by individual behavioral change (Dietz, Gardner, Gilligan, Stern, & Vandenberg, 2009). In order to increase pro-environmental behaviors, environmental psychologists have developed a number of intervention techniques (Schultz, 2014), for example, different types of feedback (See, Abrahamse, Steg, Vlek, Rothengatter, 2005; Karlin, Zinger, & Ford, 2015). One technique that has shown to effectively promote resource conservation is social influence; however the effectiveness of social influence techniques varies between studies (Abrahamse & Steg, 2013). Therefore, a possible way forward is to refine psychological techniques building on social influence in trying to promote energy conservation behavior. Within the social psychological literature, reviews on persuasion techniques have identified a vast number of social influence tools to promote behavioral change in general (Cialdini & Goldstein, 2004), and resource conservation in particular (Abrahamse & Steg, 2013). One promising social influence technique for promoting pro-environmental behavior is the usage of social norms as a feedback technique (i.e. normative influence;

Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007; Schultz, Estrada, Schmitt, Sokoloski, & Silva-Send, 2015). The present research further examines how normative influence techniques can be developed and used as an intervention technique to promote energy conservation behavior.

1.1. Normative influence

Normative influence can be defined as a form of social influence based on social norms, that is, influence based on perceived behavioral pattern and/or (dis)approval of others (Cialdini, Reno, & Kallgren, 1990). Cialdini et al. (1990) differentiated between two types of norm constructs applicable in normative influence; descriptive norms, signaling what other people *do*, and injunctive norms, signaling what other people think you *should* do. Furthermore, the injunctive norm can be subdivided into a prescription, signaling what you *should* do, or a proscription, signaling what you *should not do* (Winter, Cialdini, Bator, Rhoads, & Sagarin, 1998).

Normative influence has been applied to change behaviors in a variety of domains, such as junk food consumption (Robinson, Thomas, Aveyard, & Higgs, 2013), voting behavior (Gerber, Green, & Larimer, 2008), financial decision making (Hirshleifer & Teoh, 2003), road traffic safety (Lawrence, 2015), and alcohol consumption (Borsari & Carey, 2003). Within the field of environmental psychology, normative influence have shown to promote pro-environmental behaviors, such as littering prevention (Cialdini

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et al., 1990; De Kort, McCalley, & Midden, 2008; Keizer, Lindenberg, & Steg, 2008; Reno, Cialdini, & Kallgren, 1993), recycling (Schultz, 1999), and conservation behaviors, such as reuse of hotel towels (Goldstein, Cialdini, & Griskevicius, 2008; Reese, Loew, & Steffgen, 2014; Schultz, Khazian, & Zaleski, 2008; Terrier & Marfaing, 2015), waste reduction (Hamann, Reese, Seewald, & Loeschinger, 2015), water conservation (Richetin, Perugini, Mondini, & Hurling, 2014), and energy conservation (Allcott, 2011; Nolan et al., 2008; Schultz et al., 2007, 2015). This research suggests that normative influence can promote pro-environmental behavior. The present paper will further examine the impact of social norms on energy conservation, using the interplay between prescriptive and proscriptive norms.

1.2. Theories of normative influence

Goal framing theory (Lindenberg, 2001; Lindenberg & Steg, 2007) provides a process explanation of normative influence, postulating that situational cues can frame, and thus activate, information processing and motivation towards a specific goal. The theory identifies three goals: The gain goal activating processes concerning one's resources; the hedonic goal activating pleasure seeking; and the normative goal making people sensitive about how to act appropriately. Lindenberg and Steg (2013) suggest that the normative goal can promote pro-environmental behaviors due to framing of biospheric values and support of self-regulation. Moreover, the presence of other people can activate norm goals, that is, seeing other people conducting a specific behavior signals the appropriate way to act, and can subsequently affect behavior. In a demonstration of the cross-norm effect, Keizer et al. (2008) proposed that clean environments served as a situational cue activating the norm goal, and found that such cues decreased littering, trespassing and stealing. These findings suggest that pro-environmental behaviors can be promoted via situational cues framing the normative goal.

The focus theory of normative conduct (Cialdini et al., 1990) predicts that focusing people's attention to norms will strengthen the influence of norms. In a series of field experiments, subtle norm-violations were used to make a descriptive norm salient, which subsequently decreased littering (Cialdini et al., 1990; Kallgren, Reno, & Cialdini, 2000; Reno et al., 1993; see Cialdini, 2003 for review). Taken together, goal-framing theory and focus theory of normative conduct proposes that pro-environmental behaviors can be promoted by providing normative situational cues and focusing people's attention on these cues. This leaves us with two questions: what type of normative information can be used to promote energy conservation? And how does this information focus people's attention on the norm?

1.3. Applying normative influence on energy conservation

Past research has shown that descriptive norms can promote energy conservation. For example, studies have found that if the lights were turned off when people entered a public bathroom, the number of people turning off the light when leaving was higher compared to if the lights were turned on (Dweyer, Maki, & Rothman, 2015; Oceja & Berenguer, 2009). In line with these findings, Bator, Tabanico, Walton, and Schultz (2014) showed that more people turned off their computer when leaving the campus-computer lab if that computer was turned off when students started using it. These studies suggest that situational norms, providing descriptive normative information on others behavior, can promote energy conservation. Furthermore, Bator et al. (2014) and Oceja and Berenguer (2009) showed that compliance were stronger if a prompt (i.e. a sign promoting a specific behavior) was present,

which presumably focused people's attention on the implied descriptive norm. The present research will further examine how prompts can be used as a tool to direct people's attention to normative information, and in turn to promote compliance to energy conservation behavior.

1.4. Normative prompts

Psychological research has shown that prompts alone can decrease littering (Duran, Reeder, & Hecht, 1985), promote recycling behavior (Sussman, Greeno, Gifford, & Scannell, 2013), and increase energy conservation (Sussman & Gifford, 2012). Moreover, the content used in prompts can affect behavioral compliance. For example, prompts including normative content (from now refer to as normative prompts) have shown to be more effective compared to prompts using standard health messages (Burger & Shelton, 2011) and pro-environmental messages (Goldstein et al., 2008; Reese et al., 2014). These findings suggest that normative prompts have the capacity to promote energy conservation, and that the impact of normative prompts may depend on how the message is framed. One way to frame normative prompts is to use prescriptive or proscriptive content. For example, when analyzing the normative content of signs placed in recreation areas, Winter et al. (1998) found that negatively worded (i.e. proscriptions) behavioral commands (i.e. injunctive norms) were used more frequently compared to positive worded (i.e. prescriptions) signs. In conflict to this practice, negatively worded prompts have shown to result in decreased compliance (Pennebaker & Sanders, 1976; Reich & Robertson, 1979; Sussman & Gifford, 2012). Could framing of prescriptive or proscriptive content in normative prompts affect level of compliance?

1.5. Attention-reactance tradeoff

The usage of proscriptive norms to promote compliance is two folded. On one hand, "negative" stimuli are more likely to attract attention (see, Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Frischen, Eastwood, & Smilek, 2008; for reviews), which in turn can enhance salience and thus the impact of social norms (Cialdini et al., 1990). On the other hand, proscriptions may be perceived as demanding, and therefore elicit reactance effects (Brehm, 1966; Pennebaker & Sanders, 1976; Reich & Robertson, 1979). Reactance is a psychological response to perceived threat to one's freedom which leads to anti-conformity, that is, acting in opposition to the behavioral command (Brehm, 1966; Willis, 1965). In line with the reactance effect, it has for example been found that negatively worded prompts can decrease compliance (e.g. Pennebaker & Sanders, 1976), and that less negatively worded prompts can decrease reactance (e.g. Duran et al., 1985; Geller, Winett, & Everett, 1982). Building on these findings, and theories on normative influence, the present study will test a proposition of attention-reactance tradeoff.

1.6. The present research

The aim of this paper is to test an attention-reactance proposition applied to energy conservation behavior, building on (1) the finding that negatively valences stimuli can increase attention compared to positively valence stimuli (e.g. Baumeister et al., 2001; Frischen et al., 2008; Hansen & Hansen, 1988; Taylor, 1991), and (2), that compliance can be increased if the information is made less demanding and forceful (Duran et al., 1985; Geller et al., 1982; Pennebaker & Sanders, 1976; Reich & Robertson, 1979). This proposition will be tested by comparing four prompts; two prompts including only prescriptive or only proscriptive content (i.e. "single-

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