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Research Report

When colors backfire: The impact of color cues on moral judgment

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Abstract

This article investigates if and how the valence of color cues affects moral acceptability of (un)desirable consumer behaviors. Study 1 uses colors with definite differences in terms of valence, namely, red and green. Study 2 applies an evaluative conditioning paradigm to endow initially neutral colors with negative versus positive valences. We find an ironic color effect: undesirable behaviors become more acceptable when presented with negatively valenced colors. In general, respondents find (un)desirable behaviors more acceptable when a background color is of the same valence rather than neutral or opposite in valence. Implications for promotion and prevention campaigns are discussed.

Keywords: Affective priming; Color; Moral judgment; Conceptual fluency; Intuition

Introduction

Colors are ubiquitous. The objects, people, and environments we daily face all contain color information. As Mehta and Zhu (2009) remark: "color is a fundamental aspect of human perception" (p. 1226). Colors also entail more than just esthetics in that they carry psychological meanings and associations. The current paper investigates if and how the valence of color cues might affect evaluations of positively and negatively valenced behaviors.[1] Intriguingly, our findings show an ironic color effect: using colors with a negative valence in campaigns aiming to prevent negatively valenced behavior may actually backfire as it renders undesirable behavior less negative.

This study contributes to several research lines. First, we add to the emerging stream of research on color functioning (e.g., Bagchi & Cheema, 2013; Deng, Hui, & Hutchinson, 2010; Lindsey et al., 2010). Several studies indicate the positive consequences of the color red (e.g., red as an effective hazard warning color; Chan & Ng, 2009). In contrast, this study demonstrates the backfire effect of this color as it may lead to a less negative evaluation of deviant behavior. Second, this backfire effect contrasts with several studies that document match effects, such that a match between a message cue and the message content exerts beneficial effects on judgment and persuasion (e.g., Cavazza, Graziani, Serpe, & Rubichi, 2010; Mayer & Tormala, 2010). This study instead reveals the potential detrimental effects of a valence match between a cue and a message on moral judgments. Third, moral judgments have traditionally been considered as the result of rational and deliberate reasoning processes (e.g., Jones, 1991; Kohlberg, 1976; Turiel, 1983). More recently, scholars have argued and showed that moral decision making is also influenced, if not dominated, by intuitive factors (e.g., Haidt, 2001; Meier, Robinson, & Clore, 2004). The current paper supports this latter argument by demonstrating the effect of seemingly irrelevant color cues on moral judgment.

Fourth, this research adds to previous fluency research in many ways. While previous studies mainly focus on perceptual fluency, this study examines the role of conceptual fluency (Lee & Labroo, 2004). Further, our study identifies an important and

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[1] The terms bad, negative, unwanted, undesirable, unacceptable and immoral are used interchangeably in this article, and so are the terms good, positive, wanted, desirable, acceptable and moral.

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ubiquitous source of conceptual fluency that has been previously overlooked, namely, fluency stemming from a match between the *valence* of a stimulus and its context, rather than from semantic priming. Moreover, this study complies with the demand for more research on the effect of fluency on evaluative judgments other than malleable preference and liking judgments previously investigated (Winkielman, Schwarz, Fazendeiro, & Reber, 2003). In addition, no research ever examined the role of conceptual fluency in the moral domain. Finally, as this study shows that fluency may render clearly *valenced complex*, linguistic stimuli (viz. behavior descriptions) more positive (or less negative), we demonstrate the more general and robust nature of fluency effects compared to previous studies involving mainly perceptual and simple *neutral* or *new* stimuli.

Our findings are important for a host of settings. For example, marketers and policy makers attempt to develop messages that discourage undesirable behaviors, often by appeals to moral judgment and behavior. Such decision makers need to consider the effects of colors carefully, because they might assume a negative connotation color, such as red, to aid to deter people from a bad behavior, whereas these messages may inadvertently render the undesirable behavior less negative. This result goes against the common intuition that negative colors are better suited to mitigate undesirable behavior compared to positive colors (see pilot study later), and challenges the idea of the color red being advantageous by grabbing people's attention. Our findings also suggest that undesirable behavior, like petty crime, might be more likely if the physical environment prompts negative evaluations.

Theoretical framework

In many situations, particular colors get paired with particular messages, concepts, and experiences (Elliot, Maier, Moller, Friedman, & Meinhardt, 2007). Through repeated pairings, people form strong color associations (Mehta & Zhu, 2009), such that the mere presence of a color in a situation can activate corresponding associations that influence affect, cognition, and behavior (Elliot, Maier, Binser, Friedman, & Pekrun, 2009). Two colors that are of interest for written communication to indicate desirability or undesirability are green and red, respectively. Red, as typically associated with dangers and mistakes (e.g., traffic lights, stop signs, warning signals; Elliot et al., 2007), activates an avoidance motivation (Mehta & Zhu, 2009), making people more vigilant and risk averse (Friedman & Förster, 2002, 2005). Green contrasts chromatically and psychologically with red and offers general associations with approach motivations (Elliot & Maier, 2007). Briefly stated, colors that convey positive meanings (e.g., green) generally induce approach responses, whereas colors carrying negative meanings (e.g., red) induce avoidance responses.

It thus seems reasonable to argue that using the color red should enhance communications aimed at reducing unwanted behavior, while using green should improve campaigns aimed at inducing wanted behavior. Indeed, we conducted a pilot study in which participants indicated which color (i.e. red or green) they find more *suited* for campaigns aimed at stimulating good behavior ($N=45$) or deterring bad behavior ($N=46$). We found a significant association between color and type of campaign, $\chi^2(1)=50.25$, $p<.001$. Results showed that 93% preferred green over red for stimulating good behavior, and 80% preferred red over green for deterring bad behavior. In both cases, the observed percentages differ from indifference (i.e. 50%), $zs>5.19$, $ps<.001$. In a second pilot test, a convenience sample of marketers and communication specialists who are involved in the development of promotion and/or prevention campaigns indicated which color (i.e. red or green) they considered most *effective* to decrease undesirable behavior ($N=12$) or to increase desirable behavior ($N=13$). A significant association between color and type of campaign emerged, $\chi^2(1)=9.00$, $p=.003$. To reduce undesirable behavior, 75% would use red rather than green while to increase desirable behavior, 85% would use green rather than red. This pattern of results is not different from that of our first pilot test, $\chi^2(1)=1.04$, $p=.31$.

Based on affective priming and fluency theory, this study suggests alternative predictions for the commonly held belief that negative (vs. positive) color cues are better suited for messages to prevent negative behavior. Affective priming refers to the fact that people process targets faster and more accurately if they are preceded by primes with the same rather than an opposite valence (see Fazio, 2001; Klauer & Musch, 2003). For example, people identify the word *cancer* faster when it is preceded by the word *spider* than by the word *flower*. Affective priming even occurs when the prime and target appear simultaneously instead of sequentially (e.g., Spruyt, Hermans, De Houwer, Vandromme, & Eelen, 2007). Although affective priming studies generally use simple primes and targets (i.e. single words or pictures of an easily identified object), this phenomenon may be relevant for more complex stimuli too.

In affective priming, a valenced prime is presumed to activate the corresponding valence which makes it easier to activate concepts with a similar valence (Fazio, 2001). Although never recognized as such, affective priming may thus imply a form of conceptual fluency, which arises when the mental representation of a target is easier to activate because it offers semantic relatedness to the context in which it appears (Whittlesea, 1993). If we designate a background color as prime and an (un)desirable behavior as target, a valence match between the background color and the behavior might generate conceptual fluency. In the moral domain, a red background color entails a context that is associated with something bad. Consequently, one may experience conceptual fluency when processing a bad behavior described on a red background. A green background color, on the other hand, entails a context that is related to something good. Therefore, one may experience conceptual fluency when processing a good behavior described on a green background.

Such conceptual fluency represents a specific form of processing fluency. In general, experiencing processing fluency evokes a positive affective state that people misattribute to the stimuli they are processing rather than to the ease of processing (Winkielman et al., 2003), thereby affecting a myriad of perceptions as liking (Reber, Winkielman, & Schwarz, 1998), esthetic appreciation (Pandelaere, Millet, & Van den Bergh, 2010; Reber, Schwarz, & Winkielman, 2004) and importance