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Myopic about climate change: Cognitive style, psychological distance, and environmentalism

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HIGHLIGHTS

- Psychological distance of climate change and pro-environmental endeavors are negatively related.
- Psychological distance is more related to pro-environmental attitudes when individuals adopt an analytic cognitive style.
- When individuals are in a holistic mindset, ecological intentions are less affected by psychological distance.
- Individual mindset may be affected by the Navon Task manipulation.

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ABSTRACT

Recent literature shows a negative relation between psychological distance of climate change and pro-environmental behavioral intentions: when climate change is perceived as a distant phenomenon in time and space, people are less prone to worry and, thus, to act. The present study explored under which conditions psychological distance proved to be effective on ecological attitudes. More specifically the research explored the interaction between climate change psychological distance and individual's cognitive style (holistic vs. analytic) on pro-environmental attitudes. Across two studies, the results consistently showed that psychological distance is strongly related to environmental concerns when individuals adopt an analytic cognitive style. By contrast, when individuals are in a holistic mindset, psychological distance proved to be less effective on ecological attitudes and behavioral intentions. Taken together, our findings have relevant practical implications for environmental politics and communication strategies.

There is near unanimous scientific consensus that climate change affects human and natural systems in many adverse ways and that it is one of the most serious global threats humanity will be called to face in the immediate future (IPCC, 2014). Despite the overwhelming evidence, climate change appears to be much less scary than a viral infection (e.g., Ebola) and international terrorism (e.g., ISIS), and it is not likely to elicit a strong emotional response from the lay public (Markowitz & Shariff, 2012; Weber, 2006). One crucial reason for this modest response may be related to the geographical and temporal distances of climate change (Spence, Poortinga, & Pidgeon, 2012). The present study explores the conditions under which a reduction of such a psychological distance could be effective in order to promote pro-environmental attitudes.

1. Psychological distance of climate change

Particularly in Western countries where the ecological impact of climate change has been so far less severe than in the developing countries (Mendelsohn, Dinar, & Williams, 2006), individuals perceive ecological disasters as uncertain events and imagine that climate change will mostly affect future generations, people who live in faraway nations, or animals and inanimate nature (Gifford, 2011; Leiserowitz, 2005; Räthzel & Uzzell, 2009; Spence et al., 2012; Uzzell, 2000). Since it is well established in psychology that individuals are primarily affected by issues and risks that are short term and close to their personal experiences (Finucane, Alhakami, Slovic, & Johnson, 2000; Sundblad, Biel, & Gärling, 2007), it is not surprising that they do not perceive climate change as a priority.

Recent theories may help to account for the relationship between public concern and psychological distance of a given phenomenon. According to construal level theory (CLT), people may transcend immediate situations through construal processes, forming abstract mental representations of distal objects, persons, and events (Liberman & Trope, 2008; Trope & Liberman, 2010). As the theory suggests, whereas

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high-level construals are abstract, decontextualized, characterized by core features of events, low-level construals are contextualized, rich with details, and focused on concrete means to reach aims. Moreover, construal level is deeply related to psychological distance (Trope & Liberman, 2010). Within the CLT framework, Spence et al. (2012) showed a negative relation between psychological distance of climate change and pro-environmental behavioral intentions: when climate change is represented as a psychologically distant phenomenon, people are less worried about it and less prone to act.

The present contribution aims to extend this line of research, investigating whether a reduction of climate change psychological distance always corresponds to increasing concerns about climate change. More specifically, across two studies we explored the role of individuals' cognitive mindsets (holistic vs. analytic) on the interaction between psychological distance, perceptions of climate change, and pro-environmental attitudes.

2. Psychological distance and individual's cognitive style

A large body of research and theoretical analyses has offered a distinction between holistic and analytic systems of thought (Nisbett, Peng, Choi, & Norenzayan, 2001). In the holistic mindset, individuals tend to perceive events and objects as essentially interconnected and to orient their attention toward the relationships between those objects and the field. By contrast, an analytic cognitive style leads to focusing primarily on a central element and its attributes, independent from the context and the entire configuration. Hence, individuals in an analytic mindset are inclined to center their attention more on an object itself rather than on the field to which it belongs. These fundamental differences in beliefs and perception of interconnectedness result in significant divergences in attention, reasoning styles, perception, categorization, and memory (e.g., Choi, Nisbett, & Smith, 1997; Ji, Peng, & Nisbett, 2000; Nisbett & Miyamoto, 2005; Norenzayan, Smith, Kim, & Nisbett, 2002).

Research on cognitive styles concerned with intercultural differences showed that East Asians tend to hold holistic assumptions that every element in the world is interconnected, whereas Westerners are more prone to adopt an analytic mindset and focus on independent objects (Nisbett et al., 2001). However, also within the same culture and social group, individual differences may foster field dependence and holistic perception, rather than analytic cognitive processing. Hence, recent studies investigated the individual, situational, developmental, and affective factors that are likely to facilitate or impede local versus global ways of perception (e.g., Förster & Higgins, 2005). In line with this research, the present contribution aims at exploring whether the cognitive mindset plays a role in the relation between psychological distance and pro-environmental endeavors.

More specifically, we hypothesized that when individuals adopt an analytic cognitive style, psychological distance would affect concerns about climate change and consequent behavioral intentions. By contrast, when an individual's cognitive mindset is more holistic, perception of climate change and willingness to act in favor of the environment could be more stable and less affected by psychological distance. This hypothesis is consistent with recent evidence showing that an initial activation of high-level construal leads to a generalized reduction in sensitivity to the following changes of psychological distance (Maglio, Trope, & Liberman, 2013). Across nine studies, the authors manipulated the initial distance of an event and evaluated the individual's sensitivity to a second distance, showing that the perception of any span of distance decreases when it is framed as distal (versus proximal). This pattern obeys the psychophysics law (Weber-Fechner law; Fechner, 1966) stating a subject's sensitivity and the noticeable difference between two stimuli are proportional to the magnitude of the stimuli itself. Such a phenomenon may be observed both within the same dimension (e.g., Frederick, Loewenstein, & O'donoghue, 2002; Jones & Rachlin, 2006) and across domains (Maglio et al., 2013). Since a holistic mindset manipulation can be related to high-level construal instantiation, it is likely to reduce the sensitivity to variations in climate change psychological distance. Using the cognitive mindset effects on visual perception as a metaphor of this process, an analytic mindset would lead to blindness for peripheral and background stimuli (Masudaa & Nisbettb, 2006). In this case, changes and salient information should concern the focus of attention and the focal object to be detected by a person. By contrast, holistic-thinking persons could be less influenced by the distance because they are already attentive to the whole configuration.

Our hypothesis is also in keeping with other accounts. Recent research (Chaxel, 2015) revealed that a relational mindset and a high-level construal induce people to biases and to showing a preference-supporting tendency in information evaluation. Hence, people in a holistic frame of mind could be more prone to reconcile contradictory information, which in turn is likely to lead to attitude stability despite changes in information on temporal and spatial proximity. Furthermore, cognitive style proved to be related with agency attribution and consequent behavioral inclination (Nisbett et al., 2001; see also Cheng & Zhang, in press). An analytical mindset leads to perceiving a phenomenon components as causally connected, the events as governable, and the single individual as a social agent (e.g. Morris & Peng, 1994). Thus, the world is generally represented as more controllable through one's own actions than in a holistic mindset. For these reasons, increasing climate change closeness could elicit more behavioral efforts in analytical individuals than in holistic ones.

We investigated this hypothesis in two studies. The first study explored the interaction between perceived climate change psychological distance and individual's degrees of holism on environmentalism. Starting from these findings, the second study introduced an experimental manipulation of individual's cognitive mindset (holistic vs. analytic) that was only measured in Study 1 and explored the interaction effect on a wider range of variables (i.e., connection with the environment, attitudes toward environmentalism, and ecological behavioral intentions). Thus, whereas Study 1 first provided empirical evidence of the effect, Study 2 confirmed the findings and offered an experimental corroboration.

3. Study 1

3.1. Participants

Before recruiting participants for Study 1, we computed an a priori G-Power analysis (Faul, Erdfelder, Lang, & Buchner, 2007) for regressions with two predictors (power = .85) which suggested $N = 76$. Thus, 80 adults were recruited to take part in a paper-and-pencil study. Fifty-five participants were students from different university faculties; 25 were workers. All participants were Italian citizens (47 females) ranging in age from 18 to 62 years ($M = 28.75$, $SD = 11.36$).

3.2. Material and procedure

Participants were asked to fill out an online survey spread out through social networks and email. The questionnaire measured three constructs: psychological distance of climate change, attitude toward environment, and cognitive style. First, participants were presented with a measure of psychological distance ($\alpha = .81$) including one item assessing the temporal distance of climate change ("*Think about climate change and its consequences. Are they close in time*?"), one item assessing the spatial distance ("[…] *Are they close in space*?") and one item assessing the probability estimation ("[…] *Are they likely to occur*?"). Hence, we measured the psychological distance on spatial, temporal and hypothetical dimension. Then, participants rated their attitudes toward the environment and environmentalism on 10 items (e.g., "*I feel upset when I hear of forest destruction*"; see Appendix for the complete list). Finally, participants' cognitive style was assessed