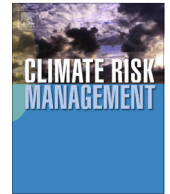




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Resilience vs. Adaptation: Framing and action



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ABSTRACT

Responses to climate change may be viewed as requiring primarily “Resilience” or “Adaptation.” We examine how those two terms affect lay responses to the risks of coastal flooding and sea level rise. We use two tasks requiring substantial participant involvement, one providing minimal information and one substantial information. In Study 1, participants spent ten minutes writing an essay about a picture with flooding, labeled with “Resilience” or “Adaptation.” In Study 2, participants used an interactive aid to evaluate moving to a coastal community described as having a policy of Resilience or Adaptation, or having No Stated Policy. In Study 1, both groups judged the threat of flood similarly. In Study 2, Resilience was associated with increased concern about risks, but less willingness to take individual protective action.

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Resilience vs. Adaptation

The terms “Resilience” and “Adaptation” compete as ways to frame discussions about meeting the challenge of climate change (Adger et al., 2005; Brown, 2013; Dietz et al., 2009; McEvoy et al., 2013; Nelson et al., 2007). As discussed below, scientific usage of the two terms suggests rather different forms of mobilization. Here we ask how the choice of term affects lay responses to the risks of coastal flooding, as expressed in two tasks, one with minimal content and one with detailed (informational) content.

The psychological concept of Resilience has its roots in child development research (Antonovsky et al., 1971; Hill, 1958; Werner, 1993). Scientists wondered why some people who experience multiple stressors still grow into healthy adults (Masten, 2001). Their studies identified supportive factors in both individuals (e.g., talent, physical health) and their environments (e.g., help from extended families or mentors). Psychological studies of Adaptation ask how people respond to stressors, without presuming that they master the challenges (Lazarus and Folkman, 1984). Many accounts are variants of Adaptation Level Theory (Helson, 1948), according to which people come to treat new situations as the norm, even when that means accepting a diminished state. For example, Cognitive Adaptation Theory (Taylor, 1983) examines how people find meaning in trauma; Interpersonal Adaptation Theory (Burgoon et al., 2007) considers how they adapt to new social settings.

Thus, for psychologists, “Resilience” is a trait, reflecting a general ability to master challenges, whereas “Adaptation” is a state, reflecting how individuals deal with specific stressors. Resilience includes the ability to acquire new capabilities, perhaps emerging stronger from the struggle, whereas Adaptation entails preserving existing resources. If these terms evoke the

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same perspectives for lay audiences as they do for scientists, then they might evoke different responses to the threat of climate change – just as “climate change” and “global warming” might (Leiserowitz and Feinberg, 2014). If so, then the choice between them would add another example to the literature on framing or context effects, which arise from seemingly subtle changes in how problems are posed (Chong and Druckman, 2007; Levin et al., 1998; Tversky and Kahneman, 1981; Scheufele and Iyengar, 2014).

Here, we assess how the choice between these two terms affects responses to the threat of coastal flooding. Study 1 has participants write an essay about a flood cleanup scene labeled with a single word, “Resilience” or “Adaptation,” and then answer questions about how they would respond to flooding risks. Study 2 has participants use a decision aid to evaluate moving to a community vulnerable to coastal flooding, described as having a policy of Resilience or Adaptation, or having No Stated Policy, and then answer questions about flooding risks. Both tasks, writing an essay and exploring a decision aid, are more involving than those in the typical framing study, although still reflecting hypothetical choices.

Study 1 – framing in a word for current risk

Participants wrote stories about a flood cleanup scene after being randomly assigned to conditions in which it was labeled with “Resilience” or “Adaptation,” in order to evoke its natural associations. They then answered questions about how they would respond to coastal flooding risks if they lived in the place depicted in the picture.

Participants

We recruited 202 adult participants through Amazon’s Mechanical Turk (MTurk), an online service (Buhrmester et al., 2011). Comparisons of behavioral experiments using MTurk and other recruitment methods, such as participant pools or convenience samples, have found few differences (Crump et al., 2013; Mason and Suri, 2012). In self-reports, participants’ mean age was 34.4 ($SD = 12.5$), with 59.9% female, 78.8% White or Caucasian, 46.1% with at least a bachelor’s degree, and 36.7% with household income \geq \$51 K. 37.1% were Democrats, 36.6% Independents, 16.8% Republicans, and 9.5% Other or Prefer not to answer.

Methods

Study 1 experimental procedures

After a brief introduction, informed consent, and screening for age (≥ 18), participants were randomly assigned to the Resilience or Adaptation condition. All saw the same picture of a man standing in water, stooping to clear debris from a storm drain (Fig. 1), with the word “Resilience” or “Adaptation” superimposed on it. Following Pennebaker et al. (2007), participants were asked to write a complete “imaginative” story about the scene in the picture, describing who the man might be, what led to his situation, and how things will turn out. They were asked to write continuously for at least 10 min, with a timer showing how long they had been working on the essay. After writing, they answered questions regarding their concern about coastal flooding, motivation to prepare for those risks, and demographics.

Study 1 measures

Scenarios. We used the Linguistic Inquiry and Word Count tool (LIWC) (Pennebaker et al., 2007) to evaluate participants’ narratives. It measures properties of written speech, including linguistic (e.g., pronouns, verbs, tense, numbers), psychological (e.g., social, affective), personal (e.g., work, money), and speech categories (e.g., assent, non-fluency).

Concern about flooding risk. (a) *Flood expectations:* Participants used a drop-down menu, with interval response options from 0 ft to 10+ ft, to indicate “the highest level that you would expect to see in the place shown in the picture between today and 2050”. (b) *Flood tolerance:* Participants used the same drop-down menu to indicate “the highest level that you would expect to see between today and 2050 that most people would be willing to live with, before deciding not to move to the place in the picture”. (c) *Flood insurance:* Participants indicated their agreement with the statement: “I would purchase flood insurance if I moved to the place shown in the picture,” with 1 = completely disagree, 7 = completely agree.

Motivation to prepare for flooding risks. Participants were asked to “Imagine that you and your family moved to the place shown in the picture.” They then rated their agreement (1 = completely disagree, 7 = completely agree) with statements positing four actions as things (d) that they could do to prepare against the risk of flooding, (e) that they would do, and (f) that would help to protect their families. The actions were (1) “sealing the edges of my basement walls,” (2) “making a family emergency plan,” (3) “voting for local candidates who support ending subsidies to live in flood-risk areas” and (4) “voting for local candidates who support stronger ‘flood-proofing’ building codes”.

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