Request framing moderates the influence of affective images on charitable giving

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Abstract

Fundraising organizations face difficult decisions regarding how to construct solicitations for donations. While these aid requests often include multiple salient features, their interactive effect on donation behavior and the psychological mechanisms that underlie their combined influence remain unclear. In six studies utilizing online and laboratory samples, as well as hypothetical and real incentives, we examine whether and how request framing moderates the impact of positive and negative images on charitable giving. Across all studies and in a single-paper meta-analysis, the influence of affective images on giving was moderated by the valence of request framing, such that affectively matched features most effectively elicited donations. Further, donors' experienced positive affect could account for this matching effect – even in cases of matched negative features. These findings suggest that organizations can increase the effectiveness of aid requests by focusing on the affective match of request features. This work integrates previously discrepant findings on the impact of affect on donations and holds both conceptual implications for how affect can influence giving and practical implications for organizations seeking to design optimally effective requests for aid.

Keywords: Charitable giving, Affect, Prosocial behavior, Framing, Affect match

1. Introduction

Charitable organizations depend on their ability to solicit funds in order to serve individuals and groups in need. These organizations must make difficult decisions regarding the content or aid requests. These solicitations commonly include emotionally evocative imagery and messages intended to magnify the salience of those in need. Ideally, from a fundraising perspective, the most effective aid requests should help the greatest number of people in the least amount of time. On the other hand, ineffective aid requests may reduce resources and impose delays, with the ultimate effect of diminishing an organization's ability to deliver aid. Fundamental questions regarding how to magnify request effectiveness have generated a growing body of research (Fajardo, Townsend, & Bolander, 2018; Khodakarami, Petersen, & Venkatesan, 2015; S. Lee et al., 2014; Winterich, Mittal, & Aquino, 2013; Winterich, Mittal, & Ross, 2009). Despite increasing research, however, our understanding of how combined appeal features enhance persuasiveness remains incomplete.

Previous research has focused on the influence of discrete components of aid requests on giving, including affective images (Burt & Strongman, 2000; Chung & Lee, 2019; Fisher & Ma, 2014; Genevsky, Västfjäll, Slovic, & Knutson, 2013; Small & Verrochi, 2009) and message framing (Chang & Lee, 2009; Erlandsson, Västfjäll, Sundfelt, & Slovic, 2016; Fisher, Vandenbosch, & Antia, 2017). This body of findings has generated a number of compelling – but often competing – predictions (Erlandsson, Björklund, & Bäckström, 2015; Erlandsson, Nilsson, & Västfjäll, 2018). In particular, general conclusions about which specific emotions most potently increase charitable giving remain elusive. A plausible explanation for these ostensibly divergent findings in previous studies is that some additional, uncontrolled variable is

moderating the observed effects, leading to inconsistent results. Importantly, because individual request features are not typically presented alone, but instead often occur in the presence of other features, interactions among the features may determine their joint influence on donor behavior. Present work explores the interaction of request features on giving, as well as the psychological mechanisms that might underlie their combined influence.

Prior findings in the literature suggest that request features surrounding affective imagery are rarely systematically controlled or explained in practice. In the present research, we seek to explore the potentially variable relationship between the affective valence of images and the framing of request text, as well as their combined influence on charitable giving decisions. The results synthesize apparently divergent findings from prior research and offer a common predictive framework. The present research thus seeks to address three fundamental questions:

- 1) How do request features (i.e., affective images and request framing) interact to influence charitable giving decisions?
- 2) Does the interaction between request features explain contradictory conclusions reached in previous research?
- 3) Can the impact of the request features on experienced affect of potential donors account for their influence on charitable behavior?

2. Theoretical Development

An established literature on charitable giving has demonstrated that emotions play a central role in prosocial behavior (e.g., Andreoni, 1990; Batson, Duncan, Ackerman, Buckley, & Birch, 1981). Individuals and solicitations that elicit greater emotional reactions have been associated with increased prosocial responding (Genevsky & Knutson, 2015; Genevsky et al.,

2013; Kogut & Ritov, 2005b, 2005a; Small & Verrochi, 2009). Research on predictors of prosocial behavior has advanced beyond general questions regarding whether or not emotions might influence giving to more focused studies that manipulate and test the influence of specific affect-eliciting features.

Some work has provided evidence suggesting that negatively-valenced appeals (e.g., those that evoke guilt or distress) may promote charitable behavior (Baberini, Coleman, Slovic, & Västfjäll, 2015; Burt & Strongman, 2000; Carlson & Miller, 1987; Cialdini, Darby, & Vincent, 1973; Cialdini et al., 1987; Small & Verrochi, 2009). After being confronted with the pain and suffering of potential recipients, donors might feel an increased urge to help (Hein, Silani, Preuschoff, Batson, & Singer, 2010; Small & Verrochi, 2009). For example, aid requests that presented sad facial expressions of children elicited higher levels of sympathy, which in turn increased rates of giving (Baberini et al., 2015; Small & Verrochi, 2009). Similarly, guilt inductions have been used to increase donations (Haynes, Thornton, & Jones, 2004; Hibbert, Smith, Davies, & Ireland, 2007). Other evidence, however, suggests that inducing guilt might evoke anger, which in turn may reduce donations (Feiler, Tost, & Grant, 2012). One possible psychological mechanism underlying the influence of negative affect on charitable behavior might involve negative-state reduction, in which individuals attempt to reduce experienced negative affect through positive acts of giving (Cialdini et al., 1973; Hoffman, 1981).

Alternatively, other work has suggested that positive affect (e.g., joy or warmth) may also promote charitable behavior (Aknin, Dunn, & Norton, 2012; Andreoni, 1990; Carlson, Charlin, & Miller, 1988). For instance, a “warm-glow” explanation for charitable behavior implies that engaging in prosocial behavior can generate “utility” in some, which might be associated with positive emotional experience (Andreoni, 1990). In fact, those who give to others do report

experiencing increased well-being (Aknin et al., 2012; Dunn, Aknin, & Norton, 2008), particularly after receiving information about the impact of their generosity (Aknin, Dunn, Whillans, Grant, & Norton, 2013). Previous experience with giving may further lead to an anticipatory version of this “warm-glow,” which might precede and motivate subsequent prosocial behavior (Genevsky et al., 2013; Harbaugh, Mayr, & Burghart, 2007). Such a mechanism coheres with accounts of reward anticipation promoting approach towards a wide range of potential rewards (e.g., Knutson & Greer, 2008). According to this view, anticipation of outcomes changes both affective arousal and valence (e.g., Watson et al., 1999). The inherent uncertainty of future outcomes can increase arousal. Moreover, cues that signal positive outcomes or potential gains increase positive valence, but cues that signal negative outcomes or potential losses increase negative valence. Thus, anticipation of positive outcomes increases positive arousal (e.g., feelings such as excitement and happiness), while anticipation of negative outcomes increases negative arousal (e.g., feelings such as anxiety and disgust). In turn, positive arousal motivates approach behavior, while negative arousal motivates avoidance behavior.

Neuroimaging studies also suggest that positive affect can promote prosocial behavior. Increased activity in brain regions associated with reward anticipation and the experience of positively aroused affect (Knutson & Greer, 2008) predicts choice across a broad range of financial and consumer decision-making contexts (Genevsky & Knutson, 2015; Knutson, Rick, Wimmer, Prelec, & Loewenstein, 2007; Kuhnen & Knutson, 2005). Further, activity in these circuits also predicts charitable behavior (Genevsky et al., 2013; Harbaugh et al., 2007; Hare, Camerer, Knoepfle, & Rangel, 2010; Kuss et al., 2013; Moll et al., 2006). For instance, in a study of the influence of recipient identifiability on charitable giving, the presence of pictures of orphans increased activity in circuits associated with positive arousal, which predicted increased

choices to donate (Genevsky et al., 2013). Overall, then, neuroimaging studies have implicated positive affect in charitable donation decisions.

Often, however, affective features are not presented in isolation, but rather in the context of other request features. Thus, the framing of a request might moderate the impact of its affective features on donor behavior. A rich body of research on message framing and decision-making derived from Prospect Theory (Kahneman & Tversky, 1979) suggests that alternate frames of objectively equivalent features can influence choice (Tversky & Kahneman, 1981). Message framing can influence choice across a number of domains (Edwards, Edwards, & Edwards, 1996; Levin, Schneider, & Gaeth, 1998) ranging from public health (Meyerowitz & Chaiken, 1987; O’Keefe & Jensen, 2009; Reinhart, Marshall, Feeley, & Tutzauer, 2007; Rothman & Salovey, 1997; Toll et al., 2008) to consumer choice (Chen, Monroe, & Lou, 1998; Heath, Chatterjee, & France, 1995; Levin, 2013; Puto, 1987; Sinha & Smith, 2000).

Some research has begun to explore how message framing might influence cause-related marketing and charitable giving (Chang, 2008; Chang & Lee, 2009; Chou & Murnighan, 2013; Grau & Folse, 2008). For example, in consumer contexts, framing profit-sharing in absolute dollar amounts rather than percentage of price can increase purchases (Chang, 2008). In charitable contexts, positively-framed requests can increase cooperative behavior (Andreoni, 1995), in particular when focused on individual strength (Liang, Chen, & Lei, 2016), or when focusing on the benefits to others (Fisher et al., 2017). Framing may influence choice, in part, by “matching” the affective impact of target features (Levin, Johnson, Russo, & Deldin, 1985; Levin et al., 1998). In typical consumer situations, the most desirable match is often straightforwardly positive (Grau & Folse, 2008). Counterintuitively, though, in other scenarios, including charitable giving, matching negative features with a negatively-framed request might

also facilitate giving. Extant findings appear to be consistent with the possibility that this matching of request features that are both negatively valenced will facilitate processing ease that will be experienced affectively positively rather than negatively (Winkielman & Cacioppo, 2001; Winkielman, Schwarz, Fazendeiro, & Reber, 2003). Moreover, prior research does not clarify whether affectively evocative features and message framing independently or interactively influence charitable giving, or how they might do so.

In framing studies, researchers often manipulate either the salience of desirable or undesirable message features (e.g., 75% lean meat vs. 25% fat meat; Levin & Gaeth, 1988), or a message's focus on gain versus loss outcomes (e.g., lives saved vs. lives lost). Thus, framing manipulations might induce positive or negative anticipatory affect that can compel motivated behavior through multiple channels (e.g., Loewenstein et al., 2001; Peters, Slovic, & Gregory, 2003; Knutson & Greer, 2008). Charitable giving contexts involve similar framing possibilities, since requests can include visual features such as affective images that are positive versus negative (e.g., smiling versus frowning faces; Genevsky & Knutson, 2015), as well as positive versus negative framing of an associated text request (e.g., opportunities to help versus threats to be averted). Although prior studies have not specifically focused on the "valence match" explored in the present research, there is substantial evidence for an influence of valence match on behavior. The match of message features and context has been demonstrated to positively influence message persuasiveness (Lee & Aaker, 2004), and more specifically, charitable behavior (White & Peloza, 2009). Similarly, congruence between message features and internal psychological states has been demonstrated to encourage charitable behavior (Jeong et al., 2011; Lockwood et al., 2002; Mukherjee, Srinivasan, & Manjaly, 2014).

In prior studies, messages that were framed to match recipients' motivational orientation were judged as more persuasive (Updegraff, Sherman, Luyster, & Mann 2007). Accordingly, as positive affective features of a message activate positive anticipatory affect, a person might respond more to a message that advocates approach motivation. This subjective experience of matching might be related to notions of fluency (i.e., the relative ease of processing a message; Oppenheimer, 2008; Winkielman et al., 2003), and fit or "feeling right" (i.e., subjective sense of importance or correctness) when the way in which a message is presented fits a person's goals (e.g., to promote or prevent some outcome; Cesario, Grant, & Higgins, 2004; Lee & Aaker, 2004).

If the valence match between an affective image and message frame matters, then positive affective imagery in the context of a positively-framed request should elicit maximum positive arousal, which should promote approach and increase giving. Counterintuitively, however, negative affective imagery presented in the context of a negatively-framed request might also elicit positive arousal, due to a match in valence, which could also motivate approach towards greater giving. While consistent with behavioral predictions of a motivational congruence model (Dreisbach & Fischer, 2015; Sherman, Mann, & Updegraff, 2006), these predictions further imply that valence match (both positive and negative) might elicit a common underlying psychological mediator of the experience – positive aroused affect.

Thus, approach-related behaviors driven by positive arousal, including charitable giving decisions, may not be solely influenced by the objective valence of perceptual stimuli. Stimulus features that match the request framing in valence may be experienced more positively and thus more readily elicit approach behavior than equivalent stimulus features that do not match the request framing in valence. For instance, researchers have demonstrated that matches in facial

expressions in a social categorization task can enhance value, and this increase supersedes the explicit affective impact of the expressions themselves (Winkielman, Olszanowski, & Gola, 2015). Physiological measures have provided further evidence that viewers smile more in response to matched expressions than mixed expressions, even when those expressions are angry. Further, negative stimuli are evaluated more positively when paired with a typical physical manifestation of avoidance (i.e., pushing away) (Centerbar & Clore, 2014). Finally, individuals may experience the valence match of negative stimuli more positively when compared with mixed positive and negative stimuli (Putrevu, 2014). Thus, the specific affective experiential influence of distinct components appears to be interactive rather than additive. The fact that such a valence match more powerfully applies to positive features, however, implies that the match may be experienced positively (Reber & Schwarz, 1999), and so might most powerfully elicit behavioral approach. Consumer research lends further support to this account, since individuals rate products that are displayed alongside conceptually congruent stimuli more favorably (Lee & Labroo 2004).

Building from the basic notion that valence match between affective imagery and request framing can generate positive arousal, which can promote approach (e.g., Watson et al., 1999; Knutson & Greer, 2008), we derive the following hypotheses:

H1: Positive affective images will increase donations overall, but this effect will be moderated by request framing.

H2: Positive affective images accompanied by positive request framing will elicit maximal donations because this match in valence will elicit maximal positive arousal to motivate the donor to approach opportunities for the requester.

H3: Counterintuitively, negative affective images accompanied by negative request framing will also effectively elicit donations, because this match (vs. non-match) in valence will elicit positive arousal to generate comparably greater motivation to give by the donor in order to avoid negative outcomes.

H4: Non-match in valence between affective images and request framing will elicit lower donations, because responses elicited by the affective stimuli and request frames will conflict, thereby diminishing positive arousal.

In a series of six studies, we explore the role of positive and negative affective imagery, request framing, and their interaction on charitable giving behavior. In all the studies, affective imagery is manipulated using facial expressions of donation recipients in images featured in aid requests. The manipulation of facial affect was chosen because photographic images of individuals are salient visual elements present in the vast majority of real-world requests for aid. Facial expressions have the added benefit of being naturalistic stimuli that are easily modified by marketers when crafting solicitations, and thus provide a generalizable extension to real-world applications.

Across all studies, request framing is manipulated to be either positive or negative in order to explore the interaction between elements of charitable requests and the effect of valence match on donations. Trials in the positive framing condition featured aid scenarios described as opportunities to proactively address a dangerous or unfortunate situation. These scenarios were designed to introduce the need for aid and offer a means to help that is focused on the opportunity to positively impact the situation for individuals who may face these circumstances. Negative framing trials featured aid scenarios that depicted threats posing an immediate danger

to the health and well-being of those in need. They were designed to introduce the need for aid and offer a means to help that is focused on alleviating the current threat to those in danger.

In study 1, we directly assess the influence of affective images featuring positive and negative facial expressions of donation recipients on donor behavior as well as the moderating effect of request framing on these preferences. In studies 2 and 3, we test the generalizability of these effects by exploring multiple novel aid scenarios (study 2) and by manipulating the framing of a single aid scenario (study 3). In study 4, we expand on the binary preference task design by using a willingness-to-pay measure to assess donation preferences. In study 5, we recruit community members to the laboratory and replicate our findings using an incentive-compatible donation task. Finally, in study 6, we measure affective responses of potential donors to test the proposed psychological mechanism underlying these effects. We thus conduct analyses that assess the extent to which experienced affect (i.e., positive arousal) can account for the interactive influence of affective imagery and request framing on donation behavior.

To maximize our ability to detect the existence of real effects and minimize experimental error, we took a number of steps to improve the fidelity of measurement, analysis, and replicability. First, all image and text stimuli were pretested to ensure they varied on the intended dimensions. Specifically, the facial expressions of individuals in photographic stimuli and the donation scenario text were confirmed to represent the affective states of their experimental conditions (see study 1 methods for further details). Second, the majority of analyses were conducted as within-subject designs in order to improve sensitivity of the estimates of observable effects. Third, study 3 was designed to allow for additional between-subjects analyses to address potential design limitations.

3. Studies and results

3.1. Study 1

Study 1 explores donor preferences with respect to pictured individuals displaying positive, negative, or neutral facial expressions in request messages that are framed as either positive or negative. We test the hypothesis that match in valence between target affect and request framing will increase giving. In particular, we expect positive facial expressions to be most effective when paired with requests framed positively as opportunities, but negative facial expressions to be more effective when paired with requests framed negatively as threats (H1).

3.1.1. Methods

Fifty-six participants were recruited from a paid subject pool of community members (mean age = 23.68, $SD = 6.78$, 33 female). Participants were given a cash endowment (\$10.00) and told that they will make a number of donation decisions, each of which should be treated as an independent decision to donate a maximum amount of \$10. They were also told that one of the decisions would be selected at random at the end of the session to count for real. Participants read aid scenarios framed either positively as an opportunity or negatively as a threat, presented in a counter-balanced block design. On each trial, participants viewed a single individual in need and used a slider bar to indicate the portion of their endowment they choose to donate. The study included a 3 (affective facial expression: happy, neutral, sad) x 2 (request framing: positive, negative) within-subjects factorial design. A total of 48 trials were presented to each participant. The dependent measure of interest was the dollar amount donated on each trial. At the end of the session, one trial was selected at random to count for real, and if the participant had chosen to donate on that trial, the amount was removed from the participant's endowment and donated to

Mercy Corps, an international development organization; otherwise, they retained their full endowment of \$10 received at the beginning of the session.

Facial stimuli were selected from a set of naturalistic photographs of real charitable loan requesters used in a prior study (Genevsky & Knutson, 2015; for sample stimuli see Appendix). In a pretest, an independent sample of participants provided ratings of facial affect for each photograph. Raters evaluated the photographic stimuli on a 7-point scale indexing the valence of the person's facial expression. As expected, there was a significant linear effect of affective image category on valence ratings ($t = 43.19, p < .001$). Specifically, photographs in the positive condition received significantly higher valence ratings than those in either the neutral ($t = 32.25, p < .001$) or negative conditions ($t = 44.69, p < .001$). Neutral condition photos were also rated more positively than those in the negative condition ($t = 14.27, p < .001$). Further, an independent sample of participants confirmed that scenarios in the positive and negative framing conditions were, in fact, perceived as being focused more on either opportunities to help or threats to life, respectively ($t = 8.55, p < .001$). Additionally, pretest participants provided valence ratings for the positive and negative framing conditions. Positive framing scenarios yielded significantly higher valence ratings than negative framing scenarios ($t = 7.74, p < .001$).

3.1.2. Results and discussion

A mixed effects analysis of variance explored the influence of affective facial expressions, request framing, and their interaction on donation amount. There was no main effect of recipients' affective facial expressions on donation ($F(2,110) = .22, p = .805$). There was also no significant main effect of request framing on donations ($F(1,55) = 1.60, p = .212$), indicating that giving behavior overall did not significantly differ by affective facial expression or request framing. There was, however, a significant interaction of affective facial expression with request

framing ($F(2,110) = 12.14, p < .001$), demonstrating that the influence of affective facial expression on donations was significantly moderated by request framing (Fig. 1).

When the positive framing condition was explored independently, there was a significant linear effect of facial expression on donations ($t = 4.87, p < .001$). Participants donated more to recipients with happy (\$4.39) versus sad (\$3.89) expressions ($t = 2.36, p < .05$), and happy versus neutral (\$3.95) expressions ($t = 2.14, p < .05$). In the negative framing condition, there was an opposite and significant linear effect ($t = -3.54, p < .001$). Participants donated numerically more to recipients with sad (\$4.38) versus happy (\$4.03) expressions ($t = 1.63, p = .103$), and neutral (\$4.38) versus happy expressions ($t = 1.62, p = .106$), although these results did not reach statistical significance. Analysis for separate facial expression conditions yielded convergent evidence. Potential recipients with happy expressions received marginally greater donations in the positive (\$4.39) versus negative (\$4.03) framing condition ($t = 1.72, p = .086$), whereas recipients with sad expressions received significantly higher donations in the negative (\$4.38) versus positive (\$3.89) framing condition ($t = 2.26, p < .05$).

In study 1, we utilized an incentive-compatible donation paradigm in the laboratory to explore the interactive influence of affective imagery and text on giving behavior. We observe that request framing significantly moderated the influence of affective facial expressions on donations. In the positive framing condition, happy facial expressions elicited the highest rates of donations. In the negative frame condition, this pattern reversed such that sad expressions elicited the highest rates of donations.

Fig. 1. Request framing moderates the influence of affective facial expression on monetary donations (study 1 results). In the positive framing condition, there was a positive linear effect of facial expression valence on donation amount, with greater giving for happy expressions. In the negative framing condition, there was an opposite linear effect, with greater giving for sad expressions. Error bars represent standard errors.

3.2. Study 2

In study 2, we attempt to replicate the findings of study 1 in a larger online sample. The original study relied upon data collected from participants recruited via the university's subject pool. A strong body of research has established the value and robustness of online crowdsourced data collection, particularly to augment lab-based studies (Behrend, Sharek, Meade, & Wiebe, 2011; Goodman, Cryder, & Cheema, 2013; Klein et al., 2014; Paolacci & Chandler, 2014). It is possible that the university sample does not adequately represent the greater population, and that in some scenarios, behavior in online experiments may differ systematically from those in the laboratory. The present study thus sought to extend our previous findings by replicating them in an online sample.

3.2.1. Methods

As in study 1, participants read aid scenarios framed either positively as an opportunity or negatively as a threat in a counter-balanced block design. In each trial, participants viewed a single individual in need and used a slider bar to indicate the portion of a hypothetical \$20 endowment they would choose to donate. The study was a 3 (affective facial expression: happy, neutral, sad) x 2 (request framing: positive, negative) within-subjects factorial design. A total of 30 trials were presented to each participant. The dependent measure was the dollar amount donated to a single recipient on each trial. Two hundred participants were recruited via the Amazon Mechanical Turk platform (9 were excluded from analyses for failure to complete the experiment).

3.2.2. Results and discussion

A mixed effects analysis of variance explored the influence of affective facial expressions, request framing, and their interaction on donation amount. There was a significant

main effect of facial expression on donations ($F(2,380) = 4.65, p = .010$). Pairwise comparisons indicated significantly greater giving for happy (\$11.54) versus sad (\$11.10) expressions ($t = 3.97, p < .001$), and for happy versus neutral (\$11.08) expressions ($t = 3.79, p < .001$). There was no significant difference in donations for sad versus neutral expressions ($t = -0.24, p = .814$). There was also no significant main effect of request framing on donations ($F(1,190) = .012, p = .913$), indicating that giving behavior overall did not significantly differ across positively and negatively framed scenarios. However, as in study 1, main effects were qualified by a significant interaction of facial expression with request framing ($F(2,380) = 11.92, p < .001$; Fig. 2), demonstrating that the influence of affective facial expressions on giving was significantly moderated by request framing.

When giving in the positive and negative framing conditions were examined separately, happy expressions elicited significantly greater giving than sad expressions in the positive framing condition (\$11.88 vs. \$10.84; $t = 3.17, p < .01$). In the negative framing condition, donations to sad expressions were nominally, but not significantly, greater than happy expressions (\$11.31 vs. \$11.20; $t = -.342, p = .732$). In line with prior research, these findings suggest that while request framing can moderate the influence of affective facial expressions on giving, it appears mostly to moderate the baseline preference for giving to recipients with positive rather than negative facial expressions (Genevsky & Knutson, 2015). Specifically, positive facial expressions most robustly increased giving when charitable solicitations were positively framed.

Fig. 2. Positive vs negative request framing moderates the influence of affective facial expression on willingness to donate (study 2 results). There is a significant interaction of request framing and facial expression on donation amount $F(2,380) = 11.92, p < .001$. In particular, request framing reversed willingness to donate to targets with sad versus happy expressions. Error bars represent standard errors.

3.3. Study 3

In study 3, we sought to identify the psychological mechanism underlying the differences in affective influences on giving. The first two studies focused on whether donation recipients' affective facial expressions interacted with request framing to influence charitable giving decisions. We did not directly examine, however, the role of donors' affective responses to facial expressions and request framing. One of two potential mechanisms might account for the capacity of valence matches to enhance donations. First, if the match in valence alone mediates these effects, then potential donors should give more based on positive affect induced by a match between positive facial expressions and positive opportunity framing, or conversely based on negative affect induced by a match between negative facial expressions and negative threat framing. However, if a match in valence instead elicits positive arousal regardless of the conditions involved, then positive arousal induced by matches between positive facial expressions and positive framing, *as well as* between negative facial expressions and negative framing, should drive donations. The latter case would provide evidence consistent with our counterintuitive hypothesis (H3) that even a match between negative affective images and negative request framing induces positive arousal, which then promotes giving.

To distinguish between these distinct hypotheses about the underlying process, we sought to determine whether changes in participants' experienced affective responses (i.e., positive arousal) to donation requests could account for the influence of the valence match between facial expression and request framing on giving. Thus, we collected self-reported ratings from participants regarding their affective experience of each donation request. This supported a mediated moderation analysis that could test whether experienced affect psychologically

mediated the interaction of affective facial expression with request framing on donation behavior.

3.3.1. Methods

As in studies 1 and 2, participants read aid scenarios framed as either positive or negative, presented in a counter-balanced block design. On each trial, participants viewed a single individual in need and then used a slider bar to indicate the portion of a hypothetical \$20 endowment they would choose to donate. The study included a 3 (affective facial expression: happy, neutral, sad) x 2 (request framing: positive, negative) within-subjects factorial design. A total of 30 trials were presented to each participant. Two hundred participants were recruited via the Amazon Mechanical Turk platform (11 were excluded from analyses for failure to complete the experiment).

Participants then rated their own experienced affect in response to each of the donation requests immediately following the donation task using two 7-point scales - one indexing valence (positive–negative) and the other indexing arousal (highly arousing–not arousing). Because positive and negative aroused affect are theoretically more closely associated with approach and avoidance motivational states than valence alone (Knutson, Katovich, & Suri, 2014), and have been used to predict prosocial choices (Genevsky & Knutson, 2015; Genevsky et al., 2013), valence and arousal ratings were transformed into positive-arousal and negative-arousal scores to be used as measures of experienced affect. Within-subject mean-deviated valence and arousal scores were projected onto positive and negative arousal axes rotated 45° (i.e., positive arousal = $(\text{arousal}/\sqrt{2}) + (\text{valence}/\sqrt{2})$; negative arousal = $(\text{arousal}/\sqrt{2}) - (\text{valence}/\sqrt{2})$; (for further details, see Watson et al., 1999; Kuhnen & Knutson, 2005; Knutson et al., 2014).

3.3.2. Results and discussion

First, a mixed effects analysis of variance explored the influence of recipients' affective facial expression, request framing, and their interaction on donation amount. There was no significant main effect of either facial expression ($F(2,376) = 1.27, p = .282$) or request framing ($F(1,188) = 2.33, p = .129$) on donations. However, as in studies 1 and 2, there was a significant interaction of facial expression with request framing ($F(2,376) = 9.71, p < .001$; Fig. 3), indicating that the influence of affective images on choices to donate was significantly moderated by request framing. When giving was explored separately for the positive and negative framing conditions, participants donated more to recipients with happy (\$11.19) versus sad (\$10.46) expressions in the positive framing condition ($t = 2.20, p < .05$). There was also a significant linear effect of facial expression on donations ($t = 5.49, p < .001$), with the greatest donation rates for happy, followed by neutral and sad expressions. In the negative framing condition, there was also a significant linear effect of affective facial expression in the opposite direction ($t = -2.12, p < .05$) with greatest giving for sad, followed by neutral and happy expressions. As in study 1, when analyzed separately by facial expression conditions, recipients with sad expressions received significantly higher donations in the negative frame (\$11.38) versus positive frame (\$10.46) condition ($t = 2.75, p < .01$).

Next, to explore the influence of experienced affect on giving, linear regression models were conducted to assess the association between participants' positive- and negative-arousal ratings and their donation amounts. Across framing conditions, only positive-arousal scores (i.e., positive experienced affect) were significantly associated with donations ($t = 12.673, p < .001$). Negative-arousal scores (i.e., negative experienced affect) were not significantly associated with giving behavior ($t = 0.78, p = .437$). However, when analyses were conducted separately for

positive versus negative framing conditions, a more nuanced relationship between framing and experienced affect emerged (Fig. 4). As expected, in the positive framing condition, positive-arousal scores significantly correlated with donations ($r = .28, p < .001$; Fig. 4A), while negative-arousal ratings did not ($r = .05, p = .212$). However, in the negative framing condition both positive-arousal ratings ($r = .25, p < .001$) and negative-arousal ratings ($r = .11, p < .01$) significantly correlated with donations (Fig. 4B).

Next, in order to assess the possibility of a mediated moderation effect – with experienced affect accounting for the interaction of facial expression with request framing – we conducted a series of linear regression analyses predicting trial-by-trial donation amounts. A first model demonstrated a significant interaction of facial expression and request framing on donation amounts ($t = 2.17, p < .05$), replicating the findings of the previous studies. Two additional models established associations between facial expression and participants' positive-arousal ($t = 20.36, p < .001$) and negative-arousal ($t = -10.49, p < .001$) ratings. Finally, two separate full models that incorporated effects of facial expression, request framing, and participants' affect ratings, explored the mediating role of experienced affect on the moderation of request framing on facial expressions in promoting donations. For positive-arousal, including experienced affect decreased the interaction of facial affect and request framing to non-significance ($t = 1.62, p = .104$), suggesting a mediated moderation. For negative arousal, however, we did not observe a significant decrease in the interaction coefficient ($t = 2.20, p < .05$), indicating a lack of mediated moderation.

To further test this result, we conducted a bootstrapped mediated moderation analysis in order to estimate the mediation effect of positive arousal on the interaction of facial expression and request framing. A distribution of the difference in the interaction term in models including

and excluding positive arousal was derived over 10,000 iterations of data sampled with replacement. Confidence intervals were constructed on this distribution, and reported p -values were calculated as the proportion of this distribution that exceeded a null value of 0. Results further supported a mediating role of positive arousal on the interaction of facial expression and request framing on donations (95% C.I. = [.016, .278], $z = 2.17$, $p = .015$). Thus, results supported the hypothesis that experienced affect can account for interactive effects of affective facial expression and request framing on donations, but only for positive arousal. Thus, for both positive and negative valence match, positive arousal appeared to increase donations.

In study 3, affect ratings were used to assess the influence of experienced affect on donation behavior. As shown in prior work, positive-arousal significantly predicted donations (Genevsky & Knutson, 2015; Genevsky et al., 2013). Omnibus analyses suggested that despite previous work on the influence of negative affect associated with photographs on prosocial behavior (Small & Verrochi, 2009), negative arousal in our participants did not significantly predict giving. When analyses were conducted separately for the positive and negative framing conditions, however, negative arousal was significantly associated with donations in the negative framing condition (Fig. 4B). This suggests that, while evidence supports a generalizable influence of positive affect on donation behavior across conditions, the valence match of affective features of a message with request framing can increase giving. This finding further supports the hypothesis that valence match, even in the case of negative facial expressions matched with negative framing, increases the experience of positive arousal, which then promotes approach-related behavior, including charitable giving to others.

The affective facial expressions depicted in images robustly influenced participants' experienced affect, suggesting that manipulating facial expressions can elicit experienced affect

in potential donors. As observed in studies 1 and 2, however, request framing moderated the influence of affective facial expression on donation decisions. For positively framed messages, positive (i.e., happy) images were most effective in generating donations. Positive-arousal fully mediated the moderation of the facial expression effect by request framing (consistent with H3), suggesting that evoked positive-arousal can explain the moderating role of valence match. Thus, a valence match between affective facial expressions and request framing promotes donations to the extent that it can increase positive arousal.

Fig. 3. Experienced positive arousal moderates influence of request framing (study 3 results). Request framing moderated the influence of affective facial expressions on donations. Positive framing induced a significant linear relationship of facial expressions with donation amount, with greater giving for happy expressions. In the negative framing condition, there was an opposite linear effect, with greater giving for sad expressions. Further, recipients with sad expressions received significantly higher donations in the negative versus positive framing condition. Additional analyses revealed that self-reported positive arousal (but not negative arousal) accounts for the interaction of facial expressions with request framing. Error bars represent standard errors.

Fig. 4. Association between experienced affect and giving in the positive and negative frame conditions. In the positive framing condition (A), only positive-arousal scores are significantly positively correlated with donations ($r = .28, p < .001$), but negative-arousal ratings are not ($r = .05, p = .212$). However, in the negative framing condition (B), both positive-arousal scores ($r = .25, p < .001$) and negative-arousal scores ($r = .11, p < .01$) are correlated with donations.

3.4. Study 4

Studies 1, 2, and 3 established an interactive effect of affective facial expressions and request framing on aid decisions when deciding how much to donate. There may have been, however, particular details of the choice structure utilized in previous designs that might not generalize to other donation contexts. In many real-world giving contexts, donors must make decisions between potential recipients of their contributions. Microlending websites, for example, offer an abundance of individuals to whom donors can choose to make their contributions. Observed donor preferences in such choice contexts would provide further evidence regarding the influence of the affective features of aid requests. In study 4, we extended upon the willingness to pay choice design by using a binary choice paradigm. In this way, we test the robustness of the observed effect to various choice designs.

3.4.1. Methods

The study included a 3 (affective facial expression: happy, neutral, sad) x 2 (request framing: positive, negative) within-subjects factorial design. A total of 18 trials divided equally between opportunity to help (i.e., positive) and threat to well-being (i.e., negative) framing conditions were presented in separate blocks. Block presentation order was counterbalanced across participants. At the beginning of each block, participants read a short description of either the opportunity or threat scenario. On each trial, participants were presented with two potential aid recipients and asked to decide whom they would choose to help. Each pair of potential recipients consisted of combinations of individuals with happy (i.e., positive), sad (i.e., negative), or neutral expressions. Two hundred participants were recruited via the Amazon Mechanical Turk platform (9 were excluded from analyses for failure to complete the experiment).

3.4.2. Results and discussion

We analyzed the impact of request framing and affective facial expression on giving decisions independently for each paired combination of facial expression (i.e., happy vs. sad, happy vs. neutral, and sad vs. neutral). A hierarchical logistic regression model including fixed effects of facial expression, request framing, and their interaction, as well as a nested random effect of subject, was applied to predict binary trial-by-trial choices.

For happy versus sad expressions, there was a significant main effect of recipients' facial expression ($z = 7.76, p < .001$), indicating higher rates of giving to recipients with happy expressions (63.8%). Further, there was a significant interaction effect ($z = 2.13, p < .05$; Fig. 5A), such that within-subject effects of facial expression on giving were moderated by request framing. While happy expressions were chosen for funding more than sad expressions in both frames (positive: 67.0%; negative: 60.6%), the magnitude of this difference was moderated by whether the frame was positive or negative.

For happy versus neutral expressions, there was no significant main effect of recipients' facial expression ($z = 1.54, p = .123$) on giving. There was also no main effect of request framing ($z = 0.00, p = 1.00$), nor a significant interaction effect ($z = -.78, p = .433$; Fig. 5A). For sad versus neutral expressions, there was a significant main effect of recipients' facial expression ($z = 4.81, p < .001$), indicating greater giving to recipients with neutral (61.1%) rather than sad expressions (38.9%). Further, the non-significant facial expression by request framing interaction ($z = -.49, p = .625$) suggested that framing did not moderate preferences between sad and neutral facial expressions.

In study 4, we found a significant preference to help individuals with happy versus sad expressions. We also found a preference for neutral expressions when compared to sad

expressions. Importantly, only in the happy versus sad condition was the effect of affective facial expression on giving decisions significantly moderated by request framing. In other words, direct comparison of happy and sad expressions indicated that their respective effectiveness in eliciting charitable behavior may be moderated by context, with increased giving when there is a match in valence between facial affect and request framing.

Fig. 5. Request framing moderates the influence of affective facial expression on donation

(studies 4-6 results). Values along the y-axis represent the percentage of trials in which participants chose to donate to targets with facial expressions described on the x-axis, compared to the category in parentheses. 50% represents equal donations to requests in both image categories. Colored bars represent trials in either the positive (dark) or negative (light) request framing conditions. Significant results indicate an observed moderation of the influence of affective facial expression by request framing condition. For all studies, in trials that contrasted targets with positive (i.e., happy) versus negative (i.e., sad) expressions, request framing significantly moderated the influence of facial expressions on giving. Specifically, donations to targets with positive expressions were greatest when paired with positive framing but decreased when paired with negative framing. Additionally, studies 5 and 6 revealed that request framing reversed preferences for donating to targets with sad versus happy expressions. Error bars represent standard errors.

3.5. Study 5

It is possible that the our previous study findings were due in part to elements of the particular aid scenarios utilized in the task. In study 5, we sought to generalize the findings to other situations through replication using a number of different positive and negative scenarios. Further, in order to assess the robustness of the study 4 findings to potential expectation confounds, scenario presentation order was fully randomized, as opposed to the block design utilized in study 4.

3.5.1. Methods

An identical procedure was used as in study 4, but the positive and negative framing conditions were each comprised of a series of four aid scenarios. As in study 4, participants viewed photographs of two potential recipients of aid and selected their preference. Each request frame was encountered three times: once for each permutation of happy, sad, and neutral facial expressions. Conditions and recipient pairs were presented in a fully randomized design. Two hundred participants were recruited via the Amazon Mechanical Turk platform (11 were excluded from analyses for failure to complete the experiment).

3.5.2. Results and discussion

For happy versus sad expressions, hierarchical logistic regression analyses of donation decisions found a significant main effect of recipients' facial expression ($z = 4.49, p < .001$), with higher rates of giving to recipients with happy expressions (53.3%). Further, there was a significant interaction effect ($z = 3.81, p < .001$; Fig. 5B), such that within-subject effects of facial expression on giving were moderated by the request framing, with increased giving to happy expressions in the positive framing condition (58.2%) and increased giving to sad expressions in the negative framing condition (51.6%).

For happy versus neutral expressions, there was a significant effect of recipients' facial expression ($z = 2.47, p < .05$), indicating higher rates of giving to recipients with happy expressions (54.5%). There was also a marginally significant facial expression by request framing interaction ($z = 1.81, p = .071$; Fig. 5B). Similarly, for sad versus neutral expressions, we found a significant main effect of recipients' facial expression ($z = 3.94, p < .001$), indicating higher rates of giving to recipients with neutral (55.8%) rather than sad expressions (44.2%). The facial expression by request framing interaction was not significant ($z = 1.02, p = .307$; Fig. 5B).

We also replicated the findings from study 4 using a series of different positive and negative request framing scenarios. This replication suggests that the observed moderating effects of message framing and facial expression generalize beyond the limited scenarios used in study 4 and may apply more broadly to aid scenarios framed either more broadly positively or negatively. We found a main effect of facial expressions in all three affect comparisons, with happy expressions favored over both sad and neutral expressions, and neutral expressions favored over sad expressions. Importantly, we once again observed a significant interaction of facial expression with request framing in the happy versus sad condition, further suggesting that the efficacy of facial affect to elicit charitable donations depends on the request framing. Further, the fully randomized task design ordering replicated the findings from the study 4 block design, suggesting methodological robustness of these findings against expectation confounds.

3.6. Study 6

An alternative explanation for the results obtained from studies 1 through 5 is that the types of real-world scenarios conventionally framed as either opportunities or threats are qualitatively distinct, and thus may have intrinsic differences which in turn influence donation preferences. To address this possibility, in study 6, we manipulated the positive versus negative request framing of a single aid scenario (i.e., famine conditions in Africa) in an attempt to control for scenario-specific differences between the conditions. Further, we took advantage of a counterbalanced block design to also conduct between-subjects analyses of giving behavior.

3.6.1. Methods

As in studies 4 and 5, participants read descriptions of aid scenarios and viewed two potential recipients of aid who varied in their affective facial expressions. Participants then indicated whom they would choose to help. A single scenario (famine) was used in all trials, but the framing of the scenario (as worded in the description) was manipulated to establish positive or negative framing conditions presented in counter-balanced blocks. Two hundred participants were recruited via the Amazon Mechanical Turk platform (14 were excluded from analyses for failure to complete the experiment).

3.6.2. Results and discussion

Hierarchical logistic regression analysis of donation decisions in the happy versus sad expression condition revealed a significant main effect of recipients' facial expression ($z = 5.48$, $p < .001$), with higher rates of giving to recipients with happy expressions (52.4%). As in our previous studies, we found a significant interaction ($z = 5.82$, $p < .001$, Fig. 5C), indicating again that preferences for giving were moderated by request framing. Happy expressions fared better in

the positive frame scenarios (62.2%), but sad expressions performed better in the negative frame scenarios (57.3%).

For happy versus neutral expressions, there was no main effect of recipients' facial expression on giving ($z = 1.15, p = .252$). There was, however, a significant interaction effect ($z = 4.50, p < .001$; Fig. 5C), indicating that increased donations to recipients with happy versus neutral expressions was moderated by request framing. We again observed that participants gave more to recipients with happy expressions in positive frame scenarios (53.2%), but to recipients with neutral expressions in negative frame scenarios (60.9%).

For the sad versus neutral expressions, participants gave significantly more to recipients ($z = 3.97, p < .001$) with neutral expressions (58.4%) than sad expressions (41.6%). There was no significant interaction effect ($z = 1.03, p = .305$; Fig. 5C), suggesting that giving in response to neutral over sad expressions was not moderated by request framing.

Between-subjects analyses were conducted using only the first block of trials presented to each participant. As in the within-subjects analyses, for happy versus sad expressions, we observed a significant main effect of recipients' facial expression ($z = 4.69, p < .001$) on giving. Importantly, as in studies 4 and 5, we also found a significant interaction of request framing and affective facial expression ($z = 5.58, p < .001$). Happy expressions fared better in the positive frame scenarios (65.9%), but sad expressions performed better in the negative frame scenarios (61.4%).

In study 6, we used a single aid scenario framed either negatively as a threat or positively as an opportunity. We replicated previous findings of increased giving to participants with happy versus sad expressions, as well as a significant interaction of facial expression by request framing. These results rule out the alternative hypothesis that the types of situations that tend to

be framed as either opportunities or threats may qualitatively differ and thus elicit unique responses in aid scenarios. Rather, the present data suggest that differential framing of a single aid scenario featuring an objectively common goal can significantly influence the impact of facial affect on donation behavior. Further, we fully replicate previous findings using a between-subjects manipulation of positive versus negative request framing, suggesting that the interactive effect of affective expression and request frame is robust across alternative study design specifications.

3.7. Single-paper meta-analyses

To summarize the informational value of these aggregated findings, we conducted two single-paper meta-analyses (SPM). This analysis features a number of benefits (McShane & Bockenholt, 2017). First, for studies that focus on a similar phenomenon but differ in experimental design, an aggregated analysis can provide a broader perspective on the effect of interest. Second, uncertainty associated with estimates from individual studies can be minimized via meta-analysis. Finally, aggregate estimates of effect size can be used to inform future studies of novel effects or manipulations.

Due to differences in the dependent measures utilized across these studies (e.g., continuous willingness-to-donate in studies 1, 2, and 3, and binary forced choice in studies 4, 5, and 6), two separate meta-analyses were conducted. Meta-analysis of studies 1, 2, and 3 explored whether participants' willingness-to-donate in response to affectively valenced image stimuli was moderated by request framing. A meta-analysis of these studies conducted via the single-paper meta-analysis procedure described by McShane and Bockenholt (2017) indicates a significant interaction of these request components on giving behavior. The analysis estimates the interaction effect at 0.990 (95% CI = [.494: 1.485]), indicating that changes in the message

framing reliably moderated the impacted of affective images on giving across these studies (Fig. 6). Interestingly, across these studies, the main effects of both image valence (est. = .443, 95% CI = [-.125 : 1.012]) and message framing (est. = -.553, 95% CI = [-1.417 : .310]) on donation behavior were not significant (Fig. 6). Summary data used in the meta-analysis are provided in Appendix D.

Studies 4, 5, and 6 each utilized an identical forced-choice dependent variable in which affective image features were paired on each trial. These three studies contained roughly equivalent sample sizes, and thus, the data were combined and subjected to aggregate analyses. As in the individual study analyses, the meta-analysis further indicated a significant moderating effect of request framing on affective images ($z = 6.82, p < .001$).

Fig. 6. Single-paper meta-analysis. Effect estimates are given by the squares for single-study estimates and the vertical bars for single-paper meta-analysis (SPM) estimates; 50% and 95% intervals are given by the thick and thin lines, respectively. The average sample size per condition in each study is reflected by the size of the squares. The SPM suggests that while the main effects of affective images and message framing do not attain statistical significance, there is a reliable significant interactive effect of these features across the studies.

4. General discussion

The current research explored how affective facial expressions and request framing jointly influence donation decisions. In six studies, using both willingness-to-pay and forced-choice paradigms, we demonstrated that request framing moderates the influence of affective facial expressions on giving, supporting our central hypothesis (H1). In study 1, we established a moderating effect of request framing on preferences to donate to individuals in an incentive compatible donation task in a laboratory setting; and in study 2, replicated the findings for an online sample. In study 3, we demonstrated that experienced positive arousal can account for the effect of valence match between facial expression and framing, which boosts donations. Further, independent analysis of the positive versus negative framing conditions suggested that in both conditions, the valence match (vs. non-match) with facial expression enhanced giving by increasing positive arousal (consistent with H2-H4). In study 4, we expanded on the willingness-to-pay paradigm with a binary choice outcome design and again observed a moderating role of request framing on how affective facial expressions influence giving. Finally, in studies 5 and 6, we found that these effects generalized across aid scenarios and to between-subjects analyses. Finally, meta-analysis of these studies confirmed that the influence of request framing and valenced images interacted to influence individuals' decisions to donate

Beyond the moderating effect of request framing on the influence of affective facial expressions on giving in each of the six studies, we also found evidence for reversals in the effectiveness of positive and negative images on giving. In four studies (studies 1,2, 5, and 6), positive facial expressions most effectively elicited giving when presented with a positive frame, whereas negative facial expressions more effectively elicited giving when presented with a negative frame. The latter finding accords with previous reports that negative expressions in

recipient photographs can promote prosocial behavior (Small & Verrochi, 2009). The childhood cancer scenarios used in that work seem to resemble the negative framing conditions involving various threats in our studies. In many cases, we also found a significant main effect of affective facial expression on donations, with higher overall rates of giving to recipients with positive versus negative facial expressions. Thus, these findings support not only previous research indicating that positive expressions can promote giving (Aknin et al., 2012; Genevsky et al., 2013), but also delineate specific conditions under which negative expressions may promote giving (Small & Verrochi, 2009).

The present research makes several novel contributions to existing work. First, it directly addresses and integrates seemingly contradictory findings from prior research on prosocial behavior and charitable giving. Specifically, previous discrepant findings regarding positive and negative affective influences on prosocial behavior have left the nature and efficacy of affective appeals for charitable aid unclear. The current research validates these ostensibly conflicting results, and further, suggests an integrative framework that can help reconcile these divergent findings. Specifically, we find that the positive versus negative framing of request can interact with other affective features of a message to influence giving. The match in valence between the recipient's affective facial expression and the request framing may determine individuals' willingness to give, particularly when requests are positively framed to focus on opportunities to help others in need.

A second contribution of these findings is that they implicate a common but specific psychological mechanism underlying the interactive relationship between affective facial expression and request framing. Analyses demonstrated that the positive experienced affect of potential donors accounts for the influence of valence match on giving. Interestingly, both

positive and negative valence match between facial expression and request framing appeared to increase positive arousal, counterintuitively suggesting that both may enhance giving through a common affective mechanism. These findings provide further support for the positive effect of affectively matched stimuli (regardless of valence) on the experienced affect of individuals (Centerbar & Clore, 2014; Putrevu, 2014; Reber & Schwarz, 1999; Winkielman et al., 2015).

This pattern of results also carries significant practical implications for crafting more effective charitable donation requests. Expanding upon previous research, the present findings suggest that ensuring a match in valence between affective imagery and message framing could enhance the effectiveness of an aid request. This work found that the most successful combination for eliciting donations involved pairing positive facial expressions with messages that focus on opportunities to help. Paradoxically, the second best option involved pairing negative facial expressions with messages that focus on avoidance of threats. In common practice, many real-world requests for aid combine conflicting elements. For example, solicitations for humanitarian aid feature starving children paired with messages extolling the benefits of helping, or smiling children paired with messages about the dire circumstances they face. Our present work indicates that affective match in requests for donations may boost positive arousal, which should then promote decisions to give, thus implying guidelines for crafting more effective requests. If these findings generalize, small modifications of affective features and message framing in aid requests (with negligible additional cost) may substantially increase donations.

The participants in this set of studies were recruited primarily from online subject pools, with the exception of one study, which recruited students from the university student subject pool (i.e., study 1). Demographic descriptions of these samples are provided in the appendix.

Previous research on the representativeness and generalizability of online samples have demonstrated their effectiveness and reliability in replicating population-level effects (Coppock, 2018; Mullinix, Leeper, Druckman, & Freese, 2015). However, results obtained from convenience samples should always be carefully considered keeping in mind potential limitations of non-representative samples. In particular, care should be taken in limiting the generalization of conclusions reached through studies of commonly used, yet relatively homogenous and non-representative subject pools (i.e., U.S. college students). That said, the samples used in the online studies are more diverse and inclusive than typical university student samples.

Taken together, the present evidence implies important directions for future research in charitable giving and prosocial behavior. Whereas the present conclusions apply to appeals for monetary donations that benefit recipients in distant countries, future research is needed to test how well these mechanisms generalize to opportunities to donate non-monetary contributions and to more proximate recipients. Further, although this research identifies positive arousal as a critical psychological mechanism underlying the effectiveness of valence matching on requests for humanitarian aid, additional research is necessary to assess whether this mechanism can more generally account for the success of solicitations in other domains. Finally, these findings suggest that individual preferences for sharing resources with others may be moderated by external factors, including affective imagery and request framing. Future research may profitably identify other factors that can substantially influence the effectiveness of requests for aid from fundraising organizations.

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