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Effective advocacy: the psychological mechanisms of environmental issue framing

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ABSTRACT

While environmental issues are among the most serious threats to human security, they tend to rank toward the bottom of Americans' priorities for political action. To redress this, environmental organizations strategically frame their mobilization communications in an attempt to garner the public's support. Advocacy research groups encourage the use of motivational, economic and personal frames because of their ability to mobilize support through distinct psychological processes: efficacy, psychological proximity and emotion. An experimental study is conducted that tests the extent to which these mechanisms mediate environmental frames' effects on support for an environmental campaign. Results of this study lead to the conclusion that motivational frames are unable to elicit efficacy in the target audience, thus proving ineffectual at influencing attitudes or behaviors. Economic and personal frames are more successful, aligning the audience's attitudes with the message and operating through psychological proximity, sadness and anger to induce behavioral support for the environmental campaign.

KEYWORDS Mobilization; framing; psychology; experiment; fish

Introduction

Greenpeace, an international environmental advocacy organization, greets visitors to its website with the following words: 'We're ready to fight… and protect our environment, but we can't do it without you. We rely entirely on support from members like you!' Environmental nongovernmental organizations (ENGOs) often utilize this motivational approach, emphasizing the ability to achieve positive change through collective action. This motivational frame is a conscious decision, deployed by Greenpeace and other ENGOs in an effort to shape public opinion and rally political support (Richards and Heard 2005; Hall and Taplin 2007). ENGOs also use economic frames, which present information in terms of costs and benefits to the audience. Another option is the personal

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Supplemental data for this article can be accessed here.

frame, which contextualizes information in terms of the experiences of real people affected by the particular issue.

We utilize a randomized survey experiment to assess the effectiveness of motivational, economic, and personal frames at eliciting support for an environmental campaign. In so doing, we draw on insights from a number of fields. Research on transnational advocacy groups, conducted primarily by international relations scholars, shows that NGOs regularly engage in strategic communication practices (Keck and Sikkink 1998; Joachim 2003; Allan and Hadden 2017), though with little attention to their effects on individual preferences or behaviors. Political communication and political psychology research, on the other hand, consistently demonstrates that framing information affects individual attitudes (Iyengar and Kinder 1987; Nelson *et al.* 1997; Chong and Druckman 2007), and that frames operate through distinct cognitive processes (Benford and Snow 2000; Lakoff 2010; Aarøe 2011; Newell *et al.* 2014). We bridge these strands of scholarship by analyzing how the motivational, economic, and personal frames deployed by ENGOs operate through the psychological moderators of personal efficacy, psychological proximity (specifically, the reduction of psychological distance), and emotion in order to elicit attitudinal and behavioral support for the ENGOs' goals.

Motivational frames, as evidenced in the Greenpeace quote above, emphasize the efficacy of the audience in creating change (Benford and Snow 2000). Economic frames seek to reduce psychological distance by appealing to individuals' self-interest (Corner *et al.* 2018), or to evoke emotion (especially sadness and anger) by highlighting the negative financial impact of the problem (Kuhne and Schemer 2017). Personal frames also aim to reduce psychological distance by making the consequences of the issue relatable via identifiable individuals (Slovic 2007), and to create feelings of sadness and anger by telling the stories of the victims (Kuhne and Schemer 2017). Using an experimental design and mediation model analyses, we find that motivational frames are the least effective, as they neither evoke a sense of efficacy in the target audience nor elicit support for the campaign. The economic and personal frames, in contrast, reduce psychological distance and evoke both sadness and anger, all of which increase individuals' *reported* likelihood to support the campaign. Furthermore, our evidence indicates that reduction of psychological distance and sadness are the most effective psychological motivators for behavioral change, as both also increase individuals' *actual* support of the campaign. These results indicate ENGOs are likely to be most successful by avoiding motivational language and emphasizing the negative effects environmental issues have on individual lives.

Framing and its psychological mechanisms

Though many factors influence ENGOs' messaging strategies (e.g. resource constraints, branding, actions of third parties, etc.), the desire to shape

public opinion and mobilize political action guides many communication decisions (Keck and Sikkink 1998; Tarrow 2005). However, much of the research investigating these decisions is conducted at the state- or NGO-level. Though this literature tells us much about how NGO communication strategies have developed over time (Sell and Prakash 2004; Johnston and Noakes 2005; Hall and Taplin 2007; Allan & Halden 2017; Cann and Raymond 2018; de Moor 2018; Mangat *et al.* 2018), or how those strategies influence state actions and political processes (Keck and Sikkink 1998; Joachim 2003), few working in this tradition have investigated NGO communication effects on individual attitudes or behaviors (though see Albertson and Busby 2015; McEntire *et al.* 2015b). This is surprising, as these organizations perceive raising awareness to be crucial to their missions (Keck and Sikkink 1998; Richards and Heard 2005; Hall and Taplin 2007; Shafer *et al.* 2013), and studies of communications made by non-NGO actors such as elites (Zhou 2016; Dixon, Hmielowski, & Ma 2017) and the media (Hart and Nisbet 2012) show that they can influence attitudes towards environmental issues.

Like other political actors, ENGOs implement specific communication frames. Communication frames 'suggest how politics should be thought about, encouraging citizens to understand events and issues in particular ways' (Kinder 2003, p. 359). Whether a march by the Ku Klux Klan is framed as an exercise in free speech or as a threat to public order, for example, elicits varying degrees of tolerance from individuals (Nelson *et al.* 1997). Framing is of particular interest to political science scholars because of the challenges associated with changing political attitudes and behaviors. While it is notoriously difficult to change people's minds on certain issues (Zaller 1992), framing allows elites to influence how citizens interpret those issues (Iyengar & Kinder 1987). Frames may place existing information in new contexts that individuals may not have considered previously. These considerations may resonate with existing beliefs (Nelson *et al.* 1997; Brewer 2002), creating new psychological connections between the framed issue and underlying, persistent values (Domke *et al.* 1998). Ultimately, the individual may reorient their thinking about that issue (Chong and Druckman 2007), employing the newly primed considerations when making political decisions (Iyengar and Kinder 1987; Zaller 1992).

Indeed, framing goes deeper than just presenting information in a particular way. According to Lakoff (2010, p. 71), 'all of our knowledge makes use of frames, and every word is defined through the frames it neurally activates.' These neural pathways, he argues, are built up over time, conditioning how individuals interpret information. As a result, ENGOs wishing to shift public perception of environmental problems must commit to long-term communication strategies that, over time, can alter how the brain contextualizes these issues. In order to determine which

messages are most effective over the long run, Lakoff (2010, p. 79) calls for research into the cognitive aspects of frames, recognizing that frames are about 'much more than language.' Taking up this call, subsequent research has largely determined that the oft-used 'gloom and doom' frame depicting environmental ruin is ineffective (see Hall 2013 for a summary). Moving away from these fear-based approaches, we investigate three alternative framing strategies, as well as the cognitive processes that they engage.

Table 1 identifies three frames that environmental ENGOs use to elicit support from their audiences: motivational, economic and personal. *Motivational frames*, also known as collective action frames, are action-oriented. They not only highlight the organization's policy victories, but also emphasize the role of its individual members in effecting that change (Benford and Snow 2000). Motivational frames are a common occurrence, as evidenced by an analysis of 3,000 promotional materials from Amnesty International USA, which found that 70% of AI campaigns utilized a motivational approach

Table 1. Example frames from environmental NGOs.

Motivational	'When the survival of birds is threatened by pollution, pesticides, development, and climate change, we need to do whatever we can to protect them. You and I know birds aren't able to defend themselves from these threats – so that job is up to us. That is why I am writing to invite you to become a member of the National Audubon Society. You are exactly the type of member Audubon needs.' (Audubon Society)
	'You are essential to protecting our vital natural resources like coral reefs. From Australia to the U.S. Virgin Islands, you're helping protect this ecosystem which more than 500 million people depend on for food and other resources.' (The Nature Conservancy)
Economic	'Climate change rarely gets mentioned as a deficit driver. Yet paying for climate disruption was one of the largest non-defense discretionary budget items in 2012… Here's a startling reality: America's taxpayers paid three times what private insurers paid out to cover losses from extreme weather.' (National Resources Defense Council)
	'You are already paying a price on carbon. When you produce carbon pollution, you get climate change – sea level rise, stronger storms, severe droughts, damage to agriculture, and more. All of those impacts cost money. Insurance rates go up when storms get more destructive. Taxes increase when cities have to rebuild bridges and roads. Military budgets go up when droughts and population shifts cause conflict. Not to mention impacts on agriculture and health care costs.' (Environmental Defense Fund)
Personal	'We called the Pennsylvania Department of Environmental Protection (DEP). Also, we called Chesapeake Energy… Our water contained dangerous levels of lead, methane, propane, ethane, ethene, barium, magnesium, strontium, and arsenic. Chesapeake disregarded the independent test results. The DEP was only concerned about the methane in our water… In February 2011, Carl developed intestinal cancer and had his intestines removed. My daughter, five months pregnant, suffering from seizures, had lead poisoning.' (Environment America)
	'Asbestos is the root of my myriad health problems, the least being asbestosis and mesothelioma…Today, the United States remains one of the only industrialized countries that has not banned asbestos. I lost my left lung and the surrounding tissue, including the left half of my diaphragm and the lining of my heart… I underwent debilitating chemotherapy and radiation treatments with side effects that still plague me. So when I hear Trump and his EPA administrator Scott Pruitt talk about slashing regulations… it makes my blood boil.' (Greenpeace)

(McEntire *et al.* 2015b, p. 409; see also Benford 1993). *Economic frames* present information in the context of costs and benefits to the audience. These frames tap into the audience's self-interest and hope to elicit support by showing how the issue negatively influences their personal finances (Albertson and Busby 2015; Zhou 2016). The third type of frame, the *personal frame*, seeks to invoke a sense of compassion from the target audience by highlighting the personal story of individuals negatively affected by the issue (Hart and Nisbet 2012; McEntire *et al.* 2015b).

Though we generally expect each of our communication frames to operate through different psychological processes detailed later, all three have one element in common: information. Regardless of frame used, ENGO mobilization communications provide information about an environmental problem and a proposed solution. Because acknowledgement of an issue as consequential is a prerequisite for mobilizing for a cause (Azjen 1991; Fox-Cardamone *et al.* 2000; van Zomeren *et al.* 2008), ENGOs seek to raise public awareness of their target issues. In its literature on how to engage the public, Climate Outreach argues that facts are at the heart of any effective scientific communication (Corner *et al.* 2018, p. 11). Similarly, ecoAmerica (2016, p. 5) stresses the importance of providing relevant facts to add weight to the message. This emphasis on facts stems from the belief that providing information about the problem will align the public's attitudes with the NGO's goals (Keck and Sikkink 1998; Becker 2012; Davis *et al.* 2012). Because all of our communication frames provide the same basic information about the cause and extent of an environmental problem and because research has shown that motivational (McEntire *et al.* 2015b), economic (Albertson and Busby 2015) and personal (Slovic 2007; McEntire *et al.* 2015b, 2017) frames all contribute to attitudinal change, we expect each frame to align audience attitudes with the general message of the ENGO (H1a, H1b, H1c).

H1a: Motivational frames increase congruency between the target audience's attitudes and the ENGO's message.

H1b: Economic frames increase congruency between the target audience's attitudes and the ENGO's message.

H1c: Personal frames increase congruency between the target audience's attitudes and the ENGO's message.

Of course, changing attitudes about environmental issues represents only one aspect of ENGO mobilization campaigns. Environmental campaigns also encourage target audiences to provide political support, such as by signing petitions or donating to the organization. Though we expect the

information provided in each frame to influence audience attitudes, research indicates that information alone is insufficient to elicit behavioral change (Lakoff 2010; McEntire *et al.* 2015b). To garner political support, advocates explicitly cite framing as a strategy ENGOs can use to engage distinct psychological processes (Center for Research on Environmental Decisions 2009, p. 6; Corner *et al.* 2018, p. 8; Lakoff 2010, p. 79). In our review of this literature, we identify four such processes: efficacy, reduction of psychological distance, sadness and anger. Each of our motivational, economic and personal frames activates these processes differently, and we stress that we do not expect each communication frame to operate through all of these mechanisms. Additionally, we remain open to the idea that other mediators likely exist, though these four appear most often in the best-practice communications promoted by environmental advocates, cited earlier.

Efficacy refers to the degree that an individual believes they can influence a situation towards a desired result. Psychologists have long established that this feeling of agency is instrumental to explaining action (Ajzen 1991; Fox-Cardamone *et al.* 2000; van Zomeren *et al.* 2008). Applying this insight to politics, individuals are more likely to participate in political processes when they believe that their actions will make a difference to the outcome (Duffy and Tavits 2008; van Zomeren *et al.* 2008; Doherty and Webler 2016). By highlighting the importance of their members in effecting political change (see Table 1), motivational frames seek to invoke this sense of efficacy in the target audience (Benford and Snow 2000). Indeed, we see this in the science communication best-practices literature. A good example comes from ecoAmerica (2016, p. 4), who encourage science communicators to:

> Always empower your audience. Encourage them to turn the information and understanding into action. Give them examples, ideas, and steps they can take to make a difference. Remind and show them how behavior change is easier and cheaper than they think.

Because these motivational frames emphasize the ability of the audience to effect change, we expect behavioral support caused by motivational frames to operate through increased feelings of efficacy (H2).

H2: Motivational framing effects on behavior will be mediated through an increased sense of efficacy.

Psychological distance is the tendency to view an issue as a distant phenomenon because it is geographically, temporally or socially removed from one's everyday experience (McDonald *et al.* 2015). Such distancing decreases the likelihood of accepting the reality and implications of

environmental problems (Newell *et al.* 2014; McDonald *et al.* 2015). Advocacy research groups recognize that the abstract and intangible nature of environmental problems present a significant challenge. They therefore encourage reducing psychological distance by using frames that make issues 'relatable' (Corner *et al.* 2018, p. 8). We expect both economic and personal frames to accomplish this goal. Economic frames reduce psychological distance by presenting the problem in the context of negative consequences felt directly by the audience, or by 'focusing on personal benefit' of action (ecoAmerica 2016, p. 4). Because individuals seek to prevent future losses rather than realize future gains (Thaler 1981), the Center for Research on Environmental Decisions (2009, p. 11) advises using economic frames that tap into people's desire to avoid losses:

> For instance, when communicators talk to homeowners, they could frame energy efficiency appliances as helping the homeowners to avoid losing money on higher energy bills in the future, instead of helping them save money in the future. Campaigns to encourage people to buy fuel-efficient vehicles could focus on how their use will avoid continuing and even increasing future losses in money to pay for gasoline instead of how such cars will save the consumer money.

Similar to economic frames, personal frames also attempt to make the environmental issue 'real' for the audience (ecoAmerica 2016, p. 4). Personal frames reduce psychological distance by causing the audience to view the problem as occurring to people like them (Bain *et al.* 2012; Hart and Nisbet 2012; McDonald *et al.* 2015). Advocacy research groups cite personal stories as an 'incredibly valuable resource' (Corner *et al.* 2018, p. 14) that can 'build bonds' between the audience and those affected (ecoAmerica 2016, p. 5), perhaps by providing local (as opposed to national or global) examples (Center for Research on Environmental Decisions, p. 9; Corner *et al.* 2018, p. 21). Because the reduction of psychological distancing increases the likelihood of taking action (McDonald *et al.* 2015), we expect psychological distance to mediate both economic (H3a) and personal (H3b) framing effects.

H3a: Economic framing effects on behavior will be mediated through decreased psychological distance.

H3b: Personal framing effects on behavior will be mediated through decreased psychological distance.

We also expect some environmental communication frames to cause emotional reactions. Because individuals are less likely to react emotionally when negative consequences are presented as cold statistics (Hamilton and Sherman 1996; Susskind *et al.* 1999; Slovic 2007), advocates suggest using

emotion as a means to make environmental issues resonate (Lakoff 2010, p. 79). Emotional appeals make people more interested in the information presented (Center for Research on Environmental Decisions, 20, ecoAmerica 2016, p. 13) and communications without any discernable emotion are unlikely to evoke a strong reaction from target audiences (Corner *et al.* 2018, p. 21).

One emotion that may serve as a motivator for behavior is sadness. Sadness is commonly found in the framing effects literature due to its influence on information processing, attitude-formation and behavior (Gross and D'Ambrosio 2004; Gross 2008; Kim and Cameron 2011; Kuhne and Schemer 2017), including on the issue of environmental degradation (Nerb and Spada 2001). Frames that feature singular victims (as economic and personal frames tend to do) often evoke sadness in the target audience (Scheufele 1999; Haidt 2003; Carpenter 2005; Kuhne and Schemer 2017), thus making the audience more receptive to the message (Kogut and Ritov 2005; Small *et al.* 2007; Aarøe 2011; McEntire *et al.* 2015a, 2015b). Those experiencing sadness often desire to change the circumstances that led to the situation, to help affected individuals and to repair the damage caused by the problem (Kuhne and Schemer 2017; Nerb & Spada 2001), and ENGOs leverage these emotions in their pursuit of support. Because economic and personal frames both highlight the victims of an environmental problem (see Table 1), we expect feelings of sadness to mediate both frames' effects (H4a and H4b).

H4a: Economic framing effects on behavior will be mediated through increased feelings of sadness.

H4b: Personal framing effects on behavior will be mediated through increased feelings of sadness.

Sadness is not the only emotion evoked by communication frames. Anger is often felt in tandem with sadness, as they both result from the assessment of a situation as highly negative (Kuhne and Schemer 2017). Whereas sadness tends to result from a focus on the victims of a situation, anger occurs when the frame draws attention to those responsible for that situation (Smith and Ellsworth 1985; Scherer 2003; Clore & Ceterbar 2004; Aarøe 2011). Feelings of anger can often lead to a desire for retribution against those responsible (Roseman *et al.* 1994; Nerb and Spada 2001; Nabi 2003; Skitka, Bauman, Aramovich, & Morgan 2006; Kim and Cameron 2011; Kuhne *et al.* 2015; Kuhne and Schemer 2017). Because ENGOs aim to hold accountable those responsible for environmental degradation, they aim to translate this anger into support for their campaign. Because both economic and personal frames of environmental issues often emphasize those responsible for the problem (see Table 1), we expect both frames to operate through increased feelings of anger (H5a; H5b).

H5a: Economic framing effects on behavior will be mediated through increased feelings of anger.

H5b: Personal framing effects on behavior will be mediated through increased feelings of anger.

Research design

In order to study the effects of these frames, we recruited a sample of subjects through Amazon's Mechanical Turk platform in January 2018. MTurk is an online platform in which workers perform 'Human Intelligence Tasks' (HITs), such as completing a survey, in exchange for a predetermined payment. Research indicates that samples recruited through MTurk are comparable to traditional samples (Buhrmester *et al.* 2011; Berinsky *et al.* 2012; Paolacci and Chandler 2014) and more accurately represent the population than convenience samples (Berinsky *et al.* 2012). Our HIT asked workers to 'Give us your opinion on some of today's issues' and was otherwise vague so as to avoid selection effects. Participants were required to live in the United States, be at least 18 years of age and have at least a 60% HIT approval rating. Each received $1.00 for completing the survey.

We use the depletion of global fishing stocks as the featured environmental issue in our experiment because the issue has low salience among the public as a problem of environmental concern. Mass attitudes on overfishing are difficult to ascertain, as public opinion polling tends to focus either broadly on 'the environment' (Anderson 2017) or the most salient issues. A visit to Gallup's website, for example, shows a variety of polls on issues like climate change and energy production and consumption, but none on industrial fishing (Gallup 2018). A Duke University Nicholas Institute for Environmental Policy Solutions (2017) survey gives some indication of the issue's importance, however. Asked, 'What do you foresee being the most important environmental issue in the next five years?' fewer than 5% of respondents cited fisheries management. This, combined with the finding that the environment ranks 11th on a list of top policy priorities among the American public (Anderson 2017), suggests that our subjects are unlikely to have strong opinions about fisheries prior to viewing the campaign material.

To begin, we randomly assigned subjects to one of four experimental conditions (descriptive statistics and balance tests can be found in the online appendix). Three of these presented subjects with either a motivational, personal or economic communication frame about the overexploitation of global fisheries. The fourth was a control condition in which participants received no information about the state of fishing stocks. If placed in one of the treatment

conditions, subjects were presented with a short campaign message from the Sustainable Fisheries Initiative (SFI), a fictional 'organization dedicated to responsible commercial fishing practices.'

We consulted recent communications from prominent ENGOs that campaign for fisheries reform.[1] To best replicate their language, we conducted a textual analysis of these materials to identify key terms, using the resulting phrases in the construction of our treatment messages. Each frame follows the same structure by first providing information about the problem (90% of global fishing stocks are fully fished or overfished), its causes (subsidies of large-scale industrial fishing) and concluding with the solutions being advocated by the campaign (ending subsidies and implementing sustainable fisheries quotas). Though ENGOs might focus on different causes and consequences of any given environmental problem, we adopt this generic approach with the fictional SFI in order to isolate the communication frames' effects.

The motivational frame (Figure 1) attempts to increase efficacy by stressing the reader's agency in being able to bring about policy change. The economic frame (Figure 2) seeks to reduce psychological distance and evoke sadness by emphasizing the economic costs that unsustainable fishing practices shouldered by the reader individually. Additionally, the economic frame also aims to increase anger by attributing blame for these increased costs to industrial fishers and the government. Similarly, the personal frame (Figure 3) focuses the reader's attention on an individual negatively affected by unsustainable fishing practices, thus seeking to reduce psychological distance and increase sadness, and aims to evoke anger by identifying those responsible for this outcome.

Following the experimental manipulations, subjects continued with the survey. Using a 5-point Likert scale, subjects first indicated how likely they would be to sign a petition supporting sustainable fishing policies, seek additional information and/or donate to a campaign dedicated to responsible fishing practices, if given the chance. We then recorded subjects'

A full 90% of global fishing stocks are fully fished or overfished, but did you know that YOU can make a difference? The U.S. government subsidizes large-scale commercial fishing, threatening marine ecosystems, food security, and livelihoods across the world. Urgent action is needed to improve fisheries management. The Sustainable Fisheries Initiative is leading the charge to end the exploitation of our oceans. The SFI has had great success influencing government policy in previous campaigns, and all because people like YOU dared to stand up and be heard. Together, we can secure healthier fish stocks and oceans for future generations. Help us now as we work together to end harmful commercial fishing subsidies and to implement a sustainable quota system to make sure the large-scale operations don't take more than their fair share. Add your voice to the fight!

Figure 1. Motivational frame.

A full 90% of global fishing stocks are fully fished or overfished, but do you know the effects unsustainable fishing practices have on YOUR wallet? Experts predict that as fish become more difficult to find and catch, their market price will increase by almost 15% over the next decade. That means a bigger grocery bill for you and your family. Making matters worse, the U.S. government spends $7 billion each year subsidizing large-scale industrial fishing. Why should your tax dollars help line the pockets of corporations as they exploit the ocean at an unsustainable rate? The Sustainable Fishing Initiative's goal is to keep the price of seafood reasonable and save you money by fighting to end harmful commercial subsidies and by implementing a sustainable quota system designed to make sure large-scale operations don't take more than their fair share.

Figure 2. Economic frame.

A full 90% of global fishing stocks are fully fished or overfished, but do you know the effects unsustainable fishing practices have on local fishers? "Small-scale operations like mine are literally going under," says former fishing boat captain Mike Rider. His 35-foot fishing boat, the Mary Anne, sank in the deep seas off the Maine coast. Independent fishers like Mike are increasingly forced to take their smaller vessels farther offshore because large commercial boats are overfishing closer waters. Making matters worse, the government subsidizes large-scale industrial fishing. As a result, "local fishermen just aren't competitive anymore." Now, Mike has taken up advocacy work, raising awareness of the effects of unsustainable fishing practices. "I'm putting a face to the fish. It might be too late for me, but we can still save local fishermen's livelihoods by ending these harmful subsidies and implementing a sustainable quota system to make sure the large-scale operations don't take more than their fair share."

Figure 3. Personal frame.

attitudes and emotions towards the state of the global fishing stocks, also using 5-point Likert agreement prompts. Four of these prompts measure attitudinal alignment with messages embedded in our communication frames, while the rest measure the psychological processes of efficacy ('Average citizens can do very little to influence commercial fishing practices.'), psychological distance ('Overfishing affects people like me.'), sadness ('I feel sad when I think about the current state of the global fisheries.') and anger ('I feel angry when I think about the current state of the global fisheries.'). The full survey can be found in the online appendix.

Finally, the last portion of the survey asked subjects whether they would like to receive the SFI newsletter, add their name to a petition and/or whether they would like to donate a portion of their MTurk payment to the SFI. In this, our survey measures both subjects' *reported* willingness to contribute to an environmental campaign, as well as their *actual* willingness to do so. The survey concluded with a debriefing page in which subjects were informed that SFI is a fictional organization, and that regardless of their responses in the survey, no actual action would be taken on their behalf.

The mediation model shown in Figure 4 allows us to test the above hypotheses through three sets of relationships, a_i, b_i and c'. The a_i paths represent the

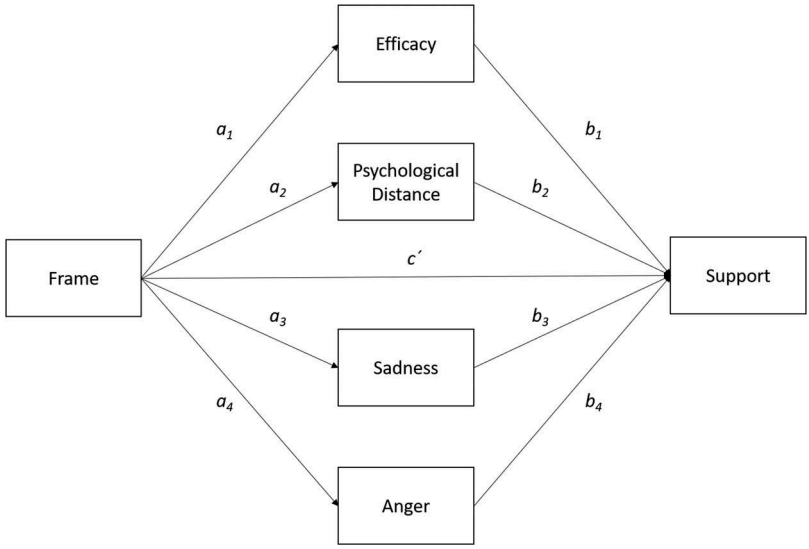

Figure 4. Psychological mediators of framing effects.

communication frame's effect on each psychological mechanism. The b_i paths signify how those mediators influence the dependent variable of behavioral support. In order for a communication frame to work through a psychological process, the effects of both a_x and b_x must be significant. As explained in the hypotheses section, we expect each frame to operate via specific paths: motivational frames through efficacy (H2); economic frames through psychological distance (H3a), sadness (H4a) and anger (H5a); and personal frames also through psychological distance (H3b), sadness (H4b) and anger (H5b). The third relationship that our model tests is that of the direct, unmediated effect of the communication frame, represented by c'. This effect is independent of our four mediators and includes any residual effects not captured by those psychological processes.

To analyze how efficacy, psychological distance and emotion mediate environmental communication framing effects, we use a general structural equation model. This model provides a direct test of whether and how our communication frames influence our psychological mediators (a_i), whether those mediators influence behavior (b_i) and any direct effects not captured by the mediators (c'). Though early work in mediation models suggested that researchers first establish direct effects before moving on to mediation variables (Baron and Kenny 1986), recent developments in statistical theory demonstrate that direct effects need not be a prerequisite for investigating mediated relationships (MacKinnon *et al.* 2002; Shrout and Bolger 2002; Hayes 2009). In the case where multiple mediators may be at work, Preacher and Hayes (2008, p. 887) argue that it is often 'more convenient,

precise, and parsimonious to include all of them in the same model,' rather than testing them separately. Though we do not include direct effects in the main text due to space limitations, we include them in the online appendix.

Results

As a test of the first set of hypotheses regarding each communication frame's ability to influence attitudes, we present the results from four ordered logit regressions, each representing an opinion or preference associated with industrial fishing (Figure 5, full models in appendix). The most noteworthy result presented in Figure 5 is that our motivational frame did not influence attitudes. Though we expected all three frames to elicit attitudinal support, the attitudes of those exposed to the motivational frame are statistically indistinguishable from those of the control group. In this, H1a fails to find any support. We find this particularly surprising, as ENGOs often utilize motivational frames in their mobilization campaigns, and the information in our motivational frame mirrors the language used in those materials. However, we find strong evidence that economic and personal frames are effective. Indeed, economic and personal frames align audience attitudes with the SFI's message for all four prompts, indicating strong support for both H1b and H1c.

Why do economic and personal frames influence attitudes, while motivational frames do not? All three frames provided the same information: identification of the problem, explanation of its causes and presentation of possible solutions. Though previous research suggests that providing

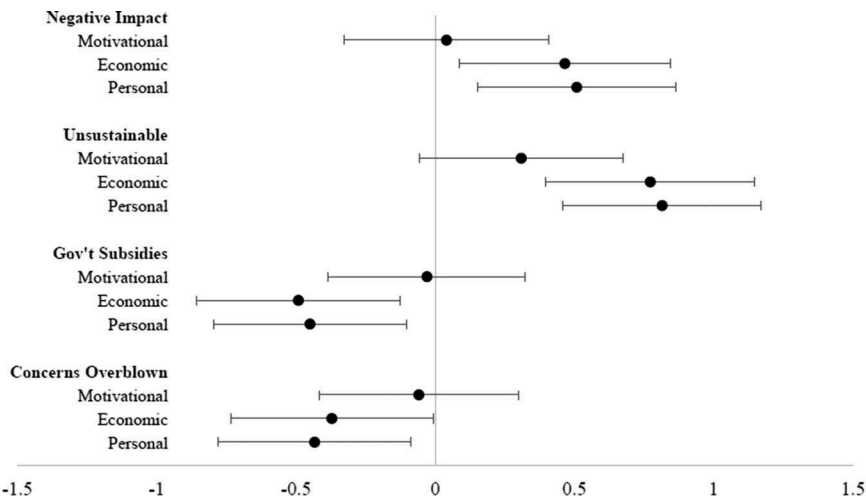

Figure 5. Framing effects on attitudes of industrial fishing.

information about a problem can influence attitudes (if not behavior) regarding that issue (McEntire *et al.* 2015b, p. 418), our results suggest that individuals react to something other than the information provided in all three frames. We speculate that we see attitudinal change for economic and personal frames, but not for a motivational frame, because the former cause subjects to consider industrial fishing in concrete or emotional terms.[2] For further investigation into these possible mechanisms, and how they influence behavior, we turn to our next set of hypotheses regarding communication frames' mediated effects.

Motivational, personal and economic frames are designed not just to change opinion, but also to lead to action. In the following analyses investigating the relationship between framing technique and behavioral support, we distinguish between *reported* willingness to support an environmental campaign and *actual* willingness to support a campaign. Because it is costless for individuals to simply indicate support for a cause, studies that do not measure actual support (e.g. Bain *et al.* 2012; Albertson and Busby 2015) may overestimate the frames' influence.

With this distinction in mind, we present the results of our generalized structural equation models for both reported and actual behavioral support in Table 2. Models 1–4 display each frame's effect on each of our four psychological processes of efficacy, psychological distance, sadness and anger, measured as agreement with the survey prompts described earlier.[3] These models represent the a_i paths of the mediation model presented in Figure 4. We first draw attention to Model 1, where we find that the motivational frame does not increase feelings of efficacy, as predicted by H2. Without this relationship, efficacy cannot mediate motivational frames' effects. This may be surprising, given that the entire purpose of motivational frames is to increase individuals' feelings of agency, but other research has found similar results (McEntire *et al.* 2015a, 2015b), and social activists have noted the difficulty of building a sense of efficacy in their target audiences (Benford 1993). Indeed, that motivational frames do not lead to increases in efficacy may also explain their inability to influence attitudes. Though we find no support for H2, Model 2 demonstrates that economic and personal frames reduce psychological distance, the first link of the *a*-*b* processes of H3a and H3b. That these frames reduce psychological distance of industrial fishing is a noteworthy result given the relative obscurity of the issue.

As discussed previously, both economic and personal frames seek to evoke emotions from the audience. The portrayal of victims who suffer because of the environmental problem is meant to elicit sadness and the desire to help those individuals. Our economic and personal frames identify the victim as either the reader or a fisherman, respectively. Model 3 supports the first condition of H4a and H4b, which predict that sadness

Table 2. Mediated effects on reported and actual campaign support.

	MEDIATORS				SUPPORT (REPORTED)			SUPPORT (OBSERVED)		
	EFFICACY (1)	DISTANCE (2)	SADNESS (3)	ANGER (4)	PETITION (5)	NEWSLETTER (6)	DONATE (7)	PETITION (8)	NEWSLETTER (9)	DONATE (10)
Motivational	0.084	−0.007	0.092	0.039	0.096	0.033	−0.034	0.051	−0.024	−0.024
	(0.12)	(0.12)	(0.12)	(0.12)	(0.11)	(0.11)	(0.10)	(0.046)	(0.028)	(0.025)
Economic	**0.28**	**−0.60**	**0.32**	**0.38**	0.098	0.11	−0.007	0.004	−0.033	0.004
	(0.12)	**(0.12)**	**(0.12)**	**(0.12)**	(0.11)	(0.11)	(0.11)	(0.047)	(0.029)	(0.026)
Personal	0.16	**−0.30**	**0.35**	**0.47**	**0.27**	0.11	0.043	0.079	−0.048	0.014
	(0.11)	**(0.12)**	**(0.11)**	**(0.12)**	**(0.10)**	(0.10)	(0.099)	(0.044)	(0.027)	(0.025)
Efficacy	–	–	–	–	**0.068**	**0.14**	**0.072**	**0.031**	0.012	−0.003
					(0.33)	**(0.032)**	**(0.031)**	**(0.014)**	(0.009)	(0.008)
Distance	–	–	–	–	**−0.14**	**−0.12**	**−0.19**	**−0.041**	**−0.021**	**−0.019**
					(0.037)	**(0.037)**	**(0.035)**	**(0.016)**	**(0.010)**	**(0.009)**
Sadness	–	–	–	–	**0.30**	**0.22**	**0.20**	**0.090**	**0.023**	−0.0001
					(0.045)	**(0.044)**	**(0.043)**	**(0.019)**	**(0.012)**	(0.011)
Anger	–	–	–	–	**0.20**	**0.21**	**0.22**	0.031	0.019	0.019
					(0.045)	**(0.044)**	**(0.042)**	(0.019)	(0.012)	(0.011)
Control	**1.85**	**1.98**	**2.26**	**1.87**	**1.39**	**1.29**	**0.99**	0.059	0.032	0.070
	(0.086)	**(0.088)**	**(0.097)**	**(0.088)**	**(0.17)**	**(0.17)**	**(0.16)**	(0.074)	(0.045)	(0.041)
Observations	835	833	835	834	829	830	830	830	830	830
Pseudo R^2	0.002	0.014	0.005	0.010	0.16	0.20	0.18	0.12	0.11	0.064
LR chi^2	5.99	34.59	11.61	26.69	84.85	108.35	142.18	127.64	53.07	26.72

mediates economic and personal framing effects. The economic and personal frames also identified large-scale operations and the government as responsible for the suffering endured by those victims. Because of this, both frames led to feelings of anger, as shown in Model 4. Eliciting anger is the first step in the causal processes of H5a and H5b, which predict that the emotion mediates the effects of economic and personal frames, respectively.

Though Models 2, 3 and 4 indicate preliminary support for our psychological distance, sadness and anger mediation hypotheses, they only represent the a_2, a_3 and a_4 paths of Figure 4's mediation model. We must also test whether each psychological process influences behavior (b_2, b_3 and b_4) before making final conclusions. Models 5–7 display the results of analyses for subjects' *reported* likeliness of supporting the SFI if given a chance, either by signing a petition, signing up for the SFI newsletter or donating a portion of their Mechanical Turk payment to the organization. The dependent variables for Models 8–10, on the other hand, are dummy variables indicating whether subjects *actually* engaged in each behavior when given the opportunity at the end of the survey.

We first draw attention to the direct effects of each frame, those independent of our psychological mediators (c'). Other than the personal frame's positive direct effect on the reported likelihood of signing the petition (Model 5), none of the frames' direct effects are statistically distinguishable from zero. A non-zero value for c' would indicate that additional mediating factors may yet exist, but our insignificant coefficients for the frames' direct effects indicate strong evidence that our psychological mechanisms dominate the causal process (Baron and Kenny 1986).

We next move on the effects of our psychological mediators, starting with efficacy's influence on behavior. Greater efficacy increases subjects' intended support for all three behaviors, as well as the likelihood that subjects will actually sign a petition. Though this alone is not enough to support H2 (as the motivational frame did not increase efficacy), it does show that the rationale behind ENGOs' attempts to promote feelings of agency is not misplaced. Given that the language currently used in motivational frames is unable to elicit feelings of efficacy, the results presented in Table 2 present an opportunity for future research to assess whether and how different communication techniques can increase efficacy in their target audiences.

However, additional evidence from Models 5–10 suggest that ENGOs may be better served by engaging psychological processes other than efficacy. Reducing psychological distance, for example, is much more effective at influencing target audiences' behaviors. Communication frames that make audiences feel like the issue affects people like themselves (as Model 2 indicates economic and personal frames do) operate through this psychological closeness to increase both reported and actual willingness to sign a petition, receive a newsletter and donate to a campaign. Of our four

psychological mechanisms, psychological distance is the only mechanism that mediates communication framing effects for all three actual behaviors (Models 8–10). This, combined with the results shown in Model 2, provides very strong support for H3a and H3b.

We next turn to the role of emotion in generating behavioral support. As outlined earlier, identifying victims of the situation evokes feelings of sadness, while identifying those responsible generates feelings of anger. According to Models 8–10, evoking sadness is the more effective strategy. Though Model 10 shows that sadness is unable to influence the likelihood of donating to a campaign (arguably the most costly of the three behaviors), Models 8 and 9 demonstrate that the emotion increases the likelihood of actually signing a petition or receiving a newsletter. As Model 3 indicates that economic and personal frames generate feelings of sadness, and because sadness leads to behavioral change (Models 8 and 9), H4a and H4b also find general support.

Targeting anger, on the other hand, is a less effective strategy. Though Models 5–7 demonstrate that anger increases the reported willingness to support the SFI through each of our three behaviors, Models 8–10 show that anger does not influence actual behavior. These results, taken in context of the sadness results, suggest that ENGO communications should highlight stories of victims rather than focusing on those responsible. These results indicate that H5a and H5b find no support, and demonstrate that mobilization scholars would be well-advised to measure *actual* behavioral change rather than *reported* change. In this case, a measure of only the latter would have overestimated anger's effect on behavioral support.

Conclusion

Advocacy research groups suggest that motivational, economic and personal communication frames are effective because they engage four psychological processes that mobilize individuals to action: efficacy, psychological distance, sadness and anger. Despite the use of motivational language in many ENGO mobilization materials, we find no evidence that motivational frames increase audience efficacy, or influence audience attitudes or behaviors. Instead, economic and personal frames, through reduced psychological distancing and the evocation of emotion, are much more successful at garnering political support.

In some respects, our null findings regarding motivational frames are the most important. The logic behind the use of such frames is intuitive: in order to mobilize target audiences (Benford and Snow 2000), ENGOs directly appeal to the audience's sense of efficacy by emphasizing its vital role in addressing the particular injustice. Yet we find that motivational frames do not align audience attitudes with the campaign's message, do not cause audiences to contribute to the campaign and, most surprisingly, do

not imbue a sense of agency in the audience. Though these results are consistent with recent research that finds motivational frames to be generally ineffective (McEntire *et al.* 2015a, 2015b), we do not suggest that ENGO attempts to stimulate efficacy are misguided. Our study finds that feelings of agency are an important driver of action, lending further support to literature across a number of fields (Benford 1993; van Zomeren *et al.* 2008; Doherty and Webler 2016). The issue ENGOs must contend with is that the language they use in their motivational frames is ineffective at increasing efficacy.

Consistent with other research speaking to the effectiveness of economic and personal frames (Kogut and Ritov 2005; Aarøe 2011; Bain *et al.* 2012; Albertson and Busby 2015; McEntire *et al.* 2015b), our results indicate that employing these frames may be a more fruitful strategy, as both align the audience's views with those of the ENGO and encourage behavioral change. Unpacking the mechanisms behind the effectiveness of the ability of personal and economic frames to elicit support for the campaign, we find that both increase psychological proximity. Engaging the public on environmental issues is challenging because many environmental problems are notoriously abstract and intangible. As a result, individuals tend to view them as psychologically distant – occurring in far-off places, affecting unknown populations and ecosystems, and of no consequence to people like themselves. Both personal and economic frames decrease this psychological distance by placing the target issue in the context of the effect it has on identifiable individuals. Our results show that this reduction has the greatest effect on increasing support for the ENGO campaign: individuals are more likely to sign a petition, sign up for a newsletter and, most costly of all, make a monetary contribution to address the issue. However, it is worth noting that willingness to engage in behavior decreases as the costs associated with that behavior increase. For example, subjects were more likely to sign a petition than to donate their MTurk payments, suggesting that ENGOs should have realistic expectations about how much behavioral change they can effect.

Finally, personal and economic frames also evoke sadness and anger. While sadness increases *actual* willingness to support the campaign by signing up for a newsletter and adding one's name to a petition, anger affects only *reported* willingness. These findings require further examination, as other research connecting these emotions with individuals' responses to environmental issues finds anger to have a stronger effect than sadness (Nerb and Spada 2001). Perhaps the desire to punish those responsible for the environmental problem (in our case, the government and large-scale fishing operations), associated with anger (Kuhne *et al.* 2015; Kuhne and Schemer 2017), is less effective as a motivator than the

desire to help victims affected by the problem (the individual or a small-scale fisherman), which results from sadness (Kuhne and Schemer 2017).

Scholarship on transnational advocacy groups demonstrates that eliciting attitudinal change and behavioral support for their campaigns are primary NGO concerns (Richards and Heard 2005; Hall and Taplin 2007), and that these organizations strategically frame their communications to achieve those goals (Allan and Hadden 2017; Joachim 2003; Keck & Sikkink 1998). Our study carries implications for ENGOs seeking to effectively target their communications toward specific mechanisms to increase their chances of success. Still, questions remain. Given the relatively low salience of global fishing stocks, future research could assess whether and how motivational, economic and personal frames influence attitudes and behaviors toward environmental issues with greater public awareness. It may be the case that selecting a low-salience issue underestimated the effects of the frames, as subjects may be less willing to mobilize for an issue that receives little public attention. If so, it is possible that strategic frames of problems with higher levels of familiarity may trigger stronger psychological reactions, leading to greater support for the ENGO's cause. On the other hand, individuals may already have established attitudes and behaviors for high-salience issues, making the marginal impact of framing strategies negligible. Though more research in this direction is warranted, it is worth noting that environmental advocates claim it is necessary to adopt new long-term framing strategies in order to change public opinion on high-salience issues like climate change (Lakoff 2010).

This leads to another avenue of possible research, which is to assess who is most affected by each communication frame. While NGOs do engage in broad public campaigns, many often target those already known to be sympathetic towards the cause (Klandermans & Oegema 1987; Oegema and Klandermans 1994). However, this may be an unproductive strategy for recruitment, as the effect of additional messages on those already sympathetic may be minimal (Arceneaux and Johnson 2013). On the other hand, research also indicates that those hostile towards a message can reject certain frames, creating a backfire effect (Zhou 2016). Additionally, limiting our sample to US subjects may have implications for the generalizability of our results, as citizens of other nations may prioritize or regard environmental protection differently than Americans. We encourage further research into which frames elicit the most support for different segments of the global population, thus allowing ENGOs to microtarget their communications more effectively.

Notes

1. We consulted materials from Greenpeace, World Wildlife Fund, National Resources Defense Council, Nature Conservancy and Ocean Conservancy.

2. We investigate this further in the Appendix, where we present mediation analyses for the attitudinal variables.
3. In an effort to avoid confusion, we code responses to the efficacy and psychological distance prompts in reverse so that positive values indicate increased efficacy and psychological distance.

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No potential conflict of interest was reported by the authors.

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