Exploring the Framing Effects of Emotion: Do Discrete Emotions Differentially Influence Information Accessibility, Information Seeking, and Policy Preference?

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Do Discrete Emotions Differentially Influence Information Accessibility, Information Seeking, and Policy Preference?

The persuasive effects of emotions have been the focus of burgeoning interest in recent years. Rather than considering how emotions function within traditional paradigms of attitude change, this research explores the possibility that emotions serve as frames for issues, privileging certain information in terms of accessibility and thus guiding subsequent decision making. This study's results offer evidence that fear and anger can differentially affect information accessibility, desired information seeking, and policy preference, though these effects may be contingent on schema development. These findings support not only the relationship between emotions and frames but also the importance of the discrete emotion perspective in persuasive contexts.

Keywords: *framing; emotion; anger; fear; information accessibility; information seeking; decision making*

Whether in news stories, advertisements, or entertainment programming, emotions are often used to capture attention, influence attitudes, and affect behavior. Yet other than the sizable body of fear-appeal literature, little attention has been given to the persuasive influence of discrete, message-relevant emotions (see Nabi, 1999). Although numerous scholars have expressed the need for understanding how emotions affect attitudes (e.g., Breckler, 1993; Dillard, 1993; Englis, 1990; Zajonc, 1980), this area of communication research is still relatively unexplored.

Rather than approaching the study of emotion and persuasion through more traditional routes focused on the processing of message content, this research explores the possibility that emotions serve as frames for issues, privileging certain information in terms of accessibility and guiding

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information seeking and subsequent judgments. The following discussion examines the concept and function of framing, the way in which discrete emotions may be understood to act as frames, and the extant research that might speak in support of this notion.

Framing Theory

Framing theory posits that the way in which information is presented, or the perspective taken in a message, influences the responses individuals will have to the issue at hand. As Entman (1993) argued, "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (p. 52). Based on this definition, then, a frame is a perspective infused into a message that promotes the salience of selected pieces of information over others. When adopted by receivers, frames may influence individuals' views of problems and their necessary solutions.

Several prominent studies provide evidence supporting these claims in a variety of contexts, including how language choice influences risky decision making (Kahneman & Tversky, 1984), how television news framing affects attributions of responsibility for both the causes of and the treatments for social problems (Iyengar, 1991), how journalistic news norms help to define the ideas people express when talking about politics (Gamson, 1992), and how news coverage of political campaigns influences how the public thinks about political processes (Cappella & Jamieson, 1997). In sum, these research programs indicate that the way in which information is presented can influence how people understand, evaluate, and act on a problem or issue.

Regarding the cognitive processes through which framing effects occur, it is generally suggested that such outcomes are the result of information accessibility biases. According to Iyengar (1991), when fed a steady diet of one frame type over another, individuals tend to recall and use the information consistent with the predominant frame when making decisions. Price and Tewksbury (1996) argued that accessibility of applicable information from memory influences decision making in both the short and long term if those thoughts are continuously made accessible through repetitious exposure to certain frames over others. Cappella and Jamieson (1997) also argued that news frames stimulate access to certain information, beliefs, and/or inferences, making them increasingly accessible with repeated exposure. However, they further suggest that decision making is affected by both memory-based and online processing rather than just memory-based influences. Assuming that a frame guides problem interpretation and subsequent

decision making through information accessibility, the question for this study becomes, Can emotions serve a framing function?

Functional Emotion Theory

In general, emotions are viewed as internal, mental states representing evaluative, valenced reactions to events, agents, or objects that vary in intensity (Ortony, Clore, & Collins, 1988). They are generally short-lived, intense, and directed at some external stimuli (see Fiske & Taylor, 1991, for a review). Of particular interest are the functional theories of emotion that address how discrete emotions help to mobilize and allocate mental and physical resources for certain types of person-environment interactions (Izard, 1993). Although functional theorists vary in the emotion elements they emphasize, their general conceptualization of emotion processes can be summarized as follows: An object or event in the environment is perceived and appraised for its relevance for personal well-being. Particular patterns of appraisals then lead to certain states of action readiness, the awareness of which is the subjective emotional experience. These action tendencies are associated with physiological changes that together influence future perceptions, cognitions, and behaviors in accordance with the goal set by the action tendency (e.g., Arnold, 1960; Frijda, 1986; Izard, 1977; Lazarus, 1991; Plutchik, 1980; Roseman, 1984; Tomkins, 1963). Those with a unique appraisal pattern, subjective experience, and action tendency may be considered discrete emotions.

Substantial theoretical and empirical work has focused on identifying the appraisal patterns and action tendencies associated with different emotions (e.g., Fridja, 1987; Lazarus, 1991; Roseman, 1984; Roseman, Wiest, & Swartz, 1994; Scherer, 1984; Smith & Ellsworth, 1985, 1987). Although each theorist advocates somewhat different dimensions along which appraisals may be made, they do agree that each emotion expresses a different relational meaning that motivates the use of mental and/or physical resources in ways consistent with the emotion's action tendency.

Emotions as Frames

Although not explicitly stated, support for the notion of emotions as frames is implicit in functional emotion theories. According to Izard (1984), when a particular affect interacts frequently with an image or cognition, the pattern assumes the stability of an "affective-cognitive structure," combinations of which shape a "person's vision of reality" and help to form one's personality (see also Izard, 1977; Izard & Buechler, 1980). Similarly, Tomkins (1984) suggested that patterns of stimuli and emotional response result in the creation

of an "ideo-affective posture," or a set of feelings that is more loosely organized than an ideology but that inclines the individual to resonate differentially to ideology. Both affective-cognitive structures and ideo-affective postures reflect the concept of framing. That is, repeated pairing of certain emotions with particular ideas or events eventually shapes the way in which one interprets and responds to those events that in turn affect one's worldview.

Although appraisal patterns are subjective in that they are based on individuals' perceptions of their immediate environment, it is possible that a message could contain certain features that elicit particular appraisal patterns to those in similar circumstances. If so, then appraisal pattern signifiers, like frames, appear in messages but may or may not be perceived by receivers. If recognized, however, particular emotions are experienced, assuming the functional equivalence of frame adoption.

Yet to be equivalent to frames, emotions should affect the way in which information is gathered, stored, recalled, and used to make particular attributions or judgments. Theoretically, emotions perform each of these functions. According to Lazarus (1991), each emotion is associated with a core relational theme that expresses the essential eliciting factor of each emotion and is largely predictive of emotional response (e.g., the core theme for fear is "concrete and sudden danger of imminent physical harm"; for anger it is "demeaning offense against me and mine"). Once an emotion is evoked, its associated action tendency, which arises in response to the core relational theme, serves to guide information processing, influencing what information is attended to and likely to be recalled and what is ignored. This information, then, can be expected to influence both online and memory-based judgments.

Similarly, Forgas's (1992, 1995) affect infusion model of the effects of mood on social judgment suggests that one way in which mood can influence information processing is through motivated processing, or the targeted and selective search for information in service of a goal. Because messages that elicit an emotion have set a goal, the action tendency associated with each emotion should motivate selective processing of information relevant to that goal. This selectivity affects not only the nature of information processing but also the influence of emotion-relevant information on judgments. To illustrate, a message about crime that focuses on potential threat (the core relational theme of fear) can be expected to elicit fear. The focus of continued message processing, then, is likely to be on information relevant to alleviating the threat (the goal associated with fear arousal). Because selective attention to threat-related information is expected, such information should be more readily retained in memory and more accessible to receivers for any memory-based, crime-related judgments. In addition, online judgments about the

message should depend on both the threat-related information acquired during message processing as well as the threat-related information recalled from memory, triggered by the fear frame. If crime were repeatedly addressed and considered through a fear frame, public focus on protection initiatives, rather than on alternative responses, may result. Conversely, if an anger frame were repeatedly used in connection with crime stories, thus focusing blame on perpetrators, the public might be more open to mobilization efforts and stronger penalties for criminal offenses.

Although empirical evidence that discrete, context-relevant emotions selectively affect information processing, recall, and judgment is essential to support the claim that emotions act as frames, the extant literature is limited in these areas. A small but growing body of research supports the notion that different emotions, like anger and fear, can promote different degrees of message processing, with uncertainty appraisal serving as a key moderator (e.g., Bodenhausen, Sheppard, & Kramer, 1994; Nabi, 2002; Tiedens & Linton, 2001). However, this research often refers to affect unrelated to the judgment context, which may have different implications for processing motivation. More at issue, these studies do not address the potential for emotions to promote selective attention to only the goal-relevant pieces of information within a message.

Evidence for the effects of emotional arousal on selective attention, however, can be inferred from emotion and message-recall studies. Although the majority of this research focuses on valence rather than discrete emotions (e.g., Basil, Schooler, & Reeves, 1991; Lang, 1991; Lang & Friestad, 1993; Reeves, Newhagen, Maibach, Basil, & Kurz, 1991; Thorson & Friestad, 1989), some relevant findings exist. Newhagen and Reeves (1992) found that compelling negative visuals in television news enhanced recall of subsequently presented information in the short run but inhibited memory of narrative information generally in the long run. Furthermore, Brosius (1993) found that emotional pictures in television news led to recall errors that he took as evidence that emotional presentations narrow attention to certain parts of a message, privileging emotional material in recall.

Focusing on specific emotions, Englis (1990) found that some emotions such as disgust and surprise enhanced recall of the central concepts of commercials in the short and long term compared to other emotions such as happiness, fear, and guilt. Relatedly, Newhagen (1998) found evidence of memory enhancement for images in broadcast news stories containing fear or anger-arousing visuals but memory inhibition for images that appeared after disgust-evoking visuals. Although Newhagen and Reeves (1992) and Brosius (1993) suggested that negative emotional visuals can differentially focus attention within a message, and Englis and Newhagen argued that discrete

emotions have differential effects on general degree of recall, these studies still fall short of speaking to the potential effects of discrete emotions on motivating selective attention to and recall of emotion-relevant information within messages (though see Levine & Burgess, 1997, for evidence of differential recall based on message-irrelevant affect).

Perhaps most on point, Chen, Lewin, and Craske (1996) found that when anticipating physical interaction with a tarantula, spider-fearful people showed an attentional bias toward spider-related words in a Stroop color-naming task. More specifically, when instructed to ignore the meaning of a word and name the color in which the word was presented, spider-fearful respondents took longer to name the color of the spider-related words (e.g., cobweb, creepy) than the color of the neutral words (e.g., lesson, northwest). This suggests that message-relevant emotion can lead to selective processing of emotion-relevant information—the first, necessary component to the argument that emotions serve as frames that guide information processing and, in turn, decision making.

The limited extant research on discrete emotions and selective processing is matched by equally limited study of discrete emotions and decision making. Most research in this area focuses on affect unrelated to the judgment context. Keltner, Ellsworth, and Edwards (1993) found that those feeling sad were more likely to expect future events to result from uncontrollable situational forces, whereas anger arousal enhanced expectations that those events would be caused by other people's actions. Relatedly, Lerner and Keltner (2000, 2001) reported that dispositional fear and anger affected risk perceptions, with fearful people making more pessimistic judgments about future events and angry people making more optimistic ones. Furthermore, anger aroused by receiving harsh feedback (Weiss & Fine, 1956) or by viewing an anger-arousing film clip (Lerner, Goldberg, & Tetlock, 1998) appeared to promote more punitive judgments of others. Most supportive of the idea that emotions influence topic-related judgments, Gault and Sabini (2000, Study 4) found anger aroused from a story about toxic waste dumping was associated with greater support for an organization working toward perpetrator-punishing goals as opposed to goals relating to systemic change or helping victims. Although in most of the above cases the affect studied is not topic related, this line of research makes clear that discrete emotions differentially affect perceptions and judgments.

If we accept, based on the above theoretical arguments and empirical evidence, that emotions can promote selective processing of available information and guide decision making, then to further prove that emotions serve as frames, it must be shown that evoking emotions within certain contexts will make not only topic-relevant but also emotion-relevant information

accessible (see Bower, 1981, for arguments on mood-state-dependent memory). Furthermore, it must be shown that selective processing and decision making is guided by the emotion's emotivational goal or action tendency. Thus, this study will focus on the information accessibility, information preference, and decision-making components of the emotion-as-frame perspective.[1]

Although multiple emotions could be used to test the notion of emotions as frames, this study focuses on fear and anger because though both can be experienced as intense and active, they are clearly distinguishable in their emotivational goals and action tendencies (i.e., fear focuses on protection through avoidance, and anger encourages retribution through approach behavior). Also, both emotions can be aroused in the context of many social issues (e.g., crime, drunk driving). Finally, fear and anger have attracted the most attention in the extant literature. Thus, contrasting these two emotions offers a reasonable place to explore the idea of emotions as frames.

As to topics, recall that framing effects are, in part, derived from already held stores of knowledge made accessible based on a message's perspective. If such knowledge stores, or schemas, do not exist or are poorly developed, we cannot reasonably expect strong framing effects to occur. Thus, it is important to select topics for this study for which the sample likely has differing levels of schema development (as inferred from reported prior knowledge and experience) so that the assumed mechanism through which framing effects occur can be tested. Given the population from which the sample was drawn, drunk driving and gun violence were selected as appropriate topics for the study—the former being quite relevant to the student sample and the latter more remote.

The purpose of this study, then, is to assess whether emotional states affect information accessibility, information preference, and policy preference, consistent with the emotion-as-frame perspective. To assess information accessibility, students were asked to recall information from their existing knowledge stores by using Iyengar's (1991) framing measures of the causes of and preferred solutions to the specified social problem. It was assumed that for the familiar, more relevant topic of drunk driving, when the anger frame was primed, respondents would be more likely to attribute blame to individuals' behaviors and prefer solutions that focus on the individual (e.g., punishment), whereas when the fear frame was primed, respondents would see the causes of drunk driving as stemming from forces over which they perceive they have little control, like social norms, which would promote desire for protection from harm. Any such effects in the context of the less familiar topic of gun violence, however, were expected to be weak. Thus,

Hypothesis 1: Anger about drunk driving will promote accessibility of individual-focused causes and retributive solutions, whereas fear about drunk driving will promote accessibility of societal-level causes and protective solutions. Anger and fear about gun violence will produce weaker accessibility effects.

If those experiencing anger or fear are viewing the world through different frames, they should then desire frame-consistent information. That is, those focused on blame (i.e., anger frame) should desire information on holding others accountable, whereas those focused on threat (i.e., fear frame) should desire information on protection. Furthermore, if the emotion is serving a framing function rather than simply providing arousal, we should see weaker effects for a topic with a less developed schema. Thus,

Hypothesis 2: Anger about drunk driving will encourage the desire for retribution-related information, and fear about drunk driving will encourage the desire for protection-related information. Anger and fear about gun violence will produce weaker information-seeking effects.

Finally, if anger does, indeed, focus attention on blame and retribution, that frame should lead to preference for retributive policy initiatives, whereas fear should promote preference for protective policy initiatives. Again, the emotion-as-frame perspective would predict a weaker effect if the underlying issue schema is less developed.

Hypothesis 3: Anger about drunk driving will promote preference for retribution-related policies, and fear about drunk driving will promote preference for protection-related policies. Anger and fear about gun violence will produce weaker policy preference effects.

Method

Design, Participants, and Procedures

This study used a 3 (Emotion: fear, anger, and control) × 2 (Topic: drunk driving and gun violence) design. One hundred and sixty-six undergraduates completed a survey in exchange for course extra credit. Of the respondents, 52% were women and 48% men. Their mean age was 22 years (SD = 3.67).

Participants were randomly assigned one of six versions of the questionnaire and asked to complete the survey as part of a study on perceptions of social issues. The emotion group participants each completed an emotion-priming task embedded in the survey (described below) before responding to

the questions designed to assess information accessibility, desired information seeking, and policy preference.

Emotion Manipulation

Anger and fear were primed by asking respondents to complete a different set of items relating to how they feel when they think about either drunk driving or gun violence. To prime anger, participants responded to the following eight items on 8-point scales (0 = *not at all*, 7 = *very much*): angry, irritated, tense, annoyed, frustrated, irate, pissed off, and mad. To prime fear, the following emotion words were used: frightened, anxious, tense, fearful, uneasy, alarmed, nervous, and afraid. Following the logic of question order or word priming effects, it was assumed that responding to the emotion items would prime the related emotion frame for the topic (assuming sufficient schema development), which would then influence subsequent responses. The mean emotional responses for drunk driving were fear $M = 4.13, SD = 1.67$; anger $M = 4.99, SD = 1.28, t(52) = 2.10, p < .05$. Responses for gun violence were fear $M = 3.81$, $SD = 1.54$; anger $M = 4.33$, $SD = 1.50$, $t(54) = 1.27$, $p = .21$. The fear means between the two topics did not differ ($p > .20$), though the difference in the anger means approached significance, $t(54) = 1.75$, $p = .09$. These results suggest sufficient levels of emotional arousal in all conditions to provide adequate tests of the hypotheses.[2]

Measures

Items are presented in the order in which they appeared in the survey. Topic-specific questions were asked of those in the related experimental groups only. Of note, the emotion prime, when used, was placed after the issue knowledge items.

Perceived issue knowledge was assessed with three 7-point Likert-type items: "I am very knowledgeable about the issue of [drunk driving/gun violence]," "I am well informed about issues related to [drunk driving/gun violence]," and "I don't know as much as I'd like about the problem of [drunk driving/gun violence]" (recoded). These formed a single factor, reliable index ($\alpha = .82$).

Information accessibility was assessed by asking respondents the following questions: "In your opinion, what are the most important factors contributing to the problem of [drunk driving/gun violence] in society today?" and "If you were to suggest ways to reduce the problem of [drunk driving/gun violence], what would you suggest?" Responses were transcribed and coded by two coders blind to condition. For drunk driving, problem-cause responses

were coded into two categories: societal causes and/or norms (e.g., It's "cool to drink," emphasis on drinking for social interaction, norm of underaged drinking, limited options for safe rides home) and individual responsibility (e.g., people think they are invincible, ignorance or stupidity, people are not held accountable for their actions). The solution responses were also coded into two categories: protection from harm (e.g., shuttles to and from bars, more driving-under-the-influence check stations, designated drivers, breathalyzers in cars) and offender punishment and/or awareness (e.g., tougher laws to punish drunk drivers, more severe consequences, make people aware of what can happen if they drive drunk). For gun violence, problem-cause responses were also coded based on societal and/or systemic causes (e.g., prevalence and availability of guns, media, laws are not tough enough) and individual responsibility (e.g., people are stupid or irresponsible, parents' fault), and solution responses were coded into protection from harm (e.g., regulate the media, laws increasing safety or limiting gun prevalence) and punishment (e.g., hold parents responsible, harsher legal punishments). Coder reliability, based on Krippendorff's (1980) alpha, was .84 for causes and .91 for solutions. Disagreements between coders were resolved through discussion.

To assess preferred information seeking, respondents were presented with 10 types of information they might like to have about drunk driving or gun violence and were asked to rank them in order from 1 to 10, with 1 indicating the information they most wanted to receive. Of these 10, 3 were designed to address the fear-related factors of susceptibility to danger and efficacy (i.e., types of people most likely to be victims, how to reduce your chances of being a victim, and how to handle yourself in an at-risk situation.) Three items addressed the anger-related factors of source of the offense and how others are held accountable (i.e., how offenders are allowed to continue offending, the responsibility of bar owners and gun manufacturers, and how the justice system punishes those convicted). Other items related to more global factors (e.g., how families of victims deal with the aftermath, the economic costs to society) and were not designed to relate to either anger or fear. The fear-related items and anger-related items were each combined to form the fear information and anger information indices.

Three measures of policy preference were included. First, respondents were asked to assess on 7-point scales how much they would like to see each of 10 topic-related policy initiatives enacted. Of these, 5 pretested to relate to protection and/or prevention (e.g., for drunk driving: Implement more police road blocks, implement a government-subsidized taxi service for those too intoxicated to drive; for gun violence: Expand police forces, increase programs to get guns off the streets) and 5 related to retribution (e.g., institute

harsher penalties, eliminate plea bargaining, and force offenders to pay restitution to their victims.) The mean scores of each set of items were used as measures of desire for protective and retributive policies. Respondents were then asked to rank the same 10 policy initiatives in order from 1 to 10, where 1 indicated the initiative they would most like to see enacted. Finally, respondents were asked to choose between two policy packages, one of which contained 3 protective initiatives and another that contained 3 retributive initiatives.

Gender, age, school year, and whether they or someone close to them had direct experience with drunk driving or gun violence were also assessed. As experimental groups did not significantly differ in these measures ($p > .10$), nor did groups within topic differ in self-reported issue knowledge, these variables did not factor into the analyses.

Analyses

Cross tabular analyses were performed on the information accessibility and forced-choice policy-preference data. Given the rank-order nature of the information seeking and one of the policy-preference measures, nonparametric tests were necessary, including Kruskal Wallis tests for multiple-group comparisons, Mann-Whitney tests for between-group comparisons, and Wilcoxon signed rank tests for within-group comparisons. ANOVAs were used on the continuous policy-preference measures. Although within-topic comparisons provide the most direct test of the hypotheses, overall interactions between emotion type and topic were also assessed. Power for all tests with the three experimental groups exceeds .99 to detect large-sized effects of $r = .50$ and equals .78 to detect medium-sized effects of $r = .30$ (Cohen, 1988). Power for tests comparing the fear and anger groups were approximately .60 to detect medium-sized effects of $r = .30$. Due to the underpowered nature of several of the tests and the directional nature of the hypotheses, results at or around $p = .10$ will be noted and interpreted cautiously.

Results

Differences in Schema Development

This study is based on the assumption that students have better developed schemas for drunk driving than gun violence. Two measures indirectly test this assumption: direct experience and self-reported knowledge level. Higher scores on each would suggest better developed schemas. Nearly two thirds of those in the drunk driving conditions (64%) indicated that they or someone

Table 1
Drunk Driving– and Gun Violence–Related Information Accessibility by Emotion

	Emotion (%)		
	Fear	Anger	Control
Drunk driving			
Causes	$n = 26$	$n = 27$	$n = 27$
Societal	73	52	67
Individual	27	48	33
Solutions[a]	$n = 26$	$n = 25$	$n = 27$
Protection	65	36	52
Retribution	35	64	48
Gun violence			
Causes	$n = 27$	$n = 29$	$n = 29$
Societal	89	72	79
Individual	11	28	21
Solutions	$n = 27$	$n = 28$	$n = 28$
Protection	85	93	96
Retribution	15	7	4

a. Differences between anger and fear groups significant, $p < .05$, based on 2×2 analysis.

close to them had direct experience with drunk driving, compared with one third (37%) of those in the gun violence condition, $\chi^2(df = 1, n = 166) = 12.75$, $p < .001$, $\phi = -.28$. Furthermore, the drunk driving groups reported being quite knowledgeable on the subject ($M = 5.48$, $SD = 1.01$), whereas the gun violence group reported being only moderately knowledgeable on the subject ($M = 3.89, SD = 1.27$), $t(164) = 8.92, p < .001, r = .57$. Combined, these findings support the use of the two topics as representing different levels of schema development.

Hypothesis 1: *Information Accessibility*

Hypothesis 1 suggests that compared to gun violence, anger and fear about drunk driving will be more likely to promote the accessibility of different types of causal attributions and solutions. Because nearly half of the respondents provided only one cause and one solution, analysis was limited to the first response given, and the most likely to evidence a framing effect.

For drunk driving, 3×2 contingency tables indicated no significant differences among the three emotion groups in type of accessible cause ($p > .20$) or solution ($p = .11$), though the distributions were in the expected directions (see Table 1). Subsequent 2×2 contingency tables including the anger and fear groups only also revealed no significant difference for accessible causes, χ^2 ($df = 1$, $n = 53$) = 2.54, $p = .11$, $\phi = .22$, but a significant difference for

accessible solutions was evidenced, χ^2 (df = 1, n = 51) = 4.40, p < .05, ϕ = .29, with 65% of the fear group identifying solutions emphasizing safety (protection) and 64% of the anger group identifying individual, blame-oriented solutions.

For gun violence, 3 × 2 contingency tables revealed no significant differences in accessible causes or solutions (p > .20). The 2 × 2 analyses also indicated no significant difference between the anger and fear groups in cause attribution, χ^2 (df = 1, n = 56) = 2.40, p = .12, ϕ = .21, though the distributions were in the direction expected, with the fear group identifying societal-level problems as underlying gun violence more so than the anger group. The difference between the two emotion groups in solution attribution was not significant (p > .20; ϕ = .12).

The interaction between emotion (anger and fear) and topic was tested with two logistic regressions with emotion and topic entered in Block 1 and their interaction entered in Block 2. Results indicated no significant interaction for cause attribution (p > .20) but a borderline significant interaction for solution accessibility (β = 2.03, SE = 1.08, p = .06). Given that the within-topic comparisons confirmed differences in the expected direction and stronger solution accessibility effects were found for drunk driving relative to gun violence (ϕ = .29, p < .05 vs. ϕ = .12, ns), the data appear to offer partial support for Hypothesis 1.

Hypothesis 2: *Desired Information Seeking*

Hypothesis 2 suggests that compared to gun violence, anger and fear about drunk driving will be more likely to promote the desire for retributive and protective information, respectively. For drunk driving, the three experimental groups differed in their desire for both retributive information, χ^2 (df = 2, n = 81) = 7.29, $p \leq .05$, and protection-related information, χ^2 (df = 2, n = 81) = 9.48, $p \leq .01$ (see Table 2). Comparing the anger and fear groups to one another, the anger group preferred retributive information ($p \leq .05$, τ_b = .28) whereas the fear group preferred protective information ($p \leq .01$, τ_b = –.34). Wilcoxon signed rank tests indicated that within groups, the anger group did not evidence preference for retributive information over all other information available or over protection information only (both 16 pairs to 11, n = 27, p > .20). However, the fear group did prefer protection-related information to retributive information (20 pairs to 7, n = 27), z = –3.31, $p \leq .001$, as well as to the combination of all alternative information available (20 pairs to 7, n = 27), z = –3.08, $p \leq .01$.

Table 2
Drunk Driving– and Gun Violence–Related Information and Solution Preference by Emotion

	Emotion (Rank *M*)		
	Fear	Anger	Control
Drunk driving			
Information preference	$n = 27$	$n = 27$	$n = 26$
Protection[a]	30.46[b]	49.85	41.21
Retributive[c]	50.26	34.72	36.37
Solution preference	$n = 27$	$n = 27$	$n = 27$
Protection[c]	33.61[b]	47.13	42.26
Retributive[c]	48.39	34.87	39.74
Gun violence			
Information preference	$n = 27$	$n = 29$	$n = 29$
Protection	40.72	42.10	46.02
Retributive	42.54	49.00	37.43
Solution preference	$n = 27$	$n = 28$	$n = 27$
Protection	42.98	38.03	45.28
Retributive	41.91	43.52	39.00

Note. A lower rank mean indicates greater preference.
a. Difference between anger and fear groups, $p < .01$.
b. Difference within emotion group, $p < .01$.
c. Difference between anger and fear groups, $p < .05$.

Comparable analysis of the gun violence data revealed no significant differences among the three experimental groups in retributive or protective information desired ($p > .20$). Specifically, the anger group did not prefer retributive information more than the fear group ($p > .20$, $\tau_b = -.12$), and the fear group did not prefer protective information more than the anger group ($p > .20$, $\tau_b = .08$). Wilcoxon signed rank tests indicated that the anger group did not prefer retributive information more than all other information combined or more than fear information alone ($p > .20$). Although the fear group may have preferred the fear information to the alternative information combined (18 pairs to 8, $n = 26$), $z = -1.69$, $p = .09$, it did not prefer protective information to retributive information ($p > .20$).

To test the interaction of emotion (anger and fear) and topic, ordinal regressions were constructed with desire for retributive and protective information as dependent variables. Consistent with the above results, the interaction between emotion and topic was significant for both anger-related information (estimate = 1.71, $SE = .68$, $p < .05$) and fear-related information (estimate = –1.86, $SE = .68$, $p < .01$). Thus, these data generally support Hypothesis 2.

Hypothesis 3: *Solution Preference*

Hypothesis 3 suggests that compared to gun violence, anger and fear about drunk driving will encourage preference for retributive and protective policy initiatives, respectively. Three different measures were used to test this hypothesis: continuous policy-assessment measures, rank order of policy preference, and forced-choice policy preference.

Drunk driving. ANOVAs based on the continuous protective and retributive policy assessment measures indicated that the anger and fear groups did not differ in their desire to see retributive or protective policies enacted (anger retributive $M = 4.96$, $SD = 1.36$ vs. fear retributive $M = 4.88$, $SD = 1.38$), $p > .20$; (anger protective $M = 5.53$, $SD = .91$ vs. fear protective $M = 5.68$, $SD = .87$), $p > .20$. In contrast, Kruskal-Wallis tests on the rank-ordered preferences suggested differences across the experimental groups in preference for both the retributive and protection initiatives, both χ^2 ($df = 2$, $n = 81$) = 4.59, $p \leq .10$ (see Table 2). Further comparisons indicated that as hypothesized, the anger group preferred retributive solutions more than the fear group, $p \leq .05$, $\tau_b = .22$. Conversely, given the dichotomous choice made, the fear group preferred protection solutions more than the anger group, $p \leq .05$, $\tau_b = .22$. Although a Wilcoxon signed rank test revealed no significant difference in the anger group's ranking of the retributive and protective policy initiatives ($p > .20$), the fear group did prefer protection initiatives to retributive ones (21 pairings to 6, $n = 27$), $z = -3.02$, $p \leq .01$. Finally, cross tabular analysis of the policy-preference forced-choice item revealed that for the key comparison of the anger and fear groups, as expected, the anger group preferred retributive policies compared to the fear group, χ^2 ($df = 1$, $n = 53$) = 4.67, $p \leq .05$, $\phi = .30$ (see Table 3).

Gun violence. Results of all solution-preference analyses for gun violence indicated no differences between the fear and anger groups in the solutions preferred, whether assessed with continuous ratings, rank orders (fear $\tau_b = .09$; anger $\tau_b = -.03$), or forced choice selection ($\phi = .03$), all $p > .20$ (see Tables 2 and 3).

Finally, tests of the interactions between emotion (fear and anger) and topic for each set of dependent measures reinforce the above findings. ANOVAs based on the continuous solution preference measures indicated no significant interaction between emotion and topic (ps > .20). Ordinal regressions with rank-ordered preference for retribution and protective solutions as dependent measures indicated notable interactions for both anger-related solutions ($p = .07$) and fear-related solutions ($p < .05$). Finally, a logistic

Table 3
Protective Versus Retributive Policy Preference by Topic and Emotion

	Emotion (%)		
	Fear	Anger	Control
Drunk driving			
Policy package preference[a]	n = 26	n = 27	n = 27
Protection	77	48	70
Retributive	23	52	30
Gun violence			
Policy package preference	n = 27	n = 29	n = 27
Protection	41	38	41
Retributive	59	62	59

a. Difference between anger and fear groups, $p < .05$.

regression with the forced-choice policy-preference dependent measure suggested a meaningful interaction (p = .08). The suggestive and significant interactions coupled with, more importantly, (a) the expected directional effects found and (b) the differences in effect sizes between the two topic contexts (drunk driving: $\tau_b = .22, \tau_b = .22, \phi = .30$; gun violence: $\tau_b = .09, \tau_b = .03, \phi = .03$) offer some support for Hypothesis 3.

Discussion

Despite a subtle emotional prime and limited statistical power, the data offered some support for each hypothesis. For the topic of drunk driving, for which a well-developed schema is assumed, those primed with a topic-relevant anger frame were almost twice as likely to have an individual, or blame-related, cause and a retributive solution top of mind compared to the fear group, which was more likely to have societal-level causes and protection-related solutions accessible. The anger group desired retributive information more so than the fear group, which desired protection-related information. Furthermore, when choosing among alternatives (but not when considering initiatives on their own), the anger group preferred retributive initiatives relative to the fear group, which preferred protective initiatives relative to the anger group. Although the fear group clearly supported protective initiatives over retributive ones, the anger group appeared to support both equally. Finally, as anticipated, no significant differences in information accessibility, desired information, and policy preference were found in the context of gun violence, where schema-development was assumed to be limited. Of note, the differences in effects between the drunk driving and gun violence contexts were largely supported by the interaction results.

Despite the overall impression of support for the emotion-as-frame hypotheses, three potentially anomalous findings must be addressed: (a) the drunk driving data evidenced no differences in the continuous policy-enactment preference measures, (b) the within-group drunk driving anger comparisons did not show preference for retribution-related information over all other information or retributive policies over protective ones, and (c) two gun violence findings–cause accessibility and fear group information preference–were suggestive of framing effects.

As to the discrete policy assessments, null findings for these measures suggest that without a specific reference point, people tend to support action over inaction and judge each initiative based on likelihood of success. However, when making relative judgments, emotion-driven preferences may be evidenced. As policy debates often involve competing initiatives, the public mood generated by emotion frames primed through either individual experience or media coverage may indeed affect policy enactment. Still, these findings suggest a potentially serious constraint to emotion-as-frame effects.

Second, within-group comparisons of the drunk driving data did not show the anger group to rank retributive initiatives higher than protective ones, or to prefer to seek out retributive information. Although these results seem to suggest that the anger frame does not affect information and policy preference as expected, here it is helpful to consider the control group's pattern of results, which, having received no emotional prime, represents the population's baseline perspective (see Tables 1-3). In so doing, we see that the control group resembled the fear group, particularly for information accessibility and forced-choice policy preference. This suggests that the sample's baseline perspective on drunk driving is one based largely on fear, and the anger frame activation served to dampen these preferences, thus minimizing the protection or fear bias. Conversely, the fear frame activation may have reinforced and perhaps magnified this inclination. Because the hypotheses tacitly assumed equal preference for anger and fear-related information and policies, and because the anger frame did appear to balance out an apparent fear bias, these results may, in fact, help to confirm, rather than discredit, the notion of emotions as frames.

Finally, why did some differences for gun violence appear to surface? Here is it important to remember that framing effects are perhaps well thought of as occurring along a continuum, and the greater the schema development, the stronger the effects. The respondents in this study reported modest familiarity with the subject of gun violence, particularly relative to their familiarity with drunk driving. Thus, we might expect weak, and perhaps unstable, framing effects in this context as evidenced in this research.

Although the above results do not undermine the overall supportive nature of the data, there are other concerns that might—most notably, whether other qualities of the two topics might explain the differences identified. Two possibilities come to mind: (a) The topics were associated with particular emotional predispositions, and these predispositions, not momentary frame salience, affected the results reported, and (b) differences other than schema development explain the pattern of results.

That emotional predisposition may have contributed to the findings is not inconsistent with the notion of emotions as frame, as it still suggests that emotions underlie the processes identified but in a more stable, rather than momentary, fashion. Still, evidence suggests that the emotion frame stimulated is the better explanation for the pattern of results.

A survey of undergraduates ($N = 84$) conducted prior to this study asked respondents to rate how they felt on 7-point scales (angry, afraid, sad, disgust, guilty, and repulsed) when thinking about a range of social issues, including gun violence and drunk driving. For gun violence, respondents were as likely to report feeling fear as anger ($M = 4.95$, $SD = 1.73$, and $M = 4.99$, $SD = 1.47$), $p < .20$, whereas for drunk driving they were more likely to feel anger ($M = 6.02$, $SD = 1.41$) than fear ($M = 5.52$, $SD = 1.63$), $p \leq .05$. From this within-subjects data we might expect the tendency toward anger in thinking about drunk driving to provide the foundation for related perceptions, in which case the anger and control groups should appear comparable. Yet as noted above, the fear and control groups' reactions were, in fact, more similar. It is, of course, possible that the measure used did not accurately capture emotional predisposition, and a tendency toward fear in the drunk driving context exists. If so, the anger-based effects found suggest that regardless of emotional predisposition, priming of emotion frames drives subsequent perceptions, at least in the short run. Furthermore, if emotional predispositions were essential for state-arousal effects, we would expect that when a topic is associated with two equal emotional predispositions, framing effects for both emotions when each is primed separately should arise. The gun violence context provides this exact situation, yet minimal effects were evidenced.

As a final note on emotion concerns, one might wonder if degree of emotional arousal matters. That is, perhaps framing effects were found for drunk driving and not gun violence because stronger emotional arousal was associated with it. Although an intriguing possibility, analysis of arousal levels in this study indicated no significant difference between the drunk driving ($M = 4.56$, $SD = 1.54$) and gun violence contexts ($M = 4.08$, $SD = 1.53$), $p > .10$. In sum, though it is unlikely that emotional predispositions explain the effects documented, their role in this process is worth pursuing in future research.

If we accept that emotion played some role in the reported results, we must then ask if a topic characteristic other than schema development might explain the different pattern of results found for the two topics. Topic relevance, for example, though assumed to be associated with prior knowledge (indeed, an index of two relevance items included in the survey correlated with the perceived knowledge measure, $r = .42$), may motivate differential preferences in the face of emotional arousal, independent of knowledge level. This assertion is called into question, however, by Gault and Sabini's (2000) research in which participants angered after reading (i.e., gaining knowledge) about toxic waste issues facing a different community (i.e., low relevance) were driven to support a perpetrator-punishing organization. The results of both that study and this research are consistent with the notion that emotions' effects are dependent upon information accessibility. Still, alternative mechanisms can certainly be explored in future studies in which more precise measures of schemata would be helpful.

A more general concern focuses on whether emotions are frames themselves or simply components of them. To address this point, it helps to consider where frames reside (i.e., in both messages and receivers). The emotion-as-frame hypothesis emphasizes how receivers' emotional experiences guide their perceptions of media messages. However, this perspective also asserts that emotion frames exist in messages through appraisal-pattern signifiers. Thus, a fear message frame (e.g., a fear appeal) would present drunk driving as threatening to personal safety just as, for example, a strategy message frame might present a campaign event as part of a race or game (Cappella & Jamieson, 1997). Both message designs select some information, making it more salient such that subsequent perceptions and decisions will be affected. For emotion frames, perception of the embedded appraisal pattern will evoke fear, the equivalent of frame adoption. Subsequent message processing will then be affected by that frame evocation.

This approach does not preclude nor contradict the idea that emotions may be components of more dominant message frames. Indeed, that is a particularly interesting question worthy of investigation. For example, strategy frames may not only encourage focus on candidate motives but also consequently encapsulate a core theme of anger—concern that others may take advantage. Still, the notion of emotions as frames recognizes that in some messages, emotional themes are dominant, and that these themes serve as frames important to acknowledge and study. This perspective further places the receiver in a central role in the framing process by recognizing that once evoked, emotions dominate people's perspectives and drive subsequent cognitive efforts, including message processing and decision making.

Finally, the above discussion raises the issue of whether the effects of emotional frames are any different from those of emotions themselves. That is, what is the difference between, or advantage of, the conception of emotions per se and emotions as frames? Clearly, both are expected to influence behavior in ways consistent with the emotions' emotivational goals (e.g., wanting to get back at blameworthy others, wanting to protect oneself from harm). However, emotions as frames suggests an important role of moderators, such as prior knowledge. If prior knowledge (or relevance or some other moderator) were not important, then anger and fear would be expected to have the same impact in all contexts—a position not supported by these data. As emotions are functional for interactions with the environment, the notion of emotions as frames allows us to adapt this quality to a mediated context. Theoretically, this distinction may help us to understand the conditions under which there might be a connection between the tone of media coverage and public mood. Practically, it is important to understand emotions' impact on public perceptions of social issues to aid in the design of messages needed to quell fear or direct public anger in ways most productive toward the enactment of effective social policy.

This study focused on how emotions guide attention to certain kinds of information and policy solutions. Future research may attempt to replicate these findings across a range of topics and extend them to other emotional states. Special attention to the role of schema development and other potential moderators is important, as is investigation into the impact of emotional predisposition, topic-relevant versus irrelevant affects, and longevity of effects. Finally, attention should be paid to the message features that signify particular emotion frames, and how real media messages may contain biases toward themes underlying particular emotions that might contribute to predominant public moods and, in turn, policy preference and enactment.

In conclusion, McCombs and Shaw (1993) noted, in reference to framing, that "the media not only tell us what to think about, but also how to think about it, and, consequently, what to think" (p. 65). Influencing what an audience thinks, then, is not only the goal of persuasion but also the effect of framing. In thinking about the persuasive effects of discrete emotions, we do ourselves a disservice if we fail to consider the relationship between framing and emotion. This research suggests that discrete emotions can have distinct persuasive effects, which can be found if only we look for them where they are likely to exist. The notion of emotions as frames may be useful in guiding our vision in this regard.

Notes

1. Of note, recent studies on affect and framing consider how message-irrelevant moods influence the effects of frames related to risky decision making (Mittal & Ross, 1998; Nygren, 1998). However, unlike the present research, this line of inquiry does not consider message-relevant affect nor does it conceptualize affects as frames themselves.

2. It is possible that in asking respondents how they feel when they think about the issue of drunk driving, the emotional reactions reported may be based on the accessibility of past emotional experiences (e.g., remembering the fear of riding with a drunk driver) and/or the cognitions that underlie those emotions (e.g., the thought that drunk drivers cause serious injury). Either way, arousal is achieved. Yet a concern is that it is the cognitions, not the emotional arousal, driving the later responses. Although this study was not equipped to parse these effects, in a similar situation, Keltner, Ellsworth, and Edwards (1993), concerned that message content and related cognitions, not affect, led to differences in attributions, found through a series of studies that it was, indeed, the affect, not cognitions, that drove subsequent perceptions.

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