

Getting to the Heart of Climate Change: Three studies of the effectiveness of emotionally framed messages to encourage workplace proenvironmental behavior

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Getting to the Heart of Climate Change: How Emotionally Framed Messages can Encourage Workplace Proenvironmental Behavior

ABSTRACT

In this paper we report the results of three quasi-experimental studies where we examined the effect of emotionally framed messages on participants' proenvironmental behavior. In each study, participants viewed a news video about climate change where the news reader displayed one of five emotions. A control group read a written report of the news. The dependent variables were recycling behavior following the viewing and requesting environmental information. Results were consistent across the three studies in that displayed emotion had a significant effect on proenvironmental behavior following the viewing. Sadness in particular resulted in significantly less proenvironmental behavior. We conclude with a discussion of the implications of our findings for research, theory, and practice.

Keywords: sustainability, emotions, decision making, triple bottom line

Research has identified the important role that individuals play in affecting organizational change for sustainability (Andersson & Bateman, 2000; Bansal, 2003; Starik, 1995), yet more remains to be done to understand the processes of decision-making that underlies proenvironmental behavior. In particular, and despite past success of cognitive and behavioral perspectives in explaining proenvironmental behaviors, few researchers have explored its affective dimensions (Kals & Maes, 2002; Vining & Ebreo, 2002). While management research does mention emotive components of proenvironmental behaviors (Andersson & Bateman, 2000; Bansal & Roth, 2000; Ramus & Steger, 2000), very few studies to date have examined the role of emotion explicitly. Our aim in this research therefore was to advance understanding of the antecedents of workplace proenvironmental behavior by exploring the effects of emotional reactions to reports of environmental issues.

Scholars have suggested that emotions activate and prioritize behaviors by signaling action readiness – a concept that links different emotions with different behavioral responses (e.g., to run away in fear or to fight in anger, see Frijda, 1986; Izard, 1991). Emotional responses thereby serve as

an information processing mechanism that helps distinguish the relevance and importance of events or information (Scherer, 2000). Environmental psychologists (e.g., Aitken, McMahon, Wearing, & Finlayson, 1994; Kals & Maes, 2002; Kantola, Syme, & Campbell, 1984; Vining, 1992) have suggested that emotions play an important role in determining proenvironmental behavior. Furthermore, we note that the importance of emotion in workplace behavior has now been established (see for example, Ashforth & Humphrey, 1995; Fineman, 2003; Härtel, Zerbe, & Ashkanasy, 2005). Moreover, scholars such as Fineman (1996, 1997) and Pratt and Dutton (2000) suggest that environmental issues are likely to be more emotional than other types of issues within organizations. Research is therefore needed to examine further the role of emotion as a driver of proenvironmental behavior (Kals & Maes, 2002; Vining & Ebreo, 2002).

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

According to Weiss & Cropanzano (1996), emotional reactions directly affect behavior. Behaviors are driven by affect insofar as they have control precedence, which Frijda (1993) describes as the tendency for people in an emotional state to be controlled by that state. Environmental psychologists such as Aitken, McMahon, Wearing, and Finlayson (1994) and Kantola, Syme, and Campbell (1984), suggest that this perspective is useful to explain the role of emotion in proenvironmental behavior. They have demonstrated in particular that negative emotions can induce proenvironmental behaviors. Vining (1992) and Kals and Maes (2002), have suggested further that positive emotions can also induce proenvironmental behaviors.

In further exploring these results, there is evidence to suggest that emotional arousal may be important in predicting proenvironmental behavior. For example, Vining's (1987) study of environmental decision-making found that "hot" emotional messages were more likely to elicit pro-conservation decisions by respondents. Within an organizational context, Fineman (1996) also hinted at the importance of emotional arousal. For example, in describing his findings in relation to fear, he suggests that managers in less environmentally committed organizations tend not to display the same level of fear from embarrassment as did those in more green organizations. Based on these findings,

we formulate the specific proposition that: *Emotional arousal in response to an environmental issue will lead to proenvironmental behavior (Proposition 1).*

There is also evidence to suggest that emotional arousal may be more important for negative emotions than for positive emotions, particularly in the context of environmental issues. Research has shown that individuals often pay more attention to negative stimuli, compared to positive stimuli of the same intensity (Dasborough, 2006; Lewicka, Czapinski, & Peeters, 1992). Lewicka et al. (1992) labeled this phenomenon the “negativity effect,” and suggested that, when present, it results in a greater effect of negative than positive stimuli on behavior, affect and judgments. Similarly, research by Isen and colleagues suggests that mild positive affect can have a significant effect on behavior (Erez & Isen, 2002; Isen, 1999), thereby implying that, for positive emotion, high arousal is not necessary in order to induce behavior change. Lewicka et al. (1992) and Isen (1999) recommend that this effect is particularly relevant to moral issues and to sociable and helpful behavior. In light of this research, we proffer that: *The effect of emotional arousal on proenvironmental behavior will be more pronounced for negative emotions than for positive emotions (Proposition 2).*

We extend past research by focusing on the role of particular emotions as determinants of proenvironmental behavior. Discrete emotions can be usefully described in terms of the circumplex model of affect, based on dimensions of valence and arousal (Barrett & Russell, 1998; Larsen & Diener, 1992; Russell, 1980). Valence refers to the hedonic quality (pleasure or displeasure) associated with emotion. Arousal (or activation or intensity) refers to felt activation or the strength of the emotional experience (Barrett & Russell, 1998; Seo, Feldman Barrett, & Jin, 2008). All affective stimuli (i.e., emotions such as anger, sadness, hope, and joy, as well as non-emotional affective states like fatigue, or tiredness) can be defined as combinations of valence and arousal.

For the present research, we selected five discrete emotions within each of the four quadrants of the circumplex model: (1) *Sadness*, a low arousal negative emotion, (2) *Anger* and *Fear*, high arousal negative emotions, (3) *Contentment/Confidence*, a low arousal positive emotion, and (4) *Hope/Joy*, a high arousal positive emotion. Emotional expressions from a series of qualitative interviews were used to guide the selection of discrete emotions in each of the four circumplex quadrants. These emotions were considered appropriate discrete categories to test our propositions.

Although anger and fear are both high arousal negative emotions and are similarly positioned within the emotion circumplex, we chose to include both emotions. Lazarus (1991) differentiates between fear and anger and suggests that, while fear is associated with the action tendency of escape, retreat, or avoidance, anger is associated with fight. Moreover, research by Lerner and Keltner (2001) has demonstrated this in practice and has also shown that angry individuals' choices are relatively optimistic, whereas fearful individuals make pessimistic choices. Anger and fear have distinctly different action tendencies, so we chose to include both discrete emotions in our study.

METHOD

We tested our propositions in three quasi-experimental studies; Studies 1 and 3 were conducted in a laboratory setting and Study 2 in a field setting. A posttest only design was used in each instance to avoid unwanted sensitization effect on measures of the dependent variables (Shadish, Cook, & Campbell, 2002). Manipulated independent variables were the five emotions: (1) sadness/hopelessness, (2) fear, (3) anger, (4) contentment/confidence, and (5) hope/joy. We also incorporated a (no emotion) control group. Elicited emotion was the independent variable and the dependent variable was proenvironmental behavior.

Experimental Manipulation

The experimental manipulation was the same in all three studies, and comprised videos designed to manipulate the focal emotions. Participants were shown news reports about the impact of climate change on business. These reports were produced for this research and were essentially identical except for small changes intended to manipulate the emotions expressed. Each report included emotion words selected from the circumplex model (Barrett & Russell, 1998; Russell, 1980) to enhance the emotional message of the manipulation. For example: the Sadness condition included 'hopelessness'; the Fear condition included 'frightening' and 'alarmed'; the Anger condition included 'anger' and 'frustrated'; the Contentment/Confidence condition included 'confident,' and 'content'; and Hope/Joy included 'exciting' and 'hope.'

One female and two male actors were trained to display emotion in their facial expressions, body language and voice using the *Facial Expression Repertoire* (Biehn, 2005). The news reports also

contained footage relevant to the climate change story. Footage was selected based on the International Affective Picture System (IAPS, Lang, Bradley, & Cuthbert, 2005), which is a database of still images that generate consistent emotional reactions. In the control condition, participants were given a written transcript of the news report, rather than a video. The written transcript included the same information contained in the video manipulations with no emotional language.

A pilot study was conducted in order to test the effectiveness of the experimental manipulations. Forty-seven students rated their emotions after watching each of the manipulation videos and reading the neutral transcript. T-test results against the neutral condition showed that participants' felt emotions after the videos were as expected in each of the manipulations.

STUDY 1

Sample and Procedure

The sample for Study 1 included 194 participants, 47% female, with an average age of 26, ranging from 19 to 50 years. All participants were students of an Australian university. Study 1 was conducted in a classroom setting. Twelve class groups were used in the study, with classes assigned to one of the six conditions (five audio-visual treatment conditions and a control condition). On entering the classroom, participants were given an information sheet and asked to create a unique alphanumeric identifier to allow responses to be collated over the course of the study. Participants were then shown a news report video or transcript which formed the manipulation of the study. Participants were then asked to complete filler task that involved completing a survey booklet. The booklet also included measures of social desirability and demographic information. When the survey was complete, participants were asked to turn in their survey booklet and to dispose of their unique identifier sheet on leaving the room. Participants had the opportunity to dispose of their sheet in a regular garbage bin or a paper recycling box. Prior to the experiment, one completed unique identifier sheet was placed in each bin to avoid modeling effects where participants follow the decision of the previous participant.

Measures

Proenvironmental behavior. We used a behavioral observation measure to gauge participants' proenvironmental behavior. On leaving the laboratory, participants were asked to dispose of the piece of paper they used to create their unique identifier. Proenvironmental behavior was coded as 1 if a participant disposed of the sheet in the recycling box or 0 if they put it in the regular garbage bin.

Control Variables. Demographic variables included age, gender, and ethnicity as suggested by other researchers who have examined workplace proenvironmental behavior (Andersson & Bateman, 2000; Andersson, Shivarajan, & Blau, 2005). Groups were tested for equivalence and groups were found to be equivalent on all control variables.

Social Desirability. Social desirability was also assessed using a ten-item version of the Marlowe-Crowne Social Desirability Scale (MC-II; Reynolds, 1982). We found no significant relationship between social desirability and any of the variables in the study and we therefore excluded it from further analyses.

Results

Based on the results of logistic regression analysis, the manipulation of emotional display in the video had a significant effect on participants' recycling behavior, $\chi^2(5, N=179) = 70.00, p < .01$. We therefore found support for Proposition 1. In order to test Proposition 2 we used Chi-square tests for independence (with Yates Continuity Correction). The proportions of participants in each condition who engaged in proenvironmental behavior (recycling) are shown in Figure 1.

A larger proportion of participants engaged in recycling behavior in the anger condition than did those in the neutral condition, $\chi^2(1, n=43) = 8.67, p < .01$. Similarly, more participants recycled in the fear condition as compared to the neutral condition, $\chi^2(1, n = 63) = 5.68, p < .05$. Although the proportion of participants who recycled in the anger condition was higher than for fear, this difference was not significant, $\chi^2(1, n = 60) = 0.80, ns$, however. Finally, and while a smaller proportion of participants who saw the sad news recycled compared to those who viewed the neutral stimulus condition, this difference failed to reach significance, $\chi^2(1, n=83) = 1.18, ns$. This proportion,

however, was also smaller than for the angry, $\chi^2(1, n=80) = 24.62, p < .01$; or fear condition, $\chi^2(1, n=100) = 22.28, p < .01$.

Results in respect of the positive stimuli were consistent with Proposition 1 and our expectation that positive emotion would result in more proenvironmental behavior compared to the neutral condition. A significantly greater proportion of participants in the contentment/confidence condition engaged in recycling behavior than did those in the neutral condition, $\chi^2(1, n = 41) = 9.34, p < .01$. Similarly, compared to the neutral condition, significantly more participants in the hope/joy condition recycled, $\chi^2(1, n=41) = 14.51, p < .01$. As we expected, contentment/confidence and hope/joy behavior were undifferentiated, $\chi^2(1, n=36) = .28, ns$. These results provide support for Proposition 2, in that emotional arousal was important in differentiating discrete negative emotions, but not between positive emotions.

STUDY 2

This study builds upon the findings of Study 1 concerning the effect of emotion on proenvironmental behavior and workplace proenvironmental intention and was designed to test the findings of Study 1 in the field.

Sample and Procedure

A total of 135 office-based employees participated in Study 2, 80% female, with an average age of 43, ranging from 18 to 64 years. The design of Study 2 followed a similar method to Study 1, but was conducted online with office employees. Participants were sent an email invitation to participate in the study that included a link to an online survey. When participants clicked on the link they were randomly allocated to one of the six conditions (five audio-visual experimental conditions, and a control condition). In the treatment conditions, a streaming video was embedded within the online survey. In the control condition, the written transcript of the news report was presented, rather than a video. Once participants had watched the video or read the transcript they were instructed to complete a survey that formed a filler task as well as including measures of demographic information and proenvironmental behavior. Participants were shown the debriefing information on the final page of the survey.

Measures

All measures were the same as in Study 1 with the exception of proenvironmental behavior. In this study, Information-seeking was used as the measure of proenvironmental behavior. Responses were dummy-coded with 1 if participants requested information or 0 if they did not. Analyses showed no significant differences between the groups on any of the demographic variables or social desirability and these variables were therefore removed from further analyses.

Results

Similar to Study 1, we employed logistic regression analysis to see if the experimental conditions had a significant effect on information requesting behavior (a dichotomous variable). The model contained experimental condition as a categorical independent variable. Results showed that the experimental condition had a significant effect on information requests, $\chi^2(5, N=110) = 11.29, p < .05$. Propositions were further tested using Chi-square tests for independence (with Yates Continuity Correction). The percentages of participants in each condition who engaged in proenvironmental behavior (information requesting) are shown in Figure 2.

In Proposition 2, we predicted that arousal would be important for negative emotions but not for positive. While Study 1 results were generally in accord with our predictions, results obtained in Study 2 were more equivocal. Anger versus fear were undifferentiated, $\chi^2(1, n = 34) = 0.00, ns$, and neither of these emotions elicited more recycling requests than the neutral condition: anger $\chi^2(1, n = 38) = 0.00, ns$; fear $\chi^2(1, n = 34) = 0.00, ns$. Sadness, however, did result in significantly fewer requests than the neutral condition, $\chi^2(1, n = 36) = 4.01, p < .05$. Also, the number of requests in the sadness condition was significantly less than in the anger or fear conditions: anger $\chi^2(1, n=36) = 5.39, p < .05$; fear $\chi^2(1, n=32) = 4.44, p < .05$.

Unlike in Study 1, we failed to find a significant difference in requesting behavior between the neutral and positive emotion conditions. There was no significant difference in the proportion of participants who requested information between the hope/joy condition and the contentment/confidence condition, $\chi^2(1, n=40) = 0.05, ns$. These in turn were not significantly

different from the neutral condition: hope/joy $\chi^2(1, n=42) = 1.70, ns$; contentment/confidence $\chi^2(1, n=40) = 0.92, ns$.

STUDY 3

Study 3 builds upon the findings of Studies 1 and 2 and was designed to provide a validation of the findings of previous studies.

Sample and Procedure

The sample for Study 3 included 255 participants, 56% female, with an average age of 25.6, ranging from 19 to 57 years. All participants were students of an Australian university. Study 3 was conducted in a classroom setting with eighteen class groups assigned to one of the six conditions (five audio-visual experimental conditions and a control condition). The procedure and measures used in Study 3 were the same as Study 1.

Results

Based on the results of logistic regression analyses, the manipulation of emotion in the video had a significant effect on participants' recycling behavior, $\chi^2(5, N=255) = 23.99, p < .01$. We therefore found support for Proposition 1. The proportions of participants in each condition who engaged in proenvironmental behavior (recycling) are shown in Figure 1.

In Proposition 2, we predicted that arousal would be important for negative emotions but not for positive. Results of Study 2 showed that anger versus fear were undifferentiated, $\chi^2(1, n = 72) = 0.00, ns$, and neither of these emotions elicited more recycling requests than the neutral condition: anger $\chi^2(1, n = 96) = 0.00, ns$; fear $\chi^2(1, n = 96) = 0.00, ns$. Sadness, however, did result in significantly fewer requests than the neutral condition, $\chi^2(1, n = 99) = 7.30, p < .01$. Also, the number of requests in the sadness condition was significantly less than in the anger or fear conditions: anger $\chi^2(1, n=75) = 6.62, p < .01$; fear $\chi^2(1, n=75) = 5.34, p < .05$.

We did not find a significant difference in requesting behavior between the neutral and positive emotion conditions. There was no significant difference in the proportion of participants who requested information between the hope/joy condition and the contentment/confidence condition,

$\chi^2(1, n=84) = 0.05, ns$. These in turn were not significantly different from the neutral condition: hope/joy $\chi^2(1, n=106) = 1.65, ns$; contentment/confidence $\chi^2(1, n=98) = 2.26, ns$.

DISCUSSION

A key aim of the research outlined in this paper was to demonstrate that perception of emotion can significantly affect individual proenvironmental behavior (Bamberg, 2003; Vining & Ebreo, 2002). We also set out to demonstrate that it is not enough to consider only emotional valence; that arousal also needs to be taken into account, thus necessitating study of the effect of discrete emotions. The findings from the three studies support both contentions. We found that emotions do affect proenvironmental behavior and that discrete emotions within the same valence result in different outcomes. Importantly, these results challenge previous findings from environmental psychology that rely on aggregation of emotion into positive and negative valence (e.g., Kals, Schumacher, & Montada, 1999; Lord, 1994; Vining, 1987). Indeed, our findings showed that, despite sharing a negative valence, anger and fear (high arousal emotions) were more effective in provoking proenvironmental behavior than sadness (low arousal).

Also consistent across the three studies was a finding that emotional arousal was important for negative but not for positive emotion. In each study, the high arousal negative emotions of anger and fear led to more proenvironmental behavior than the low arousal negative emotion of sadness. In relation to positive emotion, results consistently showed no significant difference on measures of proenvironmental behavior between high and low arousal positive emotions. These findings extend the work of Lewicka et al. (1992), Isen et al. (Erez & Isen, 2002; Isen, 1999; Isen, Daubman, & Nowicki, 1987), and Cialdini et al. (2006).

Our findings also revealed no significant differences between the emotions of anger and fear. This finding differs from the propositions of regulatory focus theory (Higgins, 1997, 2001) and Lerner and Keltner's (2000, 2001) view that angry and fearful individuals behave differently. It is possible that disparity in findings may be attributable to differences in the outcome variables of the studies. More specifically, the focus of Lerner and Keltner's research was on cognitive judgments and choices, whereas the focus of our study was on actual behaviors. It appears therefore that the action

orientation of the emotion may be more important than the cognitive evaluation in determining behavior. Lazarus (1991) and Higgins (2001) argued that both anger and fear have a strong action orientation, with anger resulting in a tendency to fight and fear tending in the action of flight. The results of Study 1 and 2 suggest that this may be an area worthy of future research in order to compare the relative effect of fear and anger on cognitive judgments (as per Lerner & Keltner, 2000, 2001) as opposed to actual behaviors.

Implications for Practice

This research has practical implications that may contribute to improving the effectiveness of interventions designed to encourage proenvironmental behavior within and outside organizations. Results showed that high arousal negative emotions, such as anger or fear, led to more proenvironmental behavior than the low arousal negative emotion of sadness. These findings imply that change efforts designed to stimulate negative emotion may inadvertently induce feelings of sadness, or hopelessness, and subsequently cause inaction. On this basis, it seems logical to conclude that change agents must be cautious in designing emotion-based interventions in order to avoid creating feelings of hopelessness.

Limitations

Inherent in experimental designs is the issue of external validity (Mook, 1983; Shadish, et al., 2002). We attempted to improve the external validity of the experimental results by following up with a field study (Study 2) and a validation study (Study 3). Although we consistently found that different emotional displays impacted participants' behavioral responses differentially, there were differences across the studies. This suggests, as Johns (2006) has argued, that context is important. Consequently, our results should be generalized with caution to other populations and manipulations in more natural settings.

Future Research Directions

The focus of our research was on the five emotions of anger, fear, sadness, hope/joy, and contentment/confidence. It is possible that other emotions may also be relevant in understanding the effect of emotion on proenvironmental behaviors and intentions. For example, in their review of

environmental psychology literature, Vining and Ebreo (2002) highlighted the potential for self-conscious emotions such as guilt, shame and embarrassment to influence pro-social behavior (see also Tangney, 1999). An investigation of additional discrete emotions, and self-conscious emotions in particular, would therefore be of benefit in extending this research.

Researchers in the future should also consider longitudinal designs. Findings from our studies demonstrate that emotion had a significant impact on proenvironmental behavior immediately following the manipulations. A longitudinal design would enable researchers to test whether the effect of emotion endures over time and would also enable researchers to explore a greater range of proenvironmental initiatives and activities in organizational settings.

CONCLUSION

Our aim in this research was to examine, in three experimental studies, the causal effect of discrete emotion displays in eliciting proenvironmental behavior. The experimental manipulations consisted of audio-visual stimuli designed to manipulate the discrete emotions of sadness, fear, anger, contentment/confidence, and hope/joy. Results from the three studies demonstrated that emotion had a direct causal effect on our study participants' behavior, thus confirming the importance of emotion in understanding proenvironmental behavior. Furthermore, differences in participants' proenvironmental behavior in the anger, fear and sadness conditions underscores the importance of studying discrete emotions, rather than studying emotions aggregated into positive and negative valence.

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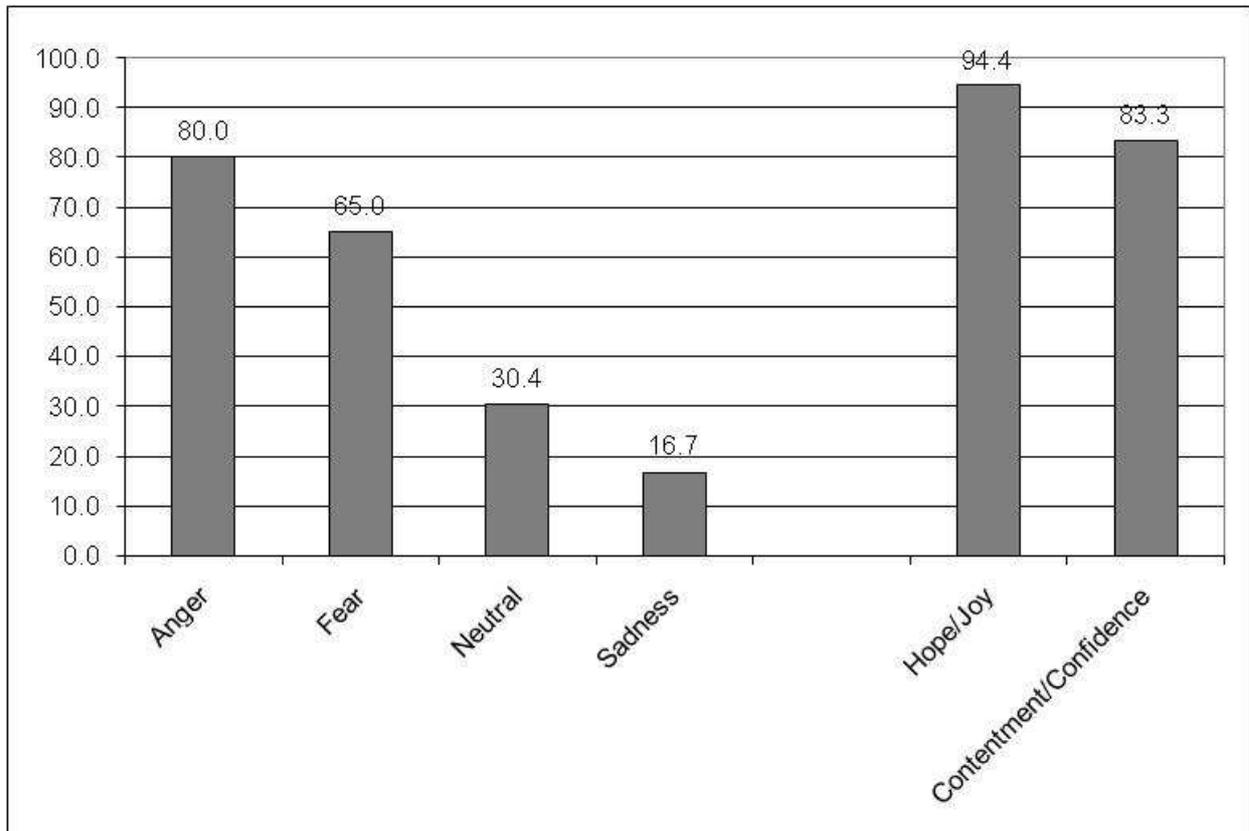
Figure 1. Percentages of Participants who Recycled in Study 1

Figure 2. Percentages of Participants Who Requested Information in Study 2

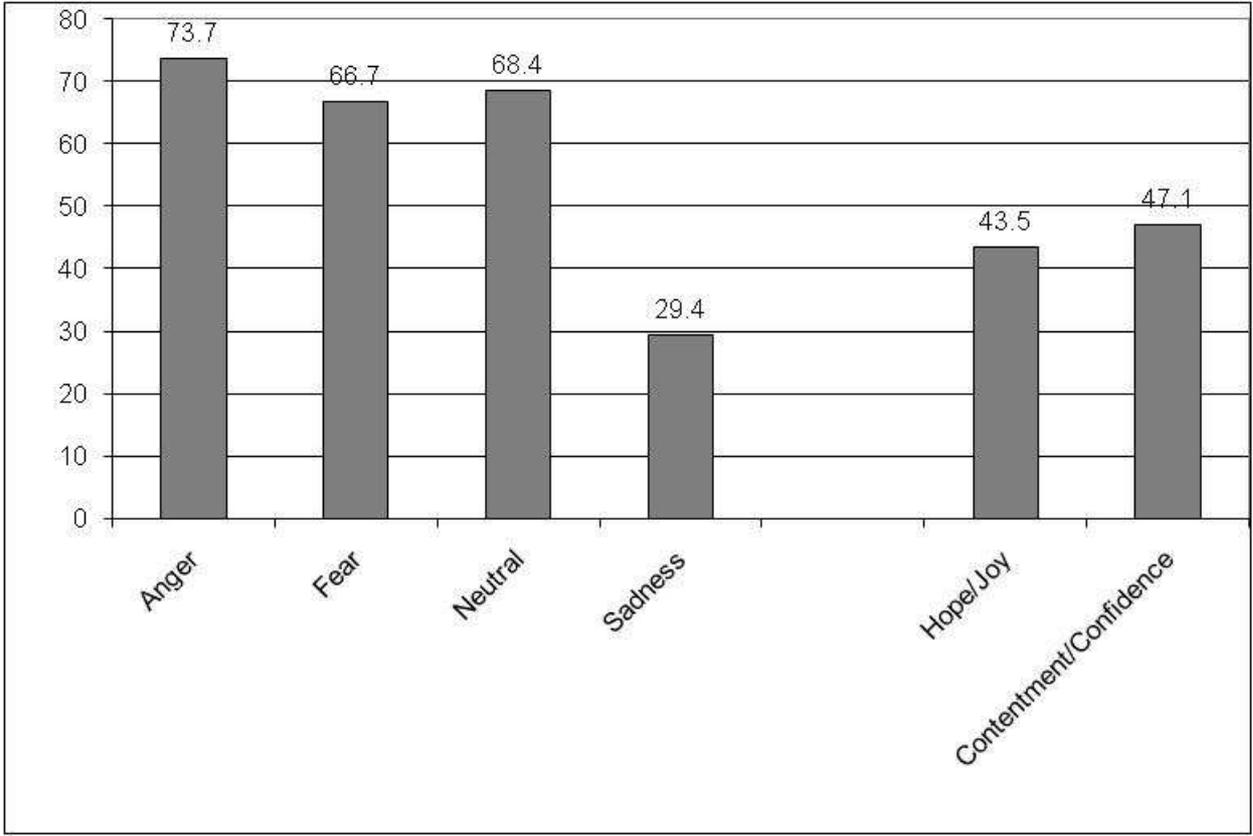


Figure 3. Percentages of Participants who Recycled in Study 3