Emotion, Sophistication and Political Behavior: Evidence From a Laboratory Experiment

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The way emotions affect political behavior has been a central theme in politics since ancient times, but it is only in the past few decades that it has been the focus of rigorous empirical inquiry. Recent empirical research suggests that emotions may affect different groups of people in distinct ways, but experimental evidence remains scant. Through a double-blind experiment, this article investigates the degree to which emotions (shame and anger) motivate people with different levels of political sophistication to be more politically active. The findings are two-fold: (1) Once treated with shame, more sophisticated individuals are more likely to change their political behavior than less sophisticated ones; and (2) once treated with anger, it is people with low levels of prior political involvement who are more likely to report a change in their behavior. The findings highlight the potential of going beyond the existing investigations by adding shame in empirical analyses of how emotions affect behavioral change. The evidence here also shows that different emotions might display different patterns of interaction with sophistication. Practically, the findings point to an emotional venue for the mobilization of citizens who are generally difficult to engage in political life.

KEY WORDS: anger, emotions, experiment, political behavior, shame, sophistication

The way emotions affect political behavior has been a central theme in politics since ancient times (Elster, 1999; Marcus, 2000, 2002; Neblo, 2007; Nussbaum, 2001), but it is only in the past few decades that it has been the focus of rigorous empirical inquiry (Groenendyk, 2011; Marcus, 2000, 2002; McDermott, 2004; Neuman, Marcus, Crigler, & MacKuen, 2007). The important advances of this empirical research have helped turn attention to the question of *which* people are most likely to get affected by emotions. The findings of this new research tend to dispel common perceptions about the behavioral responses of different groups to emotional stimuli. Whereas common wisdom tends to associate the behavioral consequences of emotions with less politically sophisticated individuals, recent scholarship suggests that emotions interact with high political sophistication to produce behavioral consequences (Brader, 2006; Jones, Hoffman, & Young, 2013; Miller, 2011; Rudolph, Gangl, & Stevens, 2000; Valentino, Brader, Groenendyk, Gregorowicz, & Hutchings, 2011).

The investigation into how the interaction of emotion and sophistication affects political behavior rests on different conceptualization, operationalization, and measurement of the main variables, leaving much room for further research. This article further probes the link between emotion, sophistication, and behavior by employing a laboratory experiment among 217 undergraduates to investigate behavioral

responses to an environmental issue. It shows distinct interactions between emotions and behavior, depending on the nature of the emotion induced. Apart from anger, which has received considerable attention in the literature, the article examines shame, which is relatively understudied. Disaggregating emotion, sophistication, and behavior, it shows how experimentally induced shame interacts with high levels of knowledge to increase the propensity of individuals to seek more information. Departing from existing findings, it also shows that anger does not interact with sophistication to yield behavioral outcomes. Instead, anger interacts best with low levels of prior political involvement in politics.

Emotion and Political Behavior

Recent decades have witnessed a notable surge in efforts to empirically trace the link between emotions and political behavior. Overcoming definitional obstacles encountered in earlier years (Kleinginna & Kleinginna, 1981; Marcus, 2000; Spezio & Adolphs, 2007) and borrowing from advances in decision neuroscience (Marcus, Neuman, & MacKuen, 2000; Redlawsk, 2006), empirical research on emotions has managed to utilize a wide array of theoretical constructs to investigate how emotions affect politics (Neuman et al., 2007). Most of this research has been undertaken in American contexts and, given this contextual focus, it naturally drew evidence on emotions from the various series of the American National Election Studies (ANES; Hutchings, Valentino, Philpot, & White, 2000; Marcus & MacKuen, 1993; Miller, 2011; Rudolph et al., 2000; Valentino et al., 2011). Based on the initial identification of emotions relevant for American political campaigns, subsequent work on emotions has primarily focused on two sets of emotions, anxiety and enthusiasm, which are thought to be the basis of distinct emotional systems and to yield different behavioral outcomes (Marcus et al., 2000). Whereas enthusiasm has been gauged directly (Brader, 2005, 2006), anxiety has primarily been measured through emotions that have been found to load on the same emotional dimension (Marcus & MacKuen, 1993), like fear (Valentino, Hutchings, Banks, & Davis, 2008) and threat (Huddy, Feldman, Taber, & Lahav, 2005). Much attention has turned to anger, which, although generally treated as belonging to the same emotional system, has been shown to have distinct causes, and ultimately, effects (Huddy, Feldman, & Cassese, 2007; Valentino et al., 2011).

Despite its merits, the dominance of this ANES-based model of emotional inputs in politics has come at the cost of paying a lot less attention to other emotions, like shame. Not part of early studies of how emotions affect political behavior, the feeling of shame has largely been left to the sidelines of most analyses of emotions. The effects of shame have largely been gauged indirectly, in large-scale field experiments of how civic norms affect the participation in elections (Gerber, Green, & Larimer, 2008, 2010; Panagopoulos, 2010). More direct effects of shame have been observed in sociological or economics studies which show how it can help reduce littering (Grasmick, Bursik, & Kinsey, 1991) or increase tax compliance (Andreoni, Erard, & Feinstein, 1998).

The extant literature identifies a relatively wide range of behavioral patterns associated with emotions. Given the focus of this literature on American electoral contexts, the behavioral consequences of emotions revolve around voting behavior. In one of the most known efforts to experimentally test earlier theorizing (Marcus et al., 2000) for emotional effects, Brader (2005) shows that enthusiasm increases interest in the campaign and the intention to vote. Moreover, experimentally induced fear seems to increase the propensity to seek information. Subsequent work has provided further evidence on how emotions affect campaign involvement and information seeking. Using a survey experiment, Jones et al. (2013) show how the emotional appeals candidates make can help boost online and offline political engagement. Decoupling anger from anxiety, Valentino et al. (2008) use experiments to demonstrate how it depresses and boosts information seeking, respectively. Although anger depresses information seeking, it is shown to induce political mobilization, including some relatively "costly" forms of action, like volunteering for campaign work or donating money (Valentino et al., 2011). The few studies gauging the effects of shame have shown how

indirect shaming tactics encourage voting. The possibility that abstention records will be disclosed boosted participation in elections (Gerber et al., 2008, 2010; Panagopoulos, 2010). Analyses of how emotions affect not just voting or campaigns but also broader political behavior are relatively few. In their measures of costly political actions, Valentino et al. (2011) include taking part in political protest. Although nonvoting and noncampaign activity is occasionally included in analyses of how emotions affect political behavior, direct engagement with the political action literature (Dalton, 2006; Kaase, 1979; Norris, 2002) is, at best, limited.

Enter Sophistication

Recent work on the interaction of emotions with individual characteristics has helped add a significant new dimension to the broader question regarding the behavioral consequences of emotions. Instead of solely looking at how emotions affect behavior, this new body of works focuses on *which* individuals are most likely to change their behavior due to emotional stimuli in their environment. Whereas common wisdom tends to associate emotionally induced behavior with low levels of political sophistication, most works find that emotions interact with higher levels of sophistication. The conceptualization, operationalization, and measurement of "sophistication" differ substantially across studies, but the main point seems similar: Emotion interacts with high sophistication to produce behavioral outcomes. Rudolph et al. (2000) use ANES survey data to show how anxiety "among the highly efficacious drives involvement while anxiety among those with low internal efficiency does not" (p. 1194). Using experiments with political advertisements, Brader (2006) similarly finds that those with higher levels of "civic competence" or "knowledge" are more responsive to emotional appeals. Valentino et al. (2011) find that those with resources, political interest, institutional involvement, and mobilization (Brady, Verba, & Schlozman 1995) are more likely to participate, when angry or enthusiastic. Jones et al. (2013) show how high levels of news consumption—a proxy for "political engagement"—interact with experimentally induced emotions to affect the likelihood for political participation. Miller (2011) makes the heterogeneity in sophistication a central tenet of his analysis. Using survey data, he finds that a factor score of sophistication, based on questions about interest, knowledge, and attention, interacts with all 1980-ANES emotions. He concludes that "high sophisticates, the citizens most valued for their greater political knowledge, interest and attention, tend to be more emotionally engaged with politics" (p. 593). On the basis of this earlier work, then, one can hypothesize that:

H1: Emotions interact with political sophistication to yield behavioral change.

Despite the important insights into the links between emotional involvement, political sophistication, and political behavior, there are a number of reasons to revisit the issue. First, there is a need to consider the theoretical possibility that there are distinct patterns of interactions between emotion and sophistication, depending on the emotion. Although the empirical record suggests that all emotions interact with sophistication in a similar way, there are good theoretical reasons to consider different patterns of interaction depending on the specific emotion. The extant literature on how emotions affect politics has firmly established that different emotions generate quite different cognitive processes and distinct strategies of coping with new environmental stimuli (Marcus et al., 2000). This means that, at least at the theoretical level, there are good grounds to expect certain emotions to interact differently with sophistication to change behavior. Although never used in experimental designs probing the interaction of emotions and sophistication, the feeling of shame is a good case in point. Due to its very nature, shame requires the internalization of civic norms (Gerber et al., 2008, 2010; Panagopoulos, 2010)—a cognitive process that is more likely to take place among astute observers of political environments than among the rest. Moreover, shame requires a certain degree of introspection about existing behavior—a thought process that is intrinsically linked to sophistication

and to *how* people think about politics (Luskin, 1987). By contrast, anger involves the attribution of blame to others rather than introspection—a process that does not necessarily indicate high levels of political cognition. Anger is also associated with a high degree of certainty (Lerner & Keltner, 2000, 2001) about the workings of political phenomena, which, depending on their complexity, does not necessarily reflect sophistication. Overall, then, it is important to consider how the distinct attributes of individual emotions might yield distinct patterns of interaction with political sophistication. Taking this into account, one can hypothesize that:

> *H2*: The pattern of interaction between emotions and sophistication varies across emotions. Shame can be expected to interact with higher levels of political sophistication and anger with lower levels.

Second, there is a need to expand the range of behavioral effects to include other parts of political life beyond voting. Existing knowledge on how emotions affect politics rests on evidence collected in American campaign contexts and mostly gauging voting-related behavior (McDermott, 2007). The novel contributions of this literature are rarely tested outside this specific setting (Nai, Schemeil, & Marie, 2017; Vasilopoulou & Wagner, 2017), thereby generating questions about their generalizability. Striving for generalizability does not simply mean using non-American samples but, more importantly, it suggests moving beyond the examination of voter behavior. Political life is much broader than involvement in party political campaigns, and the analysis of political behavior needs to be able to compare emotional involvement in different domains of political life. Voting is "one of the least demanding" (Norris, 2002, p. 15) forms of political participation, and as one moves away from electoral involvement to other forms of political behavior, it can be expected that the interaction of sophistication and emotion varies. More demanding forms of political involvement, like protesting or leafleting, might require more or less emotional engagement and different levels of sophistication than, for example, information seeking as part of campaign involvement. Once taking a broader view of political life into account, then, it is plausible that:

> *H3*: The patterns of interaction between emotion and sophistication vary as one moves across the spectrum of political behavior (e.g., from information seeking to political activism).

Methodology

We investigate how emotions affect political behavior by gauging responses to a contemporary political issue. Moving beyond the examination of voting behavior and taking cues from studies focusing on particular political topics (Brader & Valentino, 2007; Capelos & Exadaktylos, 2017; Huddy, Feldman, Taber, & Lahav, 2005; Nai et al., 2017), we investigate how emotions affect responses to environmental disaster. In line with experimental advances in political science (Druckman, Green, Kuklinski, & Lupia, 2006) and in the extant literature on emotions (Brader, 2005; Gerber et al., 2008, 2010; Valentino et al., 2011), we designed a laboratory experiment to investigate how emotional responses to bird trapping and killing affect political behavior. In the period preceding the experiment, this particular environmental issue had gained significant political traction in the European national setting where the experiment took place, as nongovernmental organizations sought to mobilize political and public support, at home and abroad, to stop the illegal trapping of millions of birds in mist nets and limesticks. The politicization of the issue helped bring attention to the brutal nature of this traditional and lucrative practice, which is estimated to indiscriminately lead to the trapping of as many as 155 different species of birds, including dozens of endangered ones.

The Experiment

The randomized trial involved five conditions. Each condition provided varying degrees of emotional inducement through a 140-word presentation which included still images and/or videos and lasted approximately for 120 seconds. Two of the experimental conditions were purposefully designed to induce intense emotions of anger and shame through videos showing trapped birds. In the "Anger" condition, a narrator would repeat messages that sought to induce anger regarding bird trapping. The video of the "Shame" condition was very similar to that of the Anger condition, but a narrator would repeat messages that sought to induce shame (see the appendix, Figure A1, for some pictures of the presentations and the methodological appendix in the online supporting information for the full transcripts).

Two other conditions were purposefully designed to induce less intense emotions, through still images (instead of video) that sought to present facts and figures related to the environmental issue at stake. The "Economic and Environmental Effects" condition presented still images relevant to economic and environmental issues, focusing on tax evasion of bird trappers and the environmental consequences of trapping endangered species on nets. The "Law" condition would present still images which displayed printed copies of the laws illustrating that it is illegal to trap or trade these birds. In both cases, the narrator would explain and elaborate on the images. Finally, the "Control" condition was designed to provide as neutral information as possible, solely using textual information rather than video or still images that would raise strong emotions. All participants in the experiment resided in the European setting where bird trapping takes place, and the fact that the problem generated national media attention could mean that the participants might have entered the experiment carrying preexisting emotions (i.e., even the participants of the control group might demonstrate emotions postexperimentally).

The Instruments

Pre- and postexperimental questionnaires were developed through an iterative procedure, which involved piloting the instruments with a group of volunteers ($N = 17$). A similar procedure was followed for the development of the relevant presentations and videos of the experimental conditions. The prefinal version of the instruments, presentations, and videos were additionally piloted with a smaller number of volunteers ($N = 8$) who attended a focus group session before the experimental phase of the study.

The most important outcome of the focus group was to confirm that the "Shame" and "Anger" conditions worked as intended, inducing intense emotions to the participants. For example, a participant said "The Anger presentation made me shiver, feel angry. Before the presentation I was 50/50, now I am against them [bird trappers]; the State must push harder to stop bird trapping." The focus groups also helped better appreciate the differences between the two emotions, suggesting that shame involves some level of introspection. For example, a participant commented, "shame is stronger [emotion], I feel that it concerns me as well. I am not a hunter, but just watching this makes me feel ashamed." Whereas angry participants tended to blame the trappers, those ashamed would ask what kind of society accepts such anachronistic practices. A participant said "The Shame presentation makes us feel accomplices. If there is illegal trapping, there is a market [for the trapped birds], which makes us feel bad." The presentations of the Economic and Environmental and the Law conditions induced some emotions; for example, a participant said "What is mentioned about the ecological effects is correct. I was impressed by the economic effects of the killing of birds … the illegal trappers have a huge income." However, they induced much less emotions than the Shame and Anger conditions; for example, when comparing the presentations, a participant commented that "The Anger and Shame presentations are more emotional, they are stronger. It is much more

touching, indeed, when you see the videos of dying birds rather than reading or watching pictures about the law." And another one said "The sound of the bird caught on the net touched me the most."

The Main Variables

The dependent variable of the study, political behavior, was operationalized as information seeking and political activism. To gauge information seeking, the researchers recorded whether each of the participants had picked a leaflet related to the experiment when leaving the laboratory from two information booths set up for the purposes of the experiment. Political activism was operationalized pre- and postexperimentally by a battery of 10 questions (see Table A1 in the appendix), as often done in the relevant literature (e.g., see MacKuen, Marcus, Neuman, & Miller, 2010; Rudolph et al., 2000). Preexperimentally, the participants were asked if they had participated in a number of political activities such as protesting, boycotting, and leafleting. The same battery of questions was also asked postexperimentally, gauging intention to participate in such activities in the near future. The range of activities gauged pre- and postexperimentally were primarily drawn from major international surveys, like the European Social Survey and the World Values Survey, as well as from the extant literature on political action (Dalton, 2006; Kaase, 1979; Norris, 2002) and adjusted for the specific issue. In addition to the usual controls (e.g., gender, age, income), both dependent variables are examined in relation to two key independent variables, emotions, and political sophistication.

Emotion, the first key independent variable of the study, is operationalized through participation in the "Shame" or "Anger" groups, which indicates that a participant was subjected to stronger emotional inducements compared to participants of the Control group or the other two groups.

Political sophistication is operationally defined as issue-specific knowledge, measured preexperimentally. In line with existing literature (Bartels, 1996; Brader, 2006), we consider knowledge a key component of sophistication. We measured knowledge as the mean performance to 10 issue knowledge questions (e.g., "name two governmental authorities responsible for the preservation of nature"; "name two international environmental organizations"; see Table A2 in the appendix).

To assess the success of the experiment in inducing the corresponding emotions to appropriate groups, the first postexperimental question for all participants (i.e., after the treatment) asked participants to record their thoughts ("in light of the preceding presentation, please write in three lines some thoughts you have made regarding bird trapping"). An additional manipulation check required participants to declare, on a scale from 0 to 10, how much anger and shame they felt while they watched the presentations.

The Sample

The participants were students pursuing an undergraduate degree at a European university. They were recruited through an open call via email and/or by handing out personal invitations through visits to a randomly selected number of classes from different university departments. Quotas for gender, year of study, and geographic area of origin were applied in order to secure a sample as representative as possible of the student population of the particular university. The students were motivated to take part in the experiment by participating in a lottery to win electronic equipment.

We defined the sample size needed for the experiment by means of a power analysis. Making the appropriate assumptions regarding the desired power of the experiment (see Anderson, Kelley, & Maxwell, 2017) and assuming moderate to small effect sizes ($d = 0.25$), a sample size of 45 students per group was originally sought. For the experiment's sample size calculations, we assumed $\alpha = 0.05$ and power at 80%, which required a minimum sample size of 225 persons (45 per group: four experimental groups and one control group). Sample size calculations were done using G*Power 3.1 (Faul et al., 2009). We practically achieved our goal as 217 students completed the experiment.

The Procedure

The experiment took place in one of the computer labs of the university. For practical reasons, the experiment was conducted in small groups of students. After the logistics (briefing, registration, signature of consent forms, etc.), each of the participants was randomly assigned to one of the available computers of the lab and drew a raffle ticket from a lottery urn. They were asked to keep the raffle ticket and enter the number on the cover page of the online questionnaire later on. They were instructed not to throw away the raffle ticket but to hand it to the researchers while leaving the room at the end of the activity.

Each of the computers was preprogrammed to conduct one of the five scenarios (corresponding to the five groups) of the experiment. The experiment was double-blinded, in the sense that neither the students nor the researchers had the opportunity to decide which of the participants would be assigned to each of the five groups.

All the participants were instructed to load a specific application through clicking on an icon on the desktop of the computer and to put on their personal headphones. The first part of the activity was the same for all participants; they were welcomed and thanked for their participation. Then, they were presented with the preexperimental questionnaire which was common for all groups. Afterwards, each of the participants watched an online presentation (different for each group) and completed the postexperimental questionnaire (the same for all groups).

During the activity, at given points in time, the participants were orally reminded that, before leaving the room, they could take one of the available leaflets which provided more information, relevant to the topic. During the oral announcements, the researchers pointed towards two booths where leaflets were available. The oral announcement was also written on the whiteboard of the room. While the participants were exiting the room, at the end of the activity, they approached one of the researchers to hand their raffle ticket. Depending on whether the researcher had seen the participant taking a leaflet, he would slightly push forward one of two (previously empty) boxes where the "used" raffle tickets were collected. That way, it was possible to know whether the anonymous participant linked to each of the questionnaires had taken a leaflet or not.[1]

The Models

A double-blind control experiment such as ours is expected to account for nonexperimental independent variables through the random allocation of individuals to the five groups. Therefore, controlling for a number of other independent variables was not strictly necessary though, as shown earlier, we undertook extra measures to ensure that the randomization procedure worked. For the purposes of this study, we present two models.

First, using information seeking as a gauge of political behavior, we record whether participants sought more information by taking the leaflet or not. Then, we use logistic regression to investigate the interaction of emotions with sophistication, controlling for other significant independent variables, including their preexperimental behavior.

Second, using political activism as a measure of political behavior, we aggregate the responses of the participants pre- and postexperimentally, to the battery of 10 political activism questions. Using this aggregated measure of political activism, we use linear regression to investigate the interaction of emotions with sophistication, controlling for other significant independent variables, including the preexperimental behavior of participants.

[1]Before the experiment, we submitted all our instruments, methodology, aims, recruitment letters, and consent forms to the National Bioethics Committee which gave its approval for the experiment to go ahead (Reference code: EEBK EP 2016.01.107; approval letter dated 9/15/2016). Before the experiment, all the participants were briefed about the study, had the opportunity to ask for clarifications, were given the opportunity to withdraw, and finally signed the appropriate consent forms. The experiment was anonymous and the participants had the opportunity to withdraw at any time.

Assessing the Effectiveness of the Experimental Conditions

Overall, 217 students participated in the experiment; 45 in the Control group, 40 in the Anger group, 47 in the Economic & Environmental group, 42 in the Law group, and 43 in the Shame group. Due to the randomization process, the five groups did not have significant differences in key demographic variables (gender, age, district). Moreover, the mean preexperimental knowledge of the participants to 10 questions was similar between the five groups (a grand mean of 5.8 out of 16; $F_{(4, 212)} = 4.666$, $p = 0.655$).

We used content analysis to code the open responses of the participants to the first postexperimental question regarding their thoughts on the presentations (see the methodological appendix in the online supporting information for more information). Overall, 16% of the participants gave a response only showing emotions; 20% of the participants gave a response which showed emotions but also mentioned other issues; 50% of the participants gave a response which had various nonemotional comments about bird trapping; and the rest (14%) did not respond or gave a vague response which could not be coded. There were significant differences between the participants of the five groups ($\chi2_{(12)} = 79.101$, $p < 0.001$): Around 30% of the participants of the Shame group and 45% of the participants of the Anger group gave a response which contained only emotions (the corresponding percentage for the other groups ranged from 0% to 4%).

We further examined the success of the experimental conditions in inducing emotions by investigating the responses of the participants to the questions regarding anger and shame felt on a scale from 0 to 10. The mean anger felt by the participants of the Anger group was 7.5 ($SD = 2.7$) and of the Shame group 7.2 ($SD = 2.8$) whereas the means of the other groups ranged from 5.7 to 6.1 ($F_{(4, 205)} = 3.497$, $p = 0.009$). The mean shame felt by the participants of the Anger group was 7.5 ($SD = 2.7$) and of the Shame group 7.4 ($SD = 2.8$) whereas the means of the other groups ranged from 5.8 to 7.0 ($F_{(4, 207)} = 2.182$, $p = 0.07$, which is only marginally nonsignificant). Overall, the manipulation checks suggest that the experimental conditions were successful in inducing more emotions to the participants of the target groups.

The correlation between the anger and the shame felt by the participants was positive and statistically significant ($r_{(208)} = 0.70$, $p < 0.001$), but not too high. This suggests that the self-reported measures are best at pinpointing the successful inducement of emotions in the two experimental groups but are less efficient in distinguishing between the two emotions. In line with our original experimental design, the remainder of the analysis is based on the experimental groups.

Results

In agreement to our first hypothesis (H1), we found that emotions interact with political sophistication to yield behavioral change. More specifically, postexperimental information seeking was mainly explained by preexperimental political activity and the interaction between knowledge and shame (see Table 1).

As suggested by the literature, knowledge interacts with emotions to drive information seeking (see Figure 1). The more knowledgeable participants in the Shame group, the more likely they were to actively seek more information by picking up a leaflet from the information booths we set up for the experiment. As demonstrated by Figure 1, the contrast between the lines of the Control and Shame groups is very high. Knowledge also interacted with the Economic and Environmental Effects Group, but the findings were only significant at the 0.05 level. Similarly, knowledge interacted to some extent with the Anger Group but the findings were not statistically significant. In line with our second hypothesis (H2), the pattern of interaction between shame and anger, and political sophistication, differs. Shame interacts with political sophistication to encourage information seeking, but anger does not.

In accordance with existing measures of sophistication (Miller, 2011), we also included "issue interest" in the model, measured on a scale from 0 to 10, but it did not have statistically significant coefficients. When issue interest is entered first in the model, its coefficient is statistically significant; however, its significance disappears when preexperimental political activity is added in the model.

Next, we investigated the main determinants of postexperimental political activism. In agreement with our third hypothesis (H3), we found that the pattern of interaction between emotions and sophistication varies as we move along the behavioral frontier—from information seeking to political activism. Contrary to the previous model, neither the main effect of knowledge, nor the interaction between knowledge and experimental group, were statistically significant; thus, knowledge is not included in this model.

As shown in Table 2 and also illustrated in Figure 2, higher preexperimental political activism is associated with higher postexperimental activism. However, there was also a statistically significant interaction between the experimental group and the preexperimental activism ($F(4,184) = 4.809$, $p = 0.001$). For the participants with high preexperimental behavior, it makes no difference whether they received intense-emotion treatment or not. Among participants with low or very low preexperimental behavior, though, those treated with Anger reported significantly higher intention for future political activism. The participants of the Anger group with very low preexperimental behavior demonstrated a mean postexperimental behavior which was almost three times as high as that of the other groups.

As before, we also included "issue interest" in the model. This variable is not retained in the model, probably because its variance is already explained by the variable of preexperimental activity (there is a significant correlation between issue interest and preexperimental activity, $r(207) = 0.43$, $p < 0.001$). A different visualization of the interaction between experimental groups and preexperimental behavior is presented in Figure A2 in the appendix, which presents a different regression line for each experimental group. The figure shows that, although higher preexperimental behavior correlates strongly with higher postexperimental behavior, the participants of the Anger group are

Table 1. Logistic Regression Coefficients of Model 1 (DV: Actively seeking more information)

Actively Seeking More Information (binary variable: 1: yes, 0: no)			
	Odds Ratio	CI	*p*
(Intercept)	0.21	0.04–1.05	.058
Preexperimental activity	1.18	1.06–1.33	.003
Experimental Groups			
Group: Anger	0.30	0.03–2.39	.261
Group: Econ. & Env.	0.17	0.01–1.56	.130
Group: Law	1.68	0.23–12.60	.606
Group: Shame	0.16	0.01–1.47	.118
Knowledge	0.94	0.75–1.17	.574
Knowledge × Group Anger	1.34	0.96–1.92	.098
Knowledge × Group Econ. & Env.	1.44	1.03–2.09	.041
Knowledge × Group Law	1.04	0.76–1.43	.799
Knowledge × Group Shame	1.64	1.14–2.51	.012
N		210	
Nagelkerke's (pseudo) R^2		0.24	

Table 2. Linear Regression Coefficients of Model 2 (DV: Postexperimental political activity)

	Postexperimental Political Activity (mean score on 10 dichotomous questions)		
	B	CI	*p*
(Intercept)	3.56	2.00 to 5.11	<.001
Preexperimental political activity	0.60	0.42 to 0.79	<.001
Experimental Groups			
Group: Anger	4.51	2.07 to 6.95	<.001
Group: Econ. & Env.	0.98	−1.01 to 2.96	.333
Group: Law	1.35	−0.68 to 3.38	.192
Group: Shame	−1.20	−3.28 to 0.87	.254
Preexp. activity × Group Anger	−0.45	−0.73 to −0.16	.003
Preexp. activity × Group EconEnv	−0.07	−0.31 to 0.17	.558
Preexp. activity × Group Law	−0.11	−0.36 to 0.13	.364
Preexp. activity × Group Shame	0.18	−0.08 to 0.43	.168
N		194	
R^2 / adj. R^2		.539 / .516	
$F(9,184) = 23.9, p < 0.001$			

Note There were 23 missing cases, due to question-level nonresponse. To assess the effect of the missing cases on the results, we computed the mean political activity per student as a function of only the questions to which he or she responded to and repeated the analysis (this time, with only six missing cases). The results were practically the same and the interaction effect remained statistically significant $F(4, 184) = 3.657, p = .007$.
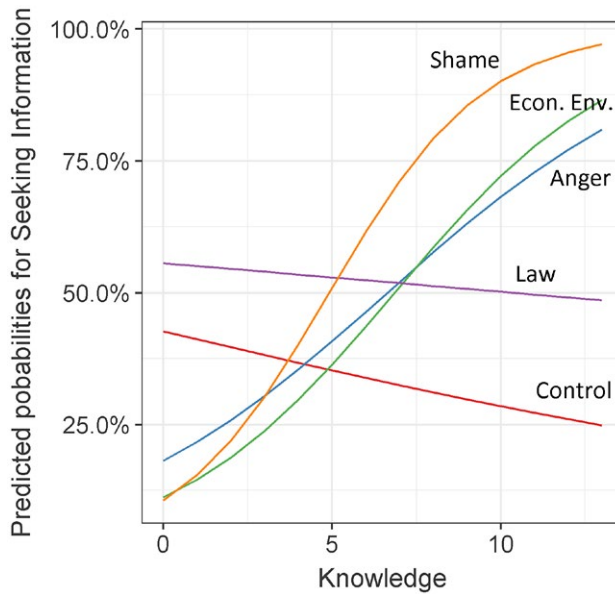
Figure 1. Interaction between knowledge and experimental group.
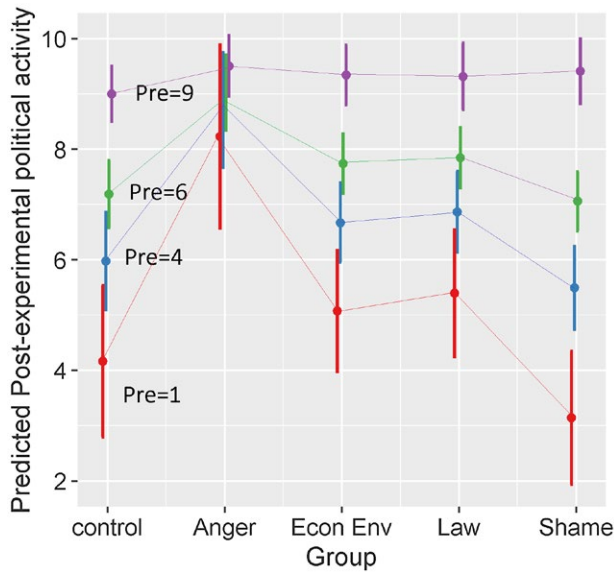
Figure 2. Interaction between preexperimental behavior and experimental group.

always predicted to have much higher postexperimental behavior (even if they have a really low preexperimental behavior).

For the sake of completeness, other background variables (theoretically less important) were tested with both models but were not statistically significant and could not be retained in the analyses (e.g., the year of study, gender, age, ideology).

Discussion

This article offers new insights on how emotions and sophistication interact to produce behavioral outcomes. The results reinforce the emphasis placed in the literature on identifying the characteristics of individuals most likely to be affected by emotions (Brader, 2006; Jones et al., 2013; MacKuen et al., 2010; Miller, 2011; Nai et al., 2017; Rudolph et al., 2000; Valentino et al., 2011). Emotions are shown to interact with sophistication to induce information seeking (H1). But the interaction between emotion and sophistication does not hold for a different type of political behavior such as self-reported political activism (e.g., protesting, leafleting) (H3).

Moreover, unlike earlier works, we find differential patterns of interaction depending on the specific emotional stimuli (H2). Earlier empirical works suggest that when angry (Jones et al., 2013; Miller, 2011; Valentino et al., 2011), anxious (Jones et al., 2013; MacKuen et al., 2010; Nai et al., 2017; Rudolph et al., 2000), fearful (Brader, 2006; Miller, 2011), hopeful (Jones et al., 2013; Miller, 2011), enthusiastic (Brader, 2006; MacKuen et al., 2010), or proud (Miller, 2011), sophisticates can be expected to change their behavior. By contrast, we only find an interaction between shame and sophistication, not with anger. Once treated with anger, high sophisticates do not behave differently than low sophisticates. The most important interaction here is between anger and lack of prior political involvement. In the anger group, individuals who were previously inactive are more likely to undertake some political activity in the near future. Put simply, anger interacts with low political involvement to yield behavioral change.

The findings have significant theoretical implications. The experimental results provide some nuance to earlier findings linking emotional engagement with high levels of sophistication. In our experiment, this finding holds for the feeling of shame but not for those induced to feel anger. Anger is shown to work differently from other emotions reinforcing the need to distinguish between them (Huddy et al., 2007; Jones et al., 2013; Valentino et al., 2008; Vasilopoulou & Wagner, 2017). We find that anger has a distinct interaction with those having a relatively low rather than high investment in political life. This interaction holds for those with low *behavioral* not *cognitive* involvement in politics. Like Valentino et al. (2011), we also find that anger helps mobilize individuals but those with different characteristics than earlier works describe. It is the least politically active citizens who are most likely to be mobilized by anger. Moreover, the results reinforce the link established in earlier works between anger and the propensity to seek more information (Groenendyk, 2011; Redlawsk, 2006; Valentino et al., 2008). By observing the actual behavior of individuals after the experimental treatment, we found that those induced with anger were *not* more likely to pick up information on their way out of the laboratory than those in less emotionally induced groups. Overall, then, anger is a distinct feeling that encourages active participation in politics among those who are behaviorally, not cognitively, "unplugged" from politics. But it does not necessarily facilitate the pursuit of new political information, and, in this sense, it does not bring about political learning.

Although rarely used in experimental studies of how emotions affect political behavior, shame has been shown here to have strong interaction with political sophistication. The differences in how shame and anger interact with sophistication also have some theoretical implications and merit more attention. Why does shame interact with high sophistication but anger does not? To some extent, the differences might be due to the different operationalization of the main variables. More importantly, the difference in the interaction of shame and anger with sophistication might be due the different attributes of these two emotions. Whereas shame requires some degree of awareness of social norms and introspection regarding existing behavior, anger does not. Previous experimental work did not have enough information about individual characteristics to examine how shame interacts with different levels of sophistication (Gerber et al., 2008, 2010; Panagopoulos, 2010), and future work can problematize the basic attributes of shame and further examine this link.

Unlike shame, anger has been studied more extensively albeit not always directly, since in a number of studies it has been part of broader measures of anxiety (Marcus & MacKuen, 1993). Earlier work suggests that anger is associated with a decrease in thoughtfulness and risk-aversion (Huddy et al., 2007), which might explain why angry individuals are more likely to engage in costly political activity (Valentino et al., 2011) without seeking more information. Anger is also associated with attribution of blame to others, which is the exact opposite of introspection. Future work can help cast more light on whether anger can work best with individuals who do not have much prior involvement in politics, distinguishing between cognitive and behavioral aspects of political engagement.

The differential interaction of emotions with sophistication does not only have theoretical but also practical implications. To the extent that the findings of this study can be generalized to other or broader political issues, political practitioners should take note of how different types of emotional appeals interact with distinct levels of political sophistication to yield behavioral change. Although shame is not as frequently used as a mechanism for political mobilization, this study reinforces earlier work suggesting how it can help change behavior. This change, though, is more likely to be observed among individuals who are already plugged into political life and less with the rest. To the contrary, anger is an emotion that can best be used to actively engage those who are least involved in politics. Although at the macrolevel anger is generally associated with all sorts of troubling contemporary phenomena, at the microlevel, it seems to offer a venue for mobilizing individuals who are generally disengaged from politics. Given how difficult it is to plug these individuals into political life, anger might provide a useful tool for getting people to mobilize for worthy political causes.

The experimental design used in this study is best suited for the generation of causal inferences about the effects of emotions on politics (Albertson & Gadarian, 2016; Druckman et al., 2006), but it also raises external validity concerns that need to be addressed. The study examines responses of an undergraduate population to a specific political issue related to environmental protection. Although the analysis of emotional engagement with specific political topics is common (Brader & Valentino, 2007; Capelos & Exadaktylos, 2017; Huddy et al., 2005; Nai et al., 2017), the consideration of political behavior unrelated to voting is not. It is hence possible that the findings here do not necessarily hold for voting behavior or for aspects of political participation that are directly linked to electoral politics. Despite this obvious limitation, we take some comfort in that our findings regarding the interaction of emotions and sophistication are, to some extent, similar to those of earlier works. Moreover, the gauges of behavioral outcomes used in this experiment are similar with studies focusing on voting behavior. Despite the particular focus of the study on a specific issue, the individual gauges of political behavior—information seeking and political activism—are relatively common in the extant literature.

Conclusion

From Berlin to Washington and from Stockholm to Athens, some of the most troubling phenomena of our times are attributed to the passionate outbursts of large segments of society against established political institutions and practices. This article contributes to the understanding of how individuals emotionally engage with politics by pointing to the differential effects emotions have on political behavior. Using a laboratory experiment in a European university setting, the article reinforces the emphasis placed in the literature on the characteristics of individuals induced with emotional stimuli available in their environment. It shows how emotions interact with political sophistication to yield behavioral outcomes. High political sophistication interacts with shame but not with anger. The inducement of anger is more likely to interact with low political involvement, not sophistication, to yield behavioral change. Theoretically, the findings reinforce the need to further investigate the link between emotions and sophistication, especially those between shame and sophistication. Practically, the findings point to how shame can be utilized to induce sophisticates to change their behavior. They also point to an emotional venue for the mobilization of citizens who are generally difficult to engage in political life.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Methodological Appendix
Translated Transcripts for Experimental Conditions
A Post-experimental Open-Ended Question.

APPENDIX

**Table A1.** Questions Measuring Issue-Related Political Activity

	Preexperiment		Postexperiment	
Question	*Missings*	*%*	*Missings*	*%*
Worn or displayed a badge/sticker of an environmental campaign?	0.00%	79%	3.23%	90%
Been an active member of an environmental organization?	0.00%	82%	3.23%	89%
Participated in an environmental protest?	0.00%	79%	4.15%	86%
Discussed environmental issues on social media?	0.46%	72%	3.69%	84%
Worked for an environmental party or organization?	2.30%	59%	2.76%	70%
Boycotted certain products for environmental reasons?	0.00%	67%	4.15%	79%
Signed a petition for environmental reasons?	0.00%	78%	2.76%	92%
Distribute leaflets with environmental content?	0.46%	73%	3.23%	84%
Donated money for an environmental issue?	0.00%	74%	2.76%	88%
Recycled items? (e.g., dispose aluminum, paper or glass objects in the dedicated bins)	0.46%	98%	2.76%	98%

Note. (1) Preexperimentally, the question was "During the last 12 months, have you…." The coding was: "No, I would not do it" (scored as 0) and "Yes" or "No, but I would do it" (scored as 1); (2) postexperimentally, the question was "Would you ever …." The coding was: "No, I would never do it" (scored as 0) and "Yes" or "No, but I would do it" (scored as 1).

Table A2. Questions Measuring Issue-Related Knowledge

			% of participants			
Question	Mean score	Maximum possible score	0 marks	1 mark	2 marks	3 marks
Name three endangered/protected species	2.00	3	11.5	15.7	33.6	39.2
Name two Natura areas	0.59	2	57.2	26.7	16.1	
Name two turtle hatching areas	0.41	2	65.9	27.7	6.4	
Name two international environmental organizations	0.50	2	58.5	32.7	8.8	
Name two state authorities responsible for the protection of the environment	0.39	2	69.6	21.7	8.7	
How many different species of birds are being trapped every year?	0.14	1	85.7	14.3		
How many birds are being trapped every year?	0.25	1	75.1	24.9		
Which of the pictures illustrates the singing birds?	0.57	1	43.3	56.7		
Is trapping of birds with limesticks or nets illegal?	0.87	1	13.4	86.6		
Give an estimate of the turnover from illegal trapping.	0.06	1	94.0	6.0		
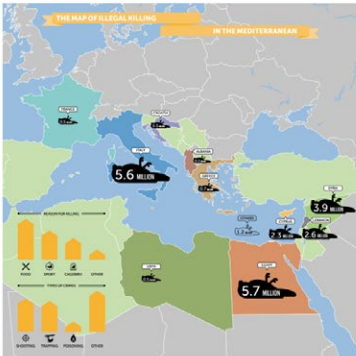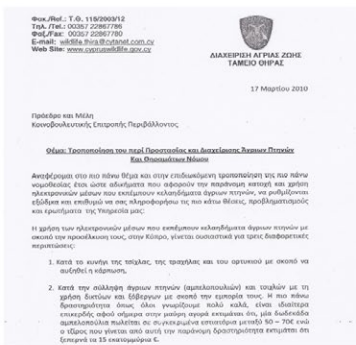
Figure A1 Sample of pictures used for different experimental groups Economic and Environmental Effects Group/Anger Group. The Economic and Environmental Effects presentation included still images of maps and diagrams regarding the extent of the problem and the destruction caused. No video or still images of dying birds were presented. The Law presentation included still pictures of legal documents. No video or still images of dying birds were presented. The Shame and Anger presentations showed similar video and still images of dying birds on limesticks and in nets.
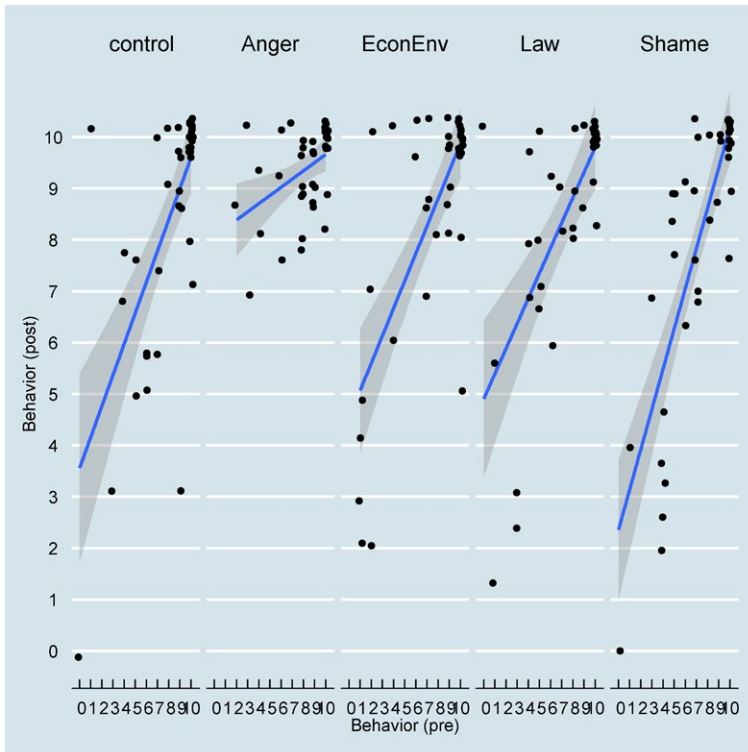
Figure A2 Separate regression lines (one for each experimental group) between pre- and postexperimental behavior. Note that even for the lowest preexperimental behavior, the participants of the Anger group are predicted to have very high postexperimental behavior (i.e., above 8 out of 10).