

## **Appendix A. Instructions for Political Information Study**

We are conducting a research study to see how people respond to political information. We are inviting your participation, which will involve answering some questions, watching several political advertisements, and then answering some follow-up questions. The study will last about 45 minutes. You have the right not to answer any question, and to stop participation at any time.

Your survey responses in today's study will be anonymous, meaning that the data we collect cannot be traced back to you. During the study, the webcam on your laptop will be recording your facial expressions while you are taking part in the study. The videotape of your facial expressions will be processed through a facial software package which will measure the emotions that you expressed during today's study session. Once the videos are processed with the software, we will destroy all video recordings. We will never be presenting the video images, only the data extracted via the facial expressions software. Your facial expression data will never be associated with your name or any identifying information. The results of this study may be used in reports, presentations, or publications but your name will not be used.

Your participation in this study is voluntary. If you withdraw from the study at any time, there will be no penalty [and you will receive the \$15.00 compensation].<sup>1</sup>

Your participation in this study has the potential to greatly improve the understanding political scientists have of the effect of online media consumption. You will also be exposed to the data collection process of political science experimentation. There are no foreseeable risks or discomforts to your participation. You can only participate in this study if you are 18 years old or older.

If you have any questions concerning the research study, please contact the research team at: [fridkin@asu.edu](mailto:fridkin@asu.edu). If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

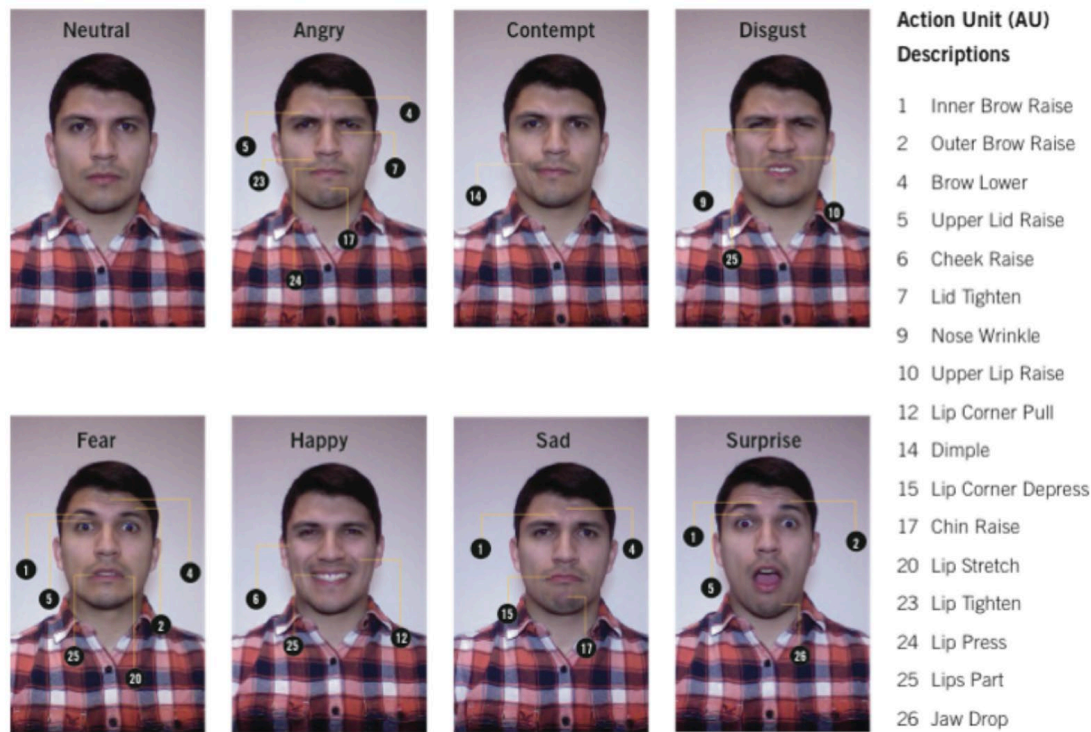
Please type your name if you agree to these terms and begin the study.

<sup>1</sup>The payment information was only included in sessions with non-students. Students who participated in the study were part of the political science subject pool. Students could participate in a set of studies during the semester or complete an alternative assignment.

## Appendix B. Detailed Information about Emotient FACET

Emotient FACET detects and tracks primary emotions with frame-by-frame analysis of emotional responses of respondents. FACET is a facial expression analysis software based on Facial Action Coding System (FACS). FACS describes facial expressions as combinations of action units (AUs). Each action unit is identified by a number (e.g., AU1, AU2) and corresponds to an individual muscle of the face. As an illustration, one of the most common expressions of fear contains a combination of AU1, AU2, AU4, and AU5. Figure A1 shows the classification of action units into seven emotional states.

Figure B1. Examples of Correspondence Between Emotions and Action Units



Source: <https://imotions.com/>

FACET achieves high classification accuracy across a wide variety of conditions due to the large dataset it is based on. Conditions include differences in age, gender, race, facial hair, glasses, as well as head pose, and lighting conditions. FACET has been validated against the Cohn-Kanade AU-Coded Facial Expression Database (CK+). The CK+ is a publicly available dataset of facial expressions developed at Carnegie Mellon University and is the standard benchmark for facial expression recognition.

In our study, videos of each respondent watching the advertisements are recorded during the study. After the study, the videos are “post-processed” with the FACET software, generating data regarding the probability that the respondent’s observed expression is likely to be categorized as expressing a specific emotion, compared to the neutral state. In order to compare emotion scores across multiple respondents and across the entire length of the stimulus, FACET reduces the massive amount of raw data into summary statistics. In particular, for each respondent, the percentage of frames displaying classifiers of a specific emotion is reported. So, for instance, for

one respondent watching the first generic attack on the GOP, the respondent displayed anger in 9% of the frames, fear in 17% of the frames, contempt in 11% of the frames, disgust in 15% of the frames, and sadness for 7% of the frames. Below are the summary statistics for the five emotions for the eight commercials included in the study

Table B1. Average Percentage of Frames Displaying Each Emotion Mean (SD)

	Angry	Fear	Contempt	Disgust	Sadness
Attack on GOP 1 (n=56)	14.6 (16.8)	12.7 (17.9)	10.1 (15.7)	12.9 (18.1)	13.9 (20.6)
Attack on GOP 2 (n=47)	8.6 (20.60)	3.7 (9.0)	7.3 (12.6)	3.9 (10.9)	5.3 (11.4)
Attack on DEM 1 (n=47)	11.6 (16.7)	14.6 (15.1)	14.8 (19.1)	12.2 (16.7)	6.3 (11.9)
Attack on DEM 2 (n=49)	14.1 (19.5)	13.2 (15.4)	11.6 (16.7)	12.0 (18.1)	12.0 (18.1)
Attack on Sinema 1 (n=46)	9.7 (18.5)	6.8 (9.6)	10.3 (18.4)	8.8 (14.8)	6.4 (11.8)
Attack on Sinema 2 (n=46)	5.4 (6.8)	12.0 (15.2)	9.8 (12.4)	8.3 (12.3)	9.5 (14.3)
Attack on McSally 1 (n=39)	8.2 (10.9)	7.8 (9.0)	14.5 (17.7)	11.9 (16.7)	4.3 (6.0)
Attack on McSally 2 (n=42)	13.5 (17.9)	13.1 (14.9)	11.7 (15.8)	10.7 (15.1)	6.9 (13.7)

## Appendix C. Story Board for Commercials

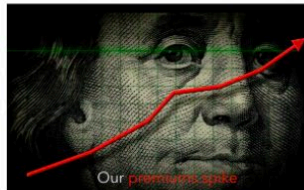
### Democratic Generic Attack #1 on Republicans



One year ago



Republicans showed us their  
health care plan



Our premiums spike

Premiums would spike about 20%



Older Americans pay an age tax

Many seniors could face a significant increase in health care premiums



Coverage for  
pre-existing conditions slashed

Effects even more dire for people with pre-existing conditions and senior citizens



On the other hand, wealthier Americans win big, many getting sizeable tax cuts

This November.  
Hold.  
Republicans.  
Accountable.

#VoteForCare

Paid for by the 2012, http://www.dem.org, and not authorizing any candidate or candidate's committee.

### Democratic Generic Attack #2 on Republicans



They'll never stop. Paul Ryan and the Washington Establishment Republicans



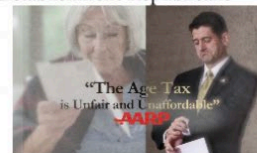
Catering to drug companies and special interests



Coming after your health care



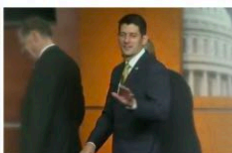
Increasing your out of pocket costs.



A devastating age tax if you are 50 or older.



Ending guaranteed coverage for preexisting conditions.



Paul Ryan and the Washington Republicans. It's the same thing every time.



The rest of us have to change Washington



## Republican Generic Attack #1 on Democrats



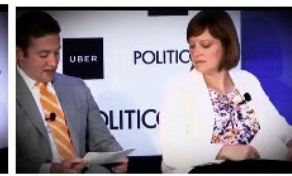
Last week, Nancy Pelosi vowed to be Speaker again



This week, Pelosi promised to raise our taxes again



An interviewer says to Pelosi, "They have a new ad saying you would like to institute



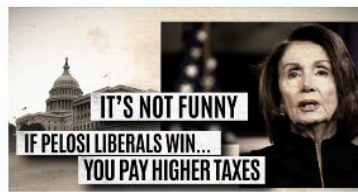
a single payer health care program and roll back the tax cuts that they passed this year."



Pelosi said, "The second part there is accurate"



Pelosi laughs



It's not funny. If the Pelosi liberals win, you will pay higher taxes.



Pelosi says, "The second part there is accurate" and then Pelosi laughs.

## Republican Generic Attack #2 on Democrats



The Democrats are the party of the Resistance.



Radical extremists who destroy buildings, burn cars, and divide America.



Hollywood celebrities who are blinded by their hatred of the President.



Nancy Pelosi and the Washington Democrats answer to them



There's no new agenda. Behind the poll tested slogans are the same old liberal ideals:



Single-payer health care, sanctuary cities, job-crushing taxes, and big cuts to our military.



Nancy Pelosi's San Francisco values are wrong for America.

## Attack #1 on Democrat ~~Kyrsten Sinema~~



Think you know ~~Kyrsten Sinema~~?  
Think again



A self-described bomb-thrower. And Prada socialist. Sinema says capitalism damages America. Sinema wanted to close Luke Air Force base



Even Democrats call her too extreme



Now left-wing activist ~~Kyrsten Sinema~~ wants abortion without restrictions.



Think you know ~~Kyrsten Sinema~~? Think again.

## Attack #2 on Democrat ~~Kyrsten Sinema~~



~~Kyrsten Sinema~~ has the phony politician act down.



She wants you to believe she's a moderate. But she's just a professional politician.



Before Sinema went to Washington, She was a radical fringe protestor



In 2002, the Arizona Democratic party said she was "too extreme."



Sinema even called herself a Socialist; that's right, a socialist.



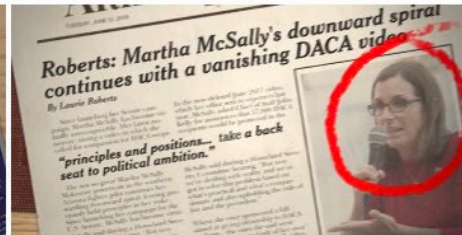
Radical. Extreme. Socialist. Don't fall for ~~Kyrsten Sinema's~~ act.



## Attack #1 on Republican Martha McSally



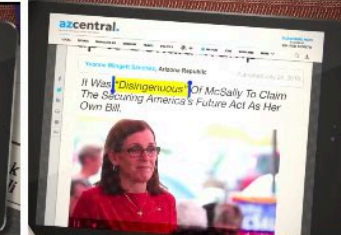
Here's what Arizonans are saying about Washington politician Martha McSally



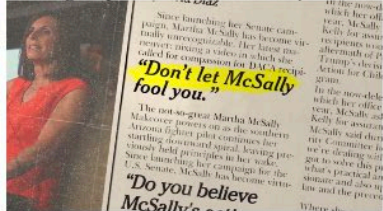
They say that McSally's principles and positions took a back seat to political ambition.



They said that McSally committed a total flip-flop on Dreamers



They say she's disingenuous. A liar. Once upon a time must have had a backbone.



The most important thing they say: Don't let McSally fool you.



So get the facts. Arizona just can't trust Martha McSally.

## Attack #2 on Republican Martha McSally



2.8 million Arizonans live with a pre-existing condition. Children with asthma or autism.



Friends and family with diabetes and cancer. For them health coverage can mean life or death.



So what does it say that Martha McSally voted to gut protections for people with pre-existing conditions.



That she voted 3 times to let insurance companies deny them care.



It says Martha McSally will stop at nothing to get ahead in Washington and Arizona pays the price.

**Appendix D**  
**Description of Study Sample (n=134)**

<b>Age</b>	Non-Students (n=95) Mean=38.7 (SD=14.9)	Students (n=39) Mean=20.6 (SD=3.8)
<b>Gender</b>		
Men	44%	61%
Women	56%	39%
<b>Education</b>		
High Education or less	3%	
Some College	12%	
2-year degree	12%	
4-year degree	32%	
Masters	34%	
Professional Degree	4%	
PhD	4%	
<b>Party Identification</b>		
Strong Democrat	18%	21%
Weak Democrat	11%	5%
Independent, Leaning Democrat	33%	16%
Independent	12%	21%
Independent, Leaning Republican	13%	18%
Weak Republican	7%	8%
Strong Republican	6%	11%
<b>Ideology</b>		
Extremely Liberal	7%	8%
Liberal	27%	28%
Somewhat Liberal	21%	13%
Moderate	26%	15%
Somewhat Conservative	8%	18%
Conservative	9%	13%
Extremely Conservative	3%	5%



## Appendix E. Replication of Tests of Discriminant Validity and Convergent Validity for Climate Change Study

Table E1. Correlations Within Emotions for Self-Reported Measure and Facial Software Measure:  
An Analysis of Convergent Validity for Climate Change Study

	<u>Type of Emotion</u>				
	Anger	Fear	Contempt	Disgust	Sadness
<u>Experimental Condition</u>					
Emotion Condition (n=26)	-.24	-.24	-.12	-.01	.01
Cognitive Condition (n=31)	-.07	-.05	.03	-.10	.12

\* p<.10  
 \*\* p<.05  
 \*\*\* p<.01

Table E2. Correlations Between Specific Emotions: An Assessment of Discriminant Validity

Self-Reported Survey Measure of Emotion

	<b>Emotion Condition</b> (n=38)	<b>Cognitive Condition</b> (n=51)
Anger * Fear	.61 ***	.42 ***
Anger * Sadness	.71 ***	.50 ***
Anger * Disgust	.56 ***	.67 ***
Anger * Contempt	.48 ***	.82 ***
Fear * Sadness	.70 ***	.67 ***
Fear * Disgust	.64 ***	.43 ***
Fear * Contempt	.53 ***	.35 **
Sadness * Disgust	.58 ***	.59 ***
Sadness * Contempt	.43 ***	.45 ***
Disgust * Contempt	.54 ***	.81 ***

Facial Software Measure of Emotion

	<b>Emotion Condition</b> (n=26)	<b>Cognitive Condition</b> (n=31)
Anger * Fear	.20	.10
Anger * Sadness	.06	.21
Anger * Disgust	.49 **	.66 ***
Anger * Contempt	.50 ***	.12
Fear * Sadness	.38 *	.52 ***
Fear * Disgust	.08	.01
Fear * Contempt	.05	.49 ***
Sadness * Disgust	.06	.11
Sadness * Contempt	.12	.32 *
Disgust * Contempt	.47 **	.28

## Appendix F. Survey Measures Included in Analysis<sup>1</sup>

### Pretest Measures

The following questions assess your views about negative advertisements, in general.  
Please indicate how much you agree with the following statement:

	Agree strongly (1)	Agree somewhat (2)	Disagree somewhat (3)	Disagree strongly (4)	Don't Know (5)
Some negative advertisements are so nasty that I stop paying attention to what the candidates are saying. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negative advertisements discussing a candidate's personal misbehavior are fair game. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hard-hitting commercials attacking the opponent are not helpful during election campaigns. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find negative political commercials attacking a candidate for conduct occurring long before the candidate entered public life as uninformative. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Generally speaking, do you usually think of yourself as a Republican, Democrat, an Independent, or what? Where would you place yourself on the following scale?

- Strong Democrat (1)
- Weak Democrat (2)
- Independent, Leaning towards the Democratic Party (3)
- Independent (4)
- Independent, Leaning towards the Republican Party (5)
- Weak Republican (6)
- Strong Republican (7)
- Don't Know (8)

How often do you pay attention to news about politics and government affairs in a typical week?

- Every Day (1)  
A few times a week (2)  
About once a week (3)  
A few times a month (4)  
Less than once a month (5)  
None of the above (6)

Please rate the following political figures on the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the person. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward the person and that you don't care too much for that person. You would rate the person at the 50-degree mark if you don't feel particularly warm or cold toward the person. If you come to a person whose name you don't recognize, you don't need to rate that person.

Nancy Pelosi  
Paul Ryan  
Kyrsten Sinema  
Martha McSally

We would like to ask you a few questions about the government in Washington. Many people are too busy to keep up with these topics, so if you don't know the answer, just skip the question.

What position or office does Elena Kagan hold today?

Do you happen to know which party has the most members in the U.S. Senate in Washington, D.C. today?

Whose responsibility is it to determine if a law is constitutional or not—is it the president, the Congress, or the Supreme Court.

Who is currently the U.S. Secretary of Defense?

How long is the term of a U.S. Senator?

How much confidence, if any, do you have in each of the following to act in the best interests of the public?

	A great deal of confidence (1)	Some Confidence (2)	Not Too Much Confidence (3)	No Confidence at all (4)
Elected Officials (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following questions were asked after viewing each advertisement:

How **angry** did the advertisement make you feel?

- ☐ Not Angry At All (1)  
☐ (2)  
☐ (3)  
☐ (4)  
☐ Very Angry (5)

How **disgusted** did the advertisement make you feel?

- ☐ Very Disgusted (1)



- ☐ (2)
- ☐ (3)
- ☐ (4)
- ☐ Not Disgusted at All (5)

How **contemptuous** (scornful, disdainful) did the advertisement make you feel?

- ☐ Not Contemptuous At All (1)
- ☐ (2)
- ☐ (3)
- ☐ (4)
- ☐ Very Contemptuous (5)

How **fearful** did the advertisement make you feel?





- ☐ Not Fearful at All (1)
- ☐ (2)
- ☐ (3)
- ☐ (4)
- ☐ Very Fearful (5)

How **sad** did the advertisement make you feel?

- ☐ Very Sad (1)
- ☐ (2)
- ☐ (3)
- ☐ (4)
- ☐ Not Sad at All (5)

### Posttest Measures

Q107 Please rate the following political figures on the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the person. Ratings between 0 degrees and 50 degrees mean that you don't feel favorable toward the person and that you don't care too much for that person. You would rate the person at the 50-degree mark if you don't feel particularly warm or cold toward the person. If you come to a person whose name you don't recognize, you don't need to rate that person.

Nancy Pelosi	
Paul Ryan	
Kyrsten Sinema	
Martha McSally	

Thinking about the ongoing U.S. Senate campaign in Arizona, would you characterize the tone of Arizona's U.S. Senate campaign as very positive, somewhat positive, a mixture of positive and negative, somewhat negative, very negative?

Very positive (1)

Somewhat positive (2)

Mixture of positive and negative (3)

Somewhat negative (4)

Very negative (5)

How much confidence, if any, do you have in each of the following to act in the best interests of the public?

	A great deal of confidence (1)	Some Confidence (2)	Not Too Much Confidence (3)	No Confidence at all (4)
Elected Officials (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<sup>1</sup>The full pretest/posttest questionnaire is available upon request from the authors.