Presidential speechmaking style: Emotional response to micro-expressions of facial affect

Patrick A. Stewart · Bridget M. Waller ·
James N. Schubert

Abstract Research considering the effect of Presidential speech making style shows individuals are likely to attend to and be emotionally affected by the facial expressions of leaders, especially those that are inappropriate for the context. In this study we tested how rapid and subtle expressions of facial affect (i.e., expressions of less than one-second, often termed micro-expressions) in speeches by a political leader impacts participants' emotional state. We do this by removing seven brief expressions (less than one-second) from a nearly twelve minute televised speech by President George H. W. Bush concerning the 1990 commitment of US military in response to Iraq's invasion of Kuwait. FACS coding identified all these expressions as containing a component of smiling (lip corner puller: AU12), in some cases with the addition of other facial movements (sometimes associated with anger and/or disgust). Experiments carried out on 206 university undergraduates showed emotional state was altered as a result of these micro-expressions when the control (unaltered speech) and experimental group (micro-expressions removed from speech) were compared. Specifically, participants who viewed the micro-expressions felt less threatened and less angry. Thus,

James N. Schubert—Deceased.

P. A. Stewart (✉)
Department of Political Science, University of Arkansas,
428 Old Main, Fayetteville, AR 72701, USA
e-mail: pastewar@uark.edu

B. M. Waller
Centre for the Study of Emotion, Department of Psychology,
University of Portsmouth, Portsmouth, UK

J. N. Schubert
Department of Political Science, Northern Illinois University,
DeKalb, IL, USA

facial expression (even very brief micro-expressions) can have a significant impact on the receiver of a political speech.

Introduction

Televised appeals for support by political leader's are an intrinsic and important part of a political process that takes advantage of the leader's perceived personal presence to convey a message (Friedman et al. 1980a, b; Masters 1989; Miller and Stiles 1986). While the words chosen and how they are verbalized affect one's response to the speech, the emotional expression in the leaders' faces play an important role in speechmaking style. These facial expressions communicate the situation's importance to the viewer as if the speaker were present. In other words, more emotionally evocative messages, such as those presented by the leaders on television and face-to-face, can be expected to lead to higher levels of affective response by viewers and result in attitudinal change (Way and Masters 1996a, b; Schubert et al. 2002), especially when compared to appeals that are written, audio-only or covered in a news report[1] (Schubert 1998; Patterson et al. 1992). In sum, these studies suggest that personal delivery, communicating the leader's

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[1] Television news coverage introduces a confounding factor beyond the scope of this study; the effect of newscasters nonverbal delivery on viewer perceptions of and attitudes towards their leaders. Studies suggest a robust effect with newscasters communicating facial affect toward political candidates in a "systematic yet subtle manner" (Friedman et al. 1980), which in turn might affect electoral outcomes (Mullen et al. 1986).

emotional state through facial expressions and vocal affect, contributes to the effect of political speeches on viewers' emotional response.

The ability to recognize and respond to emotional cues from the faces of conspecific is the basis for social interaction, especially in obtaining and maintaining social dominance (Chance 1967; De Waal 1982; Eibl-Eibesfeldt 1989; Mazur 2005; Salter 1995; Salter et al. 2005; Turner 1997). Research suggests viewers emotionally respond to facial expressions of political leaders during speeches (Masters and Sullivan 1993; Masters and Carlotti 1994; Masters and Way 1996; Way and Masters 1996a, b) and that attitudinal change occurs due to these expressions (Sullivan and Masters 1994). As a result, the viewer's emotional state, and their resultant behavioral intent (Fridlund 1994), may change through their response to the leader's facial expressions by influencing their interpretation of the situation and the speechmaker (Schubert et al. 2002; Sullivan and Masters 1988).

However, questions concerning whether and how individuals respond to leaders' subtle and brief facial expressions remain. Micro-expressions of facial affect last less than one-second from onset to offset, and can intrude upon the prevailing facial expressions of the sender (Ekman 1992, pp. 129–131; Ekman and Friesen 2003; Frank and Ekman 1997; 2004; Porter and ten Brinke 2008). According to Ekman and Friesen "(M)icro-expressions are typically embedded in movement, often in facial movements that are part of talking. And they are typically followed immediately by a masking facial expression." (2003, p. 151) These micro-expressions perhaps represent the true emotional state of the sender, especially when feelings are intense, or perhaps revealing conflicted behavior (Fridlund 1994, 1997) in which the intensity of the intended message is "buffered". Thus, even if the speaker desires to mislead their audience as to their emotional state and/or behavioral intentions, viewers might be affected by micro-expressions.

Moreover, very brief facial expressions may not be processed at the conscious level, but can still affect the emotional response in the receiver. Studies presenting facial expressions below the threshold of conscious awareness demonstrate that facial displays of emotions such as anger, fear and happiness, impact an individual's emotional response without their awareness (Channouf 2000; Dimburg et al. 2000; Esteves et al. 1994; Marsh and Ambady 2007; Masters and Way 1996; Monahan 1998; Monahan and Zuckerman 1999; Morris et al. 1998; Murphy and Zajonc 1993; Pessoa et al. 2005; Winkielman and Berridge 2003). However, a recent study by Milders et al. (2008) shows that anger, fear, and happiness facial displays can be detected at presentation times below 20 milliseconds, suggesting some level of awareness of these stimuli at rapid presentation.

Micro-expressions may be considered those facial displays that are inappropriate for the context within which it is delivered. Bucy and colleagues have found inappropriate display behavior violates viewer expectations, in turn affecting physiological, emotional, and evaluative response (Bucy 2000; Bucy and Bradley 2004; Bucy and Newhagen 1999). The effect of inappropriate display behavior is elevated in crisis situations, with positive (i.e., smiling) high intensity displays being seen as less credible and trustworthy than facial displays that are negative and low intensity. Furthermore, during times of stress, viewers are more likely to process contemporaneous information that is presented through the leader's facial displays (Bucy 2003). Therefore, we expect that facial displays non-congruent with the message intended by crisis-addressing speeches will negatively affect intended emotional response.

To this end, we test the effect of facial micro-expressions on participant evaluation of a Presidential speech of great importance and emotional relevance—one committing US forces to battle. Specifically, we consider the effect of removing seven facial micro-expressions, each lasting less than one-second, from an eleven minute nationally televised rally speech by President George H. W. Bush. The speech was committing US military in response to Iraq's invasion of Kuwait in 1990 (Mueller 1994). In this study, we characterized the micro-expressions' potential emotional signal content using the Facial Action Coding System (FACS). We then analyzed their impact on viewers through an experiment considering differences in change in self-reported emotional state after viewing the speech with or without the micro-expressions.

Methods

Stimuli

The stimulus material for this study is President George Bush's August 8, 1990 nationally televised speech announcing the commitment of US forces to the Persian Gulf in response to Iraq's invasion of Kuwait.[2] The speech

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[2] Certainly, the use of historic materials introduces an element of artificiality in the experimental design. On the one hand, all subjects have some familiarity with the events of the original Gulf War. However, there was 10 year time lag between the event and the experiment and most of our subjects would have been preteens in 1990. In addition, political speeches known to be emotionally evocative, such as M. L. King's "I have a dream," retain their evocative effect on subsequent audiences. With respect to this, the historic element is constant for both treatment and control groups. On the other hand, realism, both in the portrayal of the leader and in the crisis setting, may be crucial for eliciting emotional responses in viewers. In the case of crisis, emotional response to the speech may overwhelm response to the micro-expressions.

was chosen due to President George H. W. Bush exhibiting discrepant nonverbal display behavior in response to an emotionally charged topic. The speech was chosen prior to and independent from George W. Bush's presidential campaign (and subsequently, September 11, 2001). As the original confrontation with Iraq was historically distant from, if not unknown to, the subjects, it was expected that President George H. W. Bush's speech would convey the threat he perceived the situation to pose.

The speech was recorded by C-SPAN during prime time and lasted eleven minutes and fifty-two seconds. During this time President Bush exhibited several open-mouth, bared-teeth micro-expressions. We were able to identify and remove seven of these micro-expressions lasting between one-half and one-second in their entirety from the video tape of the speech for the experimental treatment (see Appendix 1).[3] These displays occurred throughout the speech at intervals of approximately a minute or more. Participants receiving the treatment may perceive a slight shift in the position of President Bush's head due to the editing process; however, the speech itself was not substantively changed.

Initial analysis of the properties of the seven micro-expressions exhibits a level of ambiguity. In October 2000 we asked 24 undergraduate and graduate students at a southern US university to rate each of President Bush's seven excerpted micro-expressions, presented as series of between 12 and 16 still frames, on eight emotion terms (threatened, angry, fearful, anxious, reassured, determined, inspired and happy) based on what emotional state the rater thought the President was experiencing at the time. These terms range along a 100-millimeter scale from "slightly" to "extremely". The participants were informed that the expressions came from a Presidential speech; however, they were not informed as to which speech it was or the context. Analysis of rating of President Bush's micro-expressions shows no clear pattern of emotion emerging, even after principle components factor analyses of the ratings of each facial expression, with factors being defined by eigenvalues being greater than one. Specifically, while micro-expression series 1, 2, 5 and 6 had two factors extracted in line with positive and negative emotions being orthogonal (Watson et al. 1988), series 3, 4 and 7 had three factors extracted. Furthermore, when each rotated component matrix was analyzed, no coherent pattern of loadings was found (see Appendix 2). As a result, the micro-expressions of President Bush were coded through objective analysis of his facial musculature.

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[3] The number of frames removed from the treatment condition ranged from twelve to sixteen with each frame lasting 1/30th of a second.

The expression excerpts were then delivered to a certified FACS (Facial Action Coding System: Ekman et al. 2002a) coder (BW) for FACS coding. FACS is a standardized observational method to objectively record the muscular basis of facial movement, and identifies the component movements of facial expressions, termed AUs (Action Units). BW coded all AUs present during each excerpt, in most cases forming an apex at the mid-point of each clip. Although this method cannot identify the emotional valence of facial movements per se, movements can be compared to basic universal emotion configurations that are based on a wealth of literature documenting universal facial expression recognition (Ekman et al. 2002b). Table 1 shows the AUs identified in each clip, and if the single AU is listed as a prototype for an emotion (for example, AU10 can be considered a prototype of disgust), the corresponding emotion is given (Ekman et al. 2002b). All of the excerpts included AU12 (lip corner puller) which is associated with happiness (smiling), although when not in combination with AU6 (cheek raiser) this is interpreted as less genuine (non-Duchenne smile: Ekman et al. 1990), and 3 of the 7 excerpts also included AUs associated with disgust (AU10: upper lip raiser). The onset of each AU was also recorded to determine whether masking may have taken place: if present, the onset of AU10 was always followed by the onset of AU12 (see Table 1).

Table 1 Facial movements that occurred during the excerpts coded using the Facial Action Coding System (FACS: Ekman et al. 2002a)

Excerpt	FACS code (AUs)	Onset	Associated emotion
1	10 (upper lip raiser)	Frame 6	Anger and disgust
	12 (lip corner puller)	Frame 7	Happiness
	25 (lips parted)	Frame 1	X
	26 (jaw drop)	Frame 3	X
2	12 (lip corner puller)	Frame 6	Happiness
3	10 (upper lip raiser)	Frame 4	Anger and disgust
	12 (lip corner puller)	Frame 4	Happiness
	25 (lips parted)	Frame 3	X
	26 (jaw drop)	Frame 3	X
4	24 (lip press)	Frame 1	Anger
	12 (lip corner puller)	Frame 2	Happiness
5	R12 (right lip corner puller)	Frame 12	Happiness
6	12 (lip corner puller)	Frame 11	Happiness
	25 (lips parted)	Frame 1	X
	26 (jaw drop)	Frame 1	X
7	10 (upper lip raiser)	Frame 2	Anger and disgust
	12 (lip corner puller)	Frame 6	Happiness

Associated emotion relates to the main facial expression configurations that features each AU (Ekman et al. 2002b)

Table 2 Means and SD

	Pre-test		Post-test	
	M	SD	M	SD
Threatened	6.58	10.43	12.89	18.317
Angry	8.29	16.67	16.83	23.11
Anxious	41.52	31.71	34.70	31.34
Determined	59.36	29.58	56.54	31.14
Inspired	42.71	30.91	52.85	30.50
Reassured	52.76	29.41	53.55	30.55

Participants

Participants for the experimental study came from Introduction to American Government classes at a southern US university and were given extra credit for participation. Two series of experiments were carried out with 93 participants taking part in the spring of 2000 (March 2–9) and an additional 113 participants taking part in the autumn of 2000 (September 22-October 13).[4]

Design

The 206 participants were randomly assigned to one of the two conditions, the control condition in which participants viewed President Bush's speech without any alteration (N = 100) and the treatment speech with President Bush's micro-expressions removed (N = 106). Participants were informed they were to watch and evaluate a Presidential speech and viewed the speech in a conference room 9–11 feet away from a wall-mounted television set in groups from 2 to 11 students. Total time taken for the study ranged from 25 to 30 min. Of the participants analyzed, 68.4% were women and the ages of the participants ranged from 18 to 49 years old with a mean age of 20 years.[5]

Measures

Six measures of emotion were analyzed. These measures were chosen on the basis of previous studies concerning facial affect in political contexts (Masters 1989) and measures designed to test emotional state (Watson et al.

1988). Both before and immediately after the speech, participants were asked to place themselves on a 100-millimeter scale ranging from "slightly" to "extremely" based on how they "feel right now".[6] Differences between pretest and post-test responses were analyzed to test hypotheses on the effects of the speech.

Measures of threat and anger were chosen to reflect both the effect of the facial expressions and the semantic focus of the speech, which is to convey the threat posed by Iraq and arouse anger. We use the measure anxiety to assess perceived threat from external sources. The questions concerning how determined, inspired and reassured participants were reflects the expected result of a speech that not only responds to an external threat by inspiring individuals to band together in a group and behind a leader and act in a determined manner, but also provides reassurance that the goal of confronting and overcoming the threat will be accomplished (Schubert et al. 2002) (Table 2).

Repeated-measures ANOVA were used to analyze change in emotional state as a result of the treatment (expressions removed) and control condition. The six measures of emotion (threatened, angry, anxious, reassured, determined and inspired) in pretest and posttest were treated as within-subject dependent variables. The experimental treatment, whether participants saw the rally speech in its entirety (control condition) or with micro-expressions removed (treatment condition) was the between-subject factor. The overall emotional effect of the speech was tested through analysis of the within subject variance. The focal question of this paper, the effect of micro-expressions, was tested through analysis of the interaction between the within-subject measure and the treatment.[7]

Results

The results of the experiment suggest that both the speech and micro-expressions have an effect on self-reported emotional response. Each measure was treated independently, leading to different degrees of freedom due to not all participants responding to all questions. Within-subjects analysis of measures of feelings of being threatened show a

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[4] The decision to pool subjects from both series of experiments was carried out to increase statistical power and due to the historical nature of the political speech by George HW. Bush. There was only one structural difference between the two studies, a measure of negative affect (fearful) added to pre- and post-test questionnaires in the second series of treatments.

[5] The university the subjects were drawn from ten to be first and second generation college students with political views that tend to be conservative. Specifically, while voters in the district are overwhelmingly Democratic, and vote for Democratic Party candidates at the state level, the district tends to vote Republican during presidential elections.

[6] The 100-millimeter scale was adopted due to the finer tuned nature than five and seven point ordinal scales.

[7] To test for the effect of the different treatment times (spring 2000 and fall 2000) and sex, a full model was tested. With the exception of the measure anxious, main effects and interaction effects for these factors were not significant at the 0.10 level. Specifically, with the measure anxious, there was an interaction effect for the measure anxious by treatment by treatment time, $F(1, 201) = 4.779$, $p < 0.05$, partial $\eta^2 = 0.023$, as subjects in the fall 2000 treatment time taking the micro-expression removed condition did not see a change in their self-reported emotional state, in comparison with the spring 2000 subjects, who experienced a reduction in anxiousness.

significant increase from before to after President Bush's speech, $F(1, 203) = 24.374$, $p < 0.001$, partial $\eta^2 = 0.107$, while the interaction effect of being threatened by the treatment is likewise statistically significant, $F(1, 203) = 6.040$, $p < 0.05$, partial $\eta^2 = 0.029$.[8] In other words, as can be seen in Fig. 1, while both groups of subjects experienced increased feelings of being threatened, those viewing the treatment condition with the micro-expressions removed experienced a greater increase in their feelings of being threatened.

Anger was likewise increased significantly by the speech, $F(1, 202) = 29.042$, $p < 0.001$, partial $\eta^2 = 0.126$, with a significant treatment effect, $F(1, 202) = 4.755$, $p < 0.05$, partial $\eta^2 = 0.023$. Figure 2 illustrates that feelings of anger were higher in the treatment condition where the micro-expressions were removed than in the condition presented by the original speech.

Subject feelings of anxiousness exhibited a statistically significant decrease from prior to receiving the Presidential speech to immediately afterwards, $F(1, 201) = 12.882$, $p < 0.001$, partial $\eta^2 = 0.063$. While the treatment only approaches significance, $F(1, 201) = 2.195$, $p > 0.10$, partial $\eta^2 = 0.014$, those viewing the speech with the micro-expressions intact experienced a greater decrease in subjective anxiety than those with the micro-expressions removed.[9]

Feelings of determination, $F(1, 203) = 3.227$, $p < 0.10$, partial $\eta^2 = 0.016$, approached significant within-subjects change as a result of the speech. Likewise, the findings were that those participants exposed to the speech containing the micro-expressions were less determined than those viewing the speech with expressions removed approached significance, $F(1, 203) = 2.724$, $p = 0.10$, partial $\eta^2 = 0.013$. Analysis of Fig. 3 suggests that feelings of determination were reduced as a result of the speech, but only for participants who saw the condition with President Bush exhibiting micro-expressions.

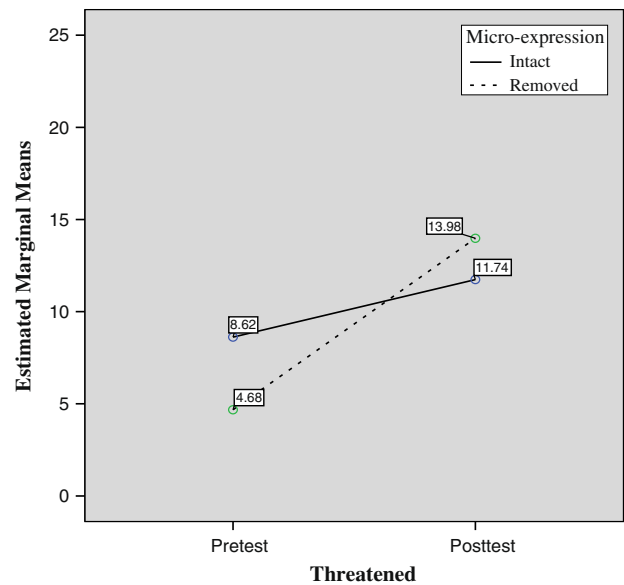While viewers of the speech in both conditions were more likely to express increased inspiration, $F(1,204) =$
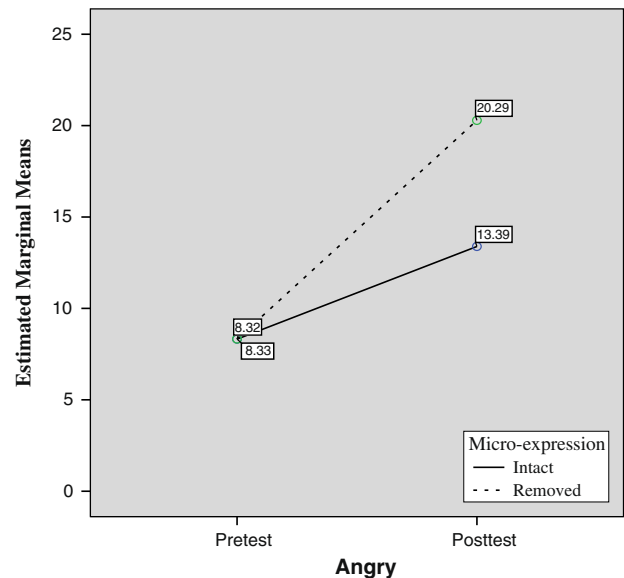

Fig. 1 Change in reported feelings of being threatened

Fig. 2 Change in reported feelings of being angry

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[8] Although pretest ratings of feeling threatened are significantly different based upon treatment and control group, $F(1, 204) = 7.664$, $p < 0.01$, this appears to be a random event, as there is no significant differences based upon distribution of treatments based on the dates, $\chi^2(12) = 11.397$, $p > 0.10$, nor are there significant differences in self-reports of threat in the pre-test based upon the date the treatment was taken, $F(17, 188) = 0.510$, $p > 0.10$. Furthermore, the repeated measure design used here statistically controls for variability in individual participant scores seen here (Warner 2008).

[9] The measure added in the second experimental series supports findings in the other measures of negative affect as within-subjects factors reveal there is a significant increase from pre-test to post-test in self-reports of fear $F(1,112) = 17.577$, $p < 0.001$, partial $\eta^2 = 0.137$. The interaction of the within-subjects factor and the treatment condition was significant for the measure fearful, $F(1,112) = 4.541$, $p < 0.05$, partial $\eta^2 = 0.039$ with subjects who saw the micro-expressions responding with less fear.

27.170, $p < 0.001$, partial $\eta^2 = 0.118$, they were not affected by the micro-expressions, $F(1, 237) = 0.030$, $p > 0.10$, partial $\eta^2 = 0.000$. Finally, viewers did not show any change in their feelings of reassurance, $F(1,203) = 0.192$, $p > 0.10$, partial $\eta^2 = 0.001$, as a result of the speech by President Bush, nor did the micro-expressions have any statistically significant effect on their feelings of reassurance, $F(1,203) = 1.478$, $p > 0.10$, partial $\eta^2 = 0.007$.

In sum, after viewing the speech, participants in both groups felt more threatened, more angry, more inspired and less anxious. However, participants who viewed the
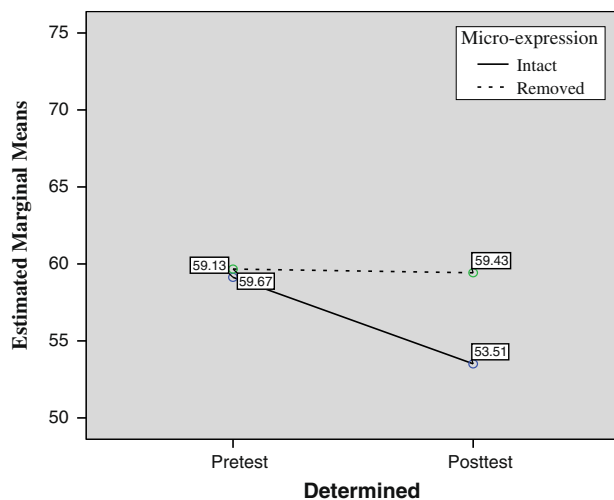
Fig. 3 Change in reported feelings of being determined

micro-expressions felt less threatened, less angry and less determined in their response to the speech than those who did not see them. Finally, while the findings only approached significance, subjects maintained a level of anxiety with the micro-expressions removed, whereas anxiety reduced for all other subjects.

Discussion

Participant responses to removing the facial micro-expressions from the speech suggest that micro-expressions of facial affect do change emotional response. Participants became significantly more threatened and angry as a result of the speech with the micro-expressions removed. At the same time, participant determination remained nearly the same from prior to until after the speech when the micro-expressions were removed, but decreased markedly when the micro-expressions remained in the speech. In summary, President Bush's facial micro-expressions dampened emotional response to the semantic and nonverbal content of the speech, a finding in line with Bucy and colleagues' assessment of the impact of inappropriate facial displays (Bucy 2000, 2003; Bucy and Bradley 2004; Bucy and Newhagen 1999).

Further studies are needed to confirm the precise relationship between these movements and audience emotional response. Nevertheless, it is clear that the emotional effect of the speech was altered by the removal of very brief facial movements, and so it is worth considering how these facial movements are perceived as emotional signals. FACS coding revealed that all the excerpts included facial movements associated with happiness (smiling). However, AU12 is a common movement used to 'mask' other facial movements (Ekman and Friesen 1975), and so these subtle

smiles may have been masking other emotions, including disgust (indicated by AU10, upper lip raiser). In which case, it may be the combination of disgust movements with smiling which affected the audience, in that these displays were perceived as inappropriate and thus dampened the effect of the speech.

Additionally, future research should address the influence of slight shifts in the speaker's position where the micro-expressions were removed. This may be carried out either by asking whether subjects noticed such shifts, or through an additional control condition in which seven edits of similar duration are removed while leaving the micro-expressions intact.[10] In addition, other forms of measurement, including physiological measures and response latency, as well as policy preferences, likely will provide insight into how micro-expressions affect viewer response, as will information concerning the background of subjects, including their political preferences, their personality traits, and other demographic factors.

Conclusions

This study provides exploratory evidence that presidential speech making style affects viewer response. Primarily, this study illustrates that the presence of facial micro-expressions in political speeches affects emotional response to the speech. These expressions were brief (less than one-second), sparse (seven events over an eleven-minute speech) and emotionally ambiguous when judged independently, and yet still had a significant effect on response to the speech. In the speech by President George H. W. Bush committing the United States to military action against Iraq in 1991, feelings of anger, threat and determination were amplified with the removal of the seven facial micro-expressions which last less than one-second. Because of the brevity of these facial expressions, in which subjects might not be consciously aware of their presence (Marsh and Ambady 2007; Milders et al. 2008; Öhman 2002; Pessoa et al. 2005), the results here suggest even brief expressions of emotion by our leaders have an effect on the emotional response of followers.

These findings raise a question concerning the importance of expressions for communicating emotional intent. Leaders who are capable of expressing a range of emotions may be more effective in gaining support and empathy in a process of communication where emotional response by viewers of a speech plays a key role. Here, we find that congruence of expressions with the message presented plays a highly important role in viewer response (Bucy 2000, 2003; Bucy and Bradley 2004; Bucy and Newhagen

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[10] The authors would like to thank reviewer 2 for this suggestion.

1999). Micro-expressions of facial affect, by representing unintentional leakage of emotional state (Ekman 1992; Ekman et al. 1997) and/or conflicting behavioral intentions of the speaker (Fridlund 1994; 1997), diminish the intended impact of a speech communicating the credibility of a threat while appealing for domestic support. Evidence presented here also points toward support for the leader who plays the role of an emotional focal point for the nation (Neustadt 1990; Schubert et al. 2002). The speech by President George H. W. Bush effectively aroused emotional response in this study, and presumably during the original Gulf War when his approval ratings increased exponentially (Mueller 1994). Thus, the ability of a leader to induce specific emotions in response to external threats through political speeches is key to building support for policy actions (Schubert et al. 2002), whether arousing or quelling anxiety, generating anger or inspiring determination.

Understanding the role of face-to-face communication, whether in person or mediated through television or the internet, is vitally important when considering how groups are motivated by leaders. The ability to establish and maintain dominance through speech, posture, and facial expressions are essential components of leadership, especially due to the role leader play as focal points of attention (Chance 1967; Mazur 2005). That even minute display of emotion on the face of a leader has an effect on the self-reported emotional response of viewers underscores the importance of nonverbal components in leadership.

Appendix 1: George H. W. Bush's Presidential speech to the nation

August 8, 1990, Wednesday

In the life of a nation we're called upon to define who we are and what we believe. Sometimes these choices are not easy. But today as President I ask for your support in a decision I've made to stand up for what's right and condemn what's wrong all in the cause of peace. At my direction, elements of the 82nd Airborne Division, as well as key units of the United States Air Force, are arriving today to take up defensive positions in Saudi Arabia. I took this action to assist the Saudi Arabian government in the defense of its homeland. No one commits America's armed

forces to a dangerous mission lightly, but after perhaps unparalleled international consultation and exhausting every alternative, it became necessary to take this action. And let me tell you why. Less than a week ago in the early morning hours of August 2nd, Iraqi armed forces, without provocation or warning, invaded a peaceful Kuwait. Facing negligible resistance from its much smaller neighbor, Iraq's tanks stormed in blitzkrieg fashion through Kuwait in a few short hours. With more than 100,000 troops, along with tanks, artillery and surface to surface missiles, Iraq now occupies Kuwait. *<cut #1; 2:23; 16 frames>* This aggression came just hours after Saddam Husayn specifically assured numerous countries in the area that there would be no invasion. There is no justification whatsoever for this outrageous and brutal act of aggression.

A puppet regime imposed from the outside is unacceptable. The acquisition of territory by force is unacceptable. No one, friend or foe, should doubt our desire for peace, and no one should underestimate our determination to confront aggression.

Four simple principles guide our policy. First, we seek the immediate, unconditional and complete withdrawal of all Iraqi forces from Kuwait. Second, Kuwait's legitimate government must be restored to replace the puppet regime. And third, my administration, *<cut #2; 3:26; 16 frames>* as has been the case with every president from President Roosevelt to President Reagan, is committed to the security and stability of the Persian Gulf. And fourth, I am determined to protect the lives of American citizens abroad. *<cut #3; 3:43; 12 frames>*

Immediately after the Iraqi invasion, I ordered an embargo of all trade with Iraq, and together with many other nations, announced sanctions that both froze all Iraqi assets in this country and protected Kuwait's assets. The stakes are high. Iraq is already a rich and powerful country that possesses the world's second largest reserves of oil and over a million men under arms. It's the fourth largest military in the world. Our country now imports nearly half the oil it consumes, and could face a major threat to its economic independence. Much of the world is even more dependent upon imported oil and is even more vulnerable to Iraqi threats. We succeeded in the struggle for freedom in Europe because we and our allies remain stalwart. Keeping the peace in the Middle East will require no less. *<cut #4; 4:46; 15 frames>* We're beginning a new era. This new era can be full of promise, an age of freedom, a time of peace for all peoples. But if history teaches us anything, it is that we must resist aggression or it will destroy our freedoms.

Appeasement does not work. As was the case in the 1930s, we see in Saddam Husayn an aggressive dictator threatening his neighbors. On 14 days ago, Saddam Husayn promised his friends he would not invade Kuwait and four

days ago he promised the world he would withdraw. And twice we have seen what his promises mean. His promises mean nothing.

In the last few days, I have spoken with political leaders from the Middle East, Europe, Asia and the Americas and I have met with Prime Minister Thatcher, Prime Minister Mulroney and NATO Secretary General Woerner and all agree that Iraq cannot be allowed to benefit from its invasion of Kuwait. We agree that this is not an American problem or a European problem or a Middle East problem. It is the world's problem. And that's why, soon after the Iraqi invasion, the United Nations Security Council, without dissent, condemned Iraq, calling for the immediate and unconditional withdrawal of its troops from Kuwait. The Arab world, through both the Arab League and the Gulf Cooperation Council, courageously announced its opposition to Iraqi aggression. Japan, the United Kingdom and France and other governments around the world have imposed severe sanctions. The Soviet Union and China ended all arms sales to Iraq. And this past Monday, the United Nations Security Council approved, for the first time in 23 years, mandatory sanctions under Chapter 7 of the United Nations Charter. These sanctions now enshrined in international law, have the potential to deny Iraq the fruits of aggression while sharply limiting <cut #5; 7:02; 16 frames> its ability to either import or export anything of value, especially oil. I pledge here today that the United States will do its part to see that these sanctions are effective and to induce Iraq to withdraw without delay from Kuwait. But we must recognize that Iraq may not stop using force to advance its ambitions. Iraq has massed an enormous war machine on the Saudi border capable of initiating hostilities with little or no additional preparation. Given the Iraqi government's history of aggression against its own citizens as well as its neighbors, to assume Iraq will not attack again would be unwise and unrealistic. And therefore, after consulting with King Fahd, I sent Secretary of Defense Dick Cheney to discuss cooperative measures we could take. Following those meetings, the Saudi government requested our help. And I responded to that request by ordering US air and ground forces to deploy to the Kingdom of Saudi Arabia. Let me be clear, the sovereign independence of Saudi Arabia is of vital interest to the United States.

This decision, which I shared with the congressional leadership, grows out of the longstanding friendship and security relationship between the United States and Saudi Arabia. US forces will work together with those of Saudi Arabia and other nations to preserve the integrity of Saudi Arabia and to deter further Iraqi aggression. Through their presence, as well as through training and exercises, these multinational forces will enhance the overall capability of Saudi armed forces to defend the Kingdom.

I want to be clear about what we are doing and why. America does not seek conflict, nor do we seek to chart the destiny of other nations. But America will stand by her friend. The mission of our troops is wholly defensive. Hopefully, they will not be needed long. <cut #6; 9:23; 16 frames> They will not initiate hostilities, but they will defend themselves, the Kingdom of Saudi Arabia and other friends in the Persian Gulf. We are working around the clock to deter Iraqi aggression and to enforce UN sanctions. I'm continuing my conversations with world leaders. Secretary of Defense Cheney has just returned from valuable consultations with President Mubarak of Egypt and King Hassan of Morocco. Secretary of State Baker has consulted with his counterparts in many nations, including the Soviet Union, and today he heads for Europe to consult with President Ozal of Turkey, a staunch friend of the United States. And he'll then consult with the NATO foreign ministers. I will ask oil producing nations to do what they can to increase production in order to minimize any impact that oil flow reductions will have on the world economy. And I will explore whether we and our allies should draw down our strategic petroleum reserves.

Conservation measures can also help. Americans everywhere must do their part. And one more thing. I'm asking the oil companies to do their fair share. They should show restraint and not abuse today's uncertainties to raise prices. Standing up for our principles will not come easy. It <cut #7; 10:53; 16 frames> may take time and possibly cost a great deal. But we are asking no more of anyone than of the brave young men and women of our armed forces and their families. And I ask that in the churches around the country prayers be said for those who are committed to protect and defend America's interests. Standing up for our principles is an American tradition. As it has so many times before, it may take time and tremendous effort, but most of all, it will take unity of purpose. As I have witnessed throughout my life in both war and peace, America has never wavered when her purpose is driven by principle. And on this August day, at home and abroad, I know she will do no less. Thank you and God bless the United States of America.

Appendix 2: Participant evaluation of micro-displays

In October 2000 twenty-four upper-division undergraduate and graduate students at a southern US university rated each of President George H. W. Bush's seven excerpted micro-expressions. They were asked to rate the President on eight emotion terms (threatened, angry, fearful, anxious, reassured, determined, inspired and happy) based on what emotional state the rater thought the President was experiencing at the time. Each of these terms ranged along a 100-mm scale from "slightly" to "extremely".

The micro-expressions were presented as series of between 12 and 16 still frames on a laminated card, the total content of the micro-expressions. The participants were informed that the expressions came from a Presidential speech. However, they were not informed as to which speech it was from or the context in which the speech was given.

Initial analysis of rating of President Bush's micro-expressions shows no clear pattern of emotion emerging. Specifically, when the mean scores and standard deviations of the ratings on each of the emotion categories are considered, no specific emotion stands out (please see Table 1). Therefore, it was decided to run a principle components factor analyses of the ratings of each facial micro-expression to explore the possibility of underlying factors. Here, factors are defined by eigenvalues being greater than one. The rotation method chosen was that of varimax rotation.

Analysis of micro-expression series 1 shows the factor analysis extracted two factors, with factor 1 accounting for 48.2% of the variance and an eigenvalue of 4.1, while the second factor accounted for 22.0% of the variance and an eigenvalue of 1.52. Variables loading on factor one include threatened (−0.715), reassured (0.893), determined (0.824), fearful (−0.704), inspired (0.839), and happy (0.814). The two variables loading on factor two include angry (0.856) and anxious (0.835).

Micro-expression series 2 exhibited a two factor solution, with an eigenvalue of 4.54 for factor one and 1.62 for factor two, and the percentage of explained variance equal to 45.4% and 31.6% for their respective factors. Rotated factor loadings show that threatened (0.853), angry (0.829), fearful (0.877), anxious (0.678), and happy (−0.709) load onto factor one, while reassured (0.818), determined (0.772), and inspired (0.806) load onto factor two.

The factor analysis for micro-expression series 3 shows a three factor solution, with factor 1 demonstrating an eigenvalue of 3.62 and an explained variance of 38.2%, factor 2 an eigenvalue of 2.07 and an explained variance of 30.0%, and factor 3 an eigenvalue of 1.01 and an explained variance of 16.0%. Factor loadings for the first component

are reassured (0.786), angry (−0.646), inspired (0.897), and happy (0.920); for the second component they are threatened (0.841), angry (0.659 – loading onto both factor 1 and 2), fearful (0.654), and anxious (0.869); finally, determination is the sole variable loading on the third factor (0.924).

Micro-expression series 4 likewise shows a three factor solution, with eigenvalues of 3.65, 1.75, and 1.03, and rotated sums of squares loadings of 30.6, 25, and 25% for their respective factors. Factor one is comprised of threatened (0.864), fearful (0.897), and anxious (0.670). Factor two is made up on reassured (0.810), inspired (0.870), and happy (0.612). Finally, factor three has angry (0.800), determined (0.828), and happy (−0.667—loading on two factors yet again) loading onto it.

The fifth micro-expression series exhibited a two factor solution, with eigenvalues of 4.06 and 1.55, and respective variance explained of 36.5% and 33.7%. Factor loadings show threatened (0.736), angry (0.873), fearful (0.671), anxious (0.719), and happy (−0.609) comprising factor 1, and reassured (0.789), determined (0.835), and inspired (0.884) loading on the second factor. Micro-expressions series 5 likewise had a two factor solution with eigenvalues of 4.14 and 1.48 and variance explained of 45.7 and 24.5% respectively. Loadings had threatened (0.715), angry (0.741), fearful (0.740), inspired (−0.830), anxious (0.724), and happy (-0.852) comprising factor one, and reassured (0.831) and determined (0.919) loading on factor two.

Finally, micro-expression series 7 showed a three factor solution with eigenvalues of 4.05, 1.41, and 1.01, and explained variances of 36.4, 29, and 15.5%, respectively. Factor loadings on the three components have threatened (0.837), angry (0.911), fearful (0.776), and happy (-0.714) on the first factor, reassured (0.763), determined (0.928), and inspired (0.766) on the second factor, and anxious loading solely on factor three (0.936).

Analysis of patterns suggest that while there are findings in line with the two factor solution typical of emotion terms (Watson et al. 1988), and certain emotion terms loaded together on a regular basis, there was no coherent solution

Table 3 Mean/SD

	Threatened	Angry	Fearful	Anxious	Reassured	Determined	Inspired	Happy
1	24.88 (21.69)	21.25 (22.6)	25.25 (23.86)	50.00 (25.73)	49.08 (29.19)	49.25 (26.89)	37.63 (32.19)	40.33 (28.96)
2	28.0 (24.39)	30.0 (30.11)	23.42 (23.81)	39.21 (32.60)	44.21 (29.97)	45.38 (27.35)	41.38 (30.09)	61.25 (30.42)
3	19.0 (24.10)	16.5 (18.81)	16.54 (22.5)	30.0 (29.7)	53.96 (26.69)	49.65 (24.09)	55.87 (27.86)	65.33 (27.46)
4	44.21 (32.39)	58.33 (31.69)	35.17 (25.87)	56.63 (31.28)	33.71 (27.43)	65.63 (21.09)	39.88 (27.14)	22.29 (23.37)
5	44.42 (28.2)	45.54 (26.03)	38.5 (28.01)	53.96 (27.52)	34.92 (30.78)	47.0 (28.11)	34.38 (29.38)	29.17 (30.89)
6	28.42 (23.89)	22.33 (20.43)	24.0 (21.64)	43.46 (26.09)	52.79 (28.41)	59.17 (22.36)	48.96 (29.2)	48.63 (32.88)
7	26.0 (24.48)	25.67 (24.77)	18.67 (18.85)	38.79 (27.82)	54.17 (29.07)	55.17 (23.59)	56.58 (28.9)	63.38 (28.54)

seen throughout evaluations of the micro-expressions. Specifically, while micro-expression series 1, 2, 5 and 6 had two factors extracted in line with positive and negative emotions being orthogonal series 3, 4 and 7 had three factors extracted. Furthermore, when each rotated component matrix was analyzed, no coherent pattern of loadings was found. While the small number of subjects evaluating the micro-expressions likely plays a role in the findings, the lack of context within which to place the facial expressions most certainly has an effect on the findings reported here.

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