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Political Attitudes: Interactions of Cognition and Affect[1]

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Commonly held political opinions provide an ecologically relevant focus for studying the interactions of environmental context, affect or emotion, and cognition. To explore this approach to information processing, John T. Lanzetta helped initiate a series of experiments examining how emotional responses to politicians' nonverbal displays influence changes in attitude toward these leaders. Although this line of research has revealed how a number of variables interact when humans respond to known individuals in meaningful situations, the precise relationship between mood state or affect prior to a stimulus and subsequent emotions and cognitions remains unclear. Based on recent theories of modular brain function, an experimental paradigm was designed to test the hypothesis that the effects of a mood state on information processing depend on the subject's awareness of the affect as well as on its valence. Preliminary data from such a study, in which preconscious images of emotionally evocative stimuli were used to induce positive or negative affect prior to viewing the leader, suggests that the induction of negative affective states can lead to more positive attitudes. Reflected in such public opinion phenomena as the "rally-round-the-flag" effect, this mood-incongruent attitude change challenges many traditional theories of emotion and cognition.

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The research of John T. Lanzetta has contributed greatly to the understanding of nonverbal behavior and emotion in social psychology. One of us (R.D.M.) was fortunate enough to work with him, along with Denis G. Sullivan, Gregory McHugo, and Basil Englis, in studies of emotional and attitudinal response to leaders' nonverbal facial displays. In addition to providing insight into how politicians often influence the electorate, the studies initiated with Lanzetta also provide unconventional insights into the relationship between cognition and emotion.

Since political beliefs tend to be well developed and strongly held, these studies predominantly examined the extent to which such beliefs influence self-reported and psychophysiological emotional responses to leaders' displays. Although the effects of preexisting mood on attitude were largely unexplored, many other situational, emotional, and cognitive factors were found to play a role in political information processing. Using a brief review of these studies as a foundation, we develop a theoretical and methodological framework for addressing a question Lanzetta had posed in the original research group: How does an individual's affective state prior to the viewing experience influence his response to the leader?

Both common sense and experimental research confirm that affective states or moods sometimes have congruent effects on attitude (e.g., happiness leading to greater approval, fear to rejection). Paradoxically, however, polling data and our preliminary experimental evidence indicate that, in certain contexts, affect can influence political attitude in a valence-inconsistent direction. How can the induction of a negative affect lead to more positive attitudes? In suggesting an answer to this question, we rely upon recent findings in cognitive neuroscience. With Lanzetta's strong interest in psychophysiological measures and ethology, we feel he would have been excited by recent neuroscientific findings that illuminate the interaction between the "rational" realm of politics and the emotional realm of facial expressions—or more simply, between cognition and emotion.

FACIAL DISPLAYS, EMOTIONAL RESPONSE AND ATTITUDE: THE LEGACY OF LANZETTA'S RESEARCH

Before embarking on the study of leaders, Lanzetta and his coworkers had demonstrated that facial expressions of fear function as "prepared" stimuli (for further elaboration see Dimberg & Öhman, 1996). As Lanzetta showed, a conditioned association between such expressions and an aversive outcome is more rapidly acquired (Orr & Lanzetta, 1980) and more resistant to extinction (Lanzetta & Orr, 1980) than response to neutral or happy expressions. In our interpretation, faces of fear automatically elicit emo-

tional responses, functioning as signals of aversive outcomes even when there is no expectation of punishment (Lanzetta & Orr, 1986).

Recent work in neuroscience supports Lanzetta's view that the brain is preferentially arranged to produce such emotional responses and associations. In monkeys, perception of facial displays appears to occur in the superior temporal sulcus, where there are banks of neurons responding predominantly to facial expressions (Hasselmo, Rolls, & Baylis, 1989). Interestingly, these cells demonstrate face responsivity as early as five weeks after birth (Gross, 1992). The bidirectional neural connections between these cells and the amygdala (Rolls, 1992), the necessary and sufficient brain structure for fear conditioning (LeDoux, 1994), could be responsible for the fearful responses to faces and the expectation of aversive behavioral outcomes. As will be discussed later, human studies are in accord with these data.

Although there may be neural connections predisposing an individual to learn this conditioned response to faces, Lanzetta's research served to distinguish emotions from a simple reflex or fixed-action pattern in the original conceptualization of Konrad Lorenz (Lorenz, 1931-1963/1970-1971). Rather than a knee-jerk reaction to a stimulus, emotion integrates the environmental context and prior learning to ensure a situationally appropriate response for the organism's current needs (Eibl-Eibesfeldt, 1989; Gray, 1987; Scherer, 1994). From the outset, one of Lanzetta's distinguishing virtues was his desire to integrate perspectives from classical social psychology and ethology into a broader view of emotion and cognition.

To demonstrate that the prepared tendency to associate facial expressions with behavioral outcomes is not a reflex, Lanzetta manipulated the relationship between the stimulus figure and viewer by placing them in a situation of cooperation or competition (Englis, Vaughan, & Lanzetta, 1981; Lanzetta & Englis, 1989). Broadly speaking, these studies revealed that expectations of cooperation tend to elicit a congruent or empathetic emotional response in an observer viewing a partner's emotional expressions. In other words, the partner's smile and success signal the viewer's joy and success. However, in a competitive situation, the partner's expression is predictive of an incongruent outcome, leading the observer to respond to his competitor in a counterempathic manner. Since the competitor's smile now signals the observer's failure, it can elicit a negative affective reaction in the observer, as measured by electromyographic (EMG) recordings of facial muscle, autonomic arousal, and self-report (Lanzetta & Englis, 1989). A similar counterempathic pattern was seen in the self-reported emotional response of Democratic women to Dan Quayle in a study during the 1992 election campaign. Whereas smiles usually elicit happiness, these women reacted with anger upon seeing videotape excerpts

of a smiling Quayle (unpublished data)—presumably in response to his ideological stance criticizing the screenwriters of the *Murphy Brown* TV show for having Murphy bear a child out of wedlock. As can be seen from these examples, emotions are not merely reflexive responses to the stimulus, but rather incorporate prior associations between the stimulus figure's facial expressions and prior behavior.

Since attitudes are usually based on a rich context of prior opinions and, frequently, feelings and beliefs shaped by earlier experiences, Lanzetta sought a more naturalistic method of investigating this interaction between emotion and cognition than the competitive situation described above. To tap this richer context, naturalistic attitudes developed outside of the laboratory setting were needed. Since few other opinions are as widely held and thoroughly studied as political opinions, Lanzetta eagerly joined Denis Sullivan and Roger Masters (from the Department of Government at Dartmouth) along with Gregory McHugo and Basil Englis in a study of President Reagan's facial expressions and their effects on viewers. This initial research project sought to examine whether deeply ingrained ideas and attitudes interfere with the perception of facial displays or modulate and enhance episodic emotional responses to them.

As with the static facial images used in earlier conditioning studies, this group selected dynamic excerpts of facial displays that were known to be important in social interactions; for that purpose, it was necessary to establish objective criteria for stimulus selection based on both ethological and social psychological research (Masters, Sullivan, Lanzetta, McHugo, & Englis, 1986). In nonhuman primates, dominant males use a combination of threatening and reassuring facial displays to form alliances and maintain social order (Chance, 1976; de Waal, 1982; Van Hooff, 1969). While the signal or communicative value of facial displays is derived from ethological observations, earlier social psychological research confirmed that facial expressions also convey an emotional state (Ekman & Friesen, 1969; Vaughan & Lanzetta, 1980). As Denis Sullivan suggested, it was therefore important to describe facial displays with composite terms, reflecting the duality of the emotion being expressed and the social signals being communicated. In these first studies, this group focused on excerpts of three display types, happiness/reassurance (H/R), anger/threat (A/T), and fear/evasion (F/E), using then President Ronald Reagan as stimulus figure because he was well known and provided abundant material from his many television appearances.

As one would expect with stimuli that trigger biologically prepared responses, it was found that viewers do reliably decode the emotion expressed by the political leader even if they have strong and divergent attitudes about him (Lanzetta, Sullivan, Masters, & McHugo, 1985; Masters et al., 1986).

Supporting Ekman's finding that the ability to decode static facial expressions of emotion is ubiquitous (Ekman & Oster, 1979; though see Russell, 1994), our results with dynamic displays of known leaders were later replicated cross-culturally with French viewers who watched the same excerpts of Reagan as well as excerpts of their own leaders (Masters & Mouchon, 1986; Masters & Sullivan, 1989a, 1989b). Thus we were able to confirm that, in realistic social situations in which viewers had strong cognitive and emotional commitments, the natural display repertoire was still perceived accurately.

In extending Lanzetta's previous findings to dynamic excerpts, the central purpose of studying political leaders was to determine how evaluative predispositions influence responses to facial expressions. The effects of prior attitude were evident in viewers' self-reports of emotion while watching Reagan's displays (or what is here called the "episodic emotion" elicited by exposure to the stimulus). For supporters, positive episodic emotions were significantly greater when watching his happy/reassuring displays than during other excerpts. In contrast, among critics the same happy/reassuring excerpts had the effect of weakening the negative episodic emotional responses. Thus, Reagan's smile increased supporters' positive responses, but decreased opponents' negative responses. Anger/threatening displays reassured supporters and angered critics, whereas fear/evasion displays produced negative feelings in all viewers. Broadly speaking, supporters had more differentiated reactions to different display types, suggesting that the leader serves as a more powerful stimulus—or is more "attention" binding (Chance, 1976)—for followers than for critics (Lanzetta et al., 1985; Sullivan et al., 1991).

These first studies used 7-point (0 to 6) unipolar scales to measure each of nine types of emotional response. From the outset, of course, we were aware of the problem that verbal self-reports of episodic emotion might merely reflect cognitive attitudes. It was therefore essential to validate the verbal self-report scales with psychophysiological measures of emotional arousal. Our second study, therefore, presented viewers with the three types of display while recording EMG measures of facial muscles that are normally activated in happiness/reassurance (zygomaticus major) and anger/threat (corrugator supercilii) as well as heart rate and galvanic skin response (GSR). This approach confirmed that verbal self-reports of emotion reflect actual psychophysiological arousal: The zygomatic muscle, used in smiling, was activated during Reagan's H/R displays, and the corrugator muscle, associated with anger and concentration, was activated during his A/T displays and relaxed during his H/R displays (McHugo, Lanzetta, Sullivan, Masters, & Englis, 1985).

This connection between self-reported emotion and psychophysiological response was confirmed and extended in a later study showing subjects displays of different intensity exhibited by two rival leaders, Reagan and Hart (McHugo, Lanzetta, & Bush, 1991). When viewing evocative happy/reassuring excerpts of Reagan, his supporters showed more zygomatic activity and less corrugator activity than his critics. The experimental context encouraged the subject to adopt an evaluative mode when viewing the excerpts and is a logical explanation for the influence of attitude upon facial muscle activity. Combined with Lanzetta's earlier work, these results provided evidence that, even though responses to facial displays of emotion reflect deeply ingrained, fundamental emotional processes, they also reflect the strength of the bond between the stimulus figure and the viewer as well as the context of the experience.

Can the episodic emotional experience of watching a leader's televised facial displays produce changes in the viewer's attitude? To explore this question, we began a series of studies in which neutral and happy/reassuring displays of all leading candidates in the 1984 election were shown to samples of viewers at various stages of the campaign. The results confirmed that emotional responses can lead to attitude adjustments over the course of an experiment, although this process also depends on the effectiveness of the leader's facial display behavior (Sullivan & Masters, 1988). Although attitudes to the various candidates at the experiment's conclusion largely reflected the viewer's prior attitudes, they were also influenced by episodic emotional responses; in eliciting such changes, Reagan's unblended and intense facial displays were more effective than the mixed nonverbal cues of Walter Mondale. Multiple-regression analyses showed that emotional responses to the nonverbal displays had an independent effect on changes in ratings of each candidate; cognitive beliefs (such as partisanship, assessment of candidate's leadership ability, and agreement with his issue positions) were also often reinforced by the experience of watching each leader.

Subsequent experiments in 1988 and 1992 have confirmed that, in addition to the influence of prior attitude upon episodic emotional response, the type, style, and intensity of the leader's display, the leader's status and viewer attributes (including gender, personality, and ethnicity) can have independent effects upon attitude change (Masters, 1989a, 1989b, 1991, 1994; Masters & Carlotti, 1993; Masters & Sullivan, 1993; Sullivan & Masters, 1993, 1994). These findings are potentially of great practical importance, because "momentum" is so crucial in political campaigns. For example, it is sometimes suggested that voters' responses to a Presidential candidate's acceptance speech at a national nominating convention provide a key to electoral success; the candidate with the largest "bounce"—i.e., the largest

difference between public support at the outset and end of this speech—is said to be more likely to win the November election. Could it be that nonverbal cues and episodic emotions drive such processes more than has been realized? In light of the research discussed here, a large portion of such phenomena might well be based on nonverbal style and its effects on episodic emotion and attitude (Masters, Sullivan, Teola, & McHugo, 1987).

Because our experiments might have generated "demand" characteristics by showing the viewer a series of facial displays of leaders, thereby cueing subjects of our interest, we sought a more naturalistic stimulus situation. For this purpose, excerpts of President Reagan were inserted into the background of actual TV news broadcasts. In these stimuli, while the news anchor discussed Presidential news, part of the visual material was edited to replace original images with a dynamic, expressive display of President Reagan. Over two days, a set of 10 news stories was presented to different groups of viewers with either a happy/reassuring, an angry/threatening, or a neutral display inserted in the background; to ensure ecological validity, viewers in all three groups also saw an equal number of news stories edited to include mixed displays. Although subjects thought the study concerned their reactions to the news stories, the silent facial displays in the background did indeed impact emotional responses and trait attributions. Male viewers without strong opinions toward Reagan became significantly more favorable after viewing the set of news stories with happy/reassuring excerpts—and more negative if they had seen stories with either angry/threatening or neutral displays in the background. These attitude changes persisted 24 hours after the experiment's conclusion, indicating that a politician's emotional appeals can influence an uninformed electorate (Sullivan & Masters, 1994). This may not be a deliberate, conscious response, since nearly all the subjects thought they were participating in a study of media bias in the selection and verbal description of political issues, and less than 1% were even aware of Reagan's display behavior as a factor in the stimuli.

There is evidence that the inference process leading to a trait attribution or episodic emotional response is heavily influenced by a leader's nonverbal style and occurs at a subconscious level. In a study initiated after Lanzetta passed away, all excerpts of political leaders shown in French, German, and American television newscasts during the month of March 1987 were recorded and analyzed (Masters, Frey, & Bente, 1991). When selections from these excerpts of French, German, and American leaders were shown without the sound or any other marker of national identity, American subjects responded negatively to the foreigners. In contrast, when the same excerpts were presented with the sound and the subjects were therefore aware of a leader's nationality, this differential response to for-

eigners and fellow countrymen disappeared (Warnecke, Masters, & Kempter, 1992). Objective measures of the dynamic features of nonverbal behavior using the Bernese coding system (Bente, Frey, & Treeck, 1989; Frey, Hirsbrunnner, Frolin, Daw, & Crawford, 1983) confirm that negative reactions to foreigners are influenced by national differences in the way displays are performed. Indeed, trait attributions on semantic differential scales after watching silent images are an uncanny reflection of American stereotypes: Germans were rated as boring and ugly; the French as energetic and cheerful, and the Americans as intelligent and powerful—even though subjects had no clues concerning the nationality of the leader shown on each excerpt (Masters, Frey, & Kempter, 1996).

The research summarized above demonstrates that prior attitude toward a leader influences the intensity and valence of emotional responses to his facial displays,[3] a process not necessarily requiring conscious awareness. These evoked emotions can, in turn, lead to attitude adjustments. Lanzetta often wondered if the emotional state or mood of the viewer at the beginning of an experience influenced the degree or direction of the viewer's attitude change. Yet the studies just reviewed can not be used for this purpose, since a component of the evoked emotions in these studies was a result of the viewer's initial attitude. A new theory and research are needed to demonstrate an independent effect of prior affective state (mood) upon attitude change.

DOES AFFECT EFFECT COGNITION? EXTENDING LANZETTA'S FINDINGS IN THE LIGHT OF COGNITIVE NEUROSCIENCE

Is emotion or cognition primary? Although this often-debated issue has long been a contentious one in social psychology (Ekman & Davidson, 1994, chap. 5; Lazarus, 1984; Zajonc, 1984), a clearer picture is emerging by using neuroscientific evidence that was not available to Lanzetta (for reviews, see Damasio, 1994; Gazzaniga, 1988). As this new research shows, the ultimate response to the priority of cognition versus emotion is that "both are." Such a conclusion is consistent with the perspective outlined by Lanzetta, for whom the conventional interpretation of the emotion/cognition debate was badly oversimplified. Indeed, it is hard to deny that he

[3]In this context, the use of the male pronoun ("his facial displays") is intentional: although little research has been done on the nonverbal displays of female leaders, one—as yet unpublished—experimental study in our laboratory showed that both male and female viewers responded differently to speeches, press conferences, and interviews when presented by male or female actors using either happy/reassuring or angry/threatening display behavior (Plate, 1984).

would have been particularly excited by the developments made possible through the emergence of the techniques and theories of contemporary neuroscientists.

Before discussing a theoretical explanation of the ways affect might influence cognitive processing, we must first clarify how we use these terms. In our opinion, the debate over defining emotion and cognition has raised more heat than light because it has hitherto been largely semantic. Different theorists map the term *emotion* onto different stages of sensory processing, different behavioral phenomena, and different subjective experiences. This reflects the fact that emotion is not an empirical entity; it is a term that has long been used in human discourse and has varied meanings and subtle nuances for different individuals and cultures. To move toward greater agreement in the use of emotional terms, we propose, largely after LeDoux (1984, 1989), that specific emotional phenomena (e.g., fear) be associated with activity in specific neurological circuits. While similar attempts have been made for the peripheral nervous system with moderate success (Levenson, 1992), understanding of brain function has progressed to a point where preliminary definitions of concepts such as emotion and cognition can be coupled with the anatomical regions producing them. Although the picture is still far from clear, working toward a definition rooted in neurobiological activity promises to place emotion on firmer scientific footing, allowing for greater clarity in discussion of how emotional and cognitive phenomena interact.

In defining emotions, we concentrate on fear, since more is known about the neural underpinnings of this state than other emotional phenomena. Fear conditioning studies in animals and humans point toward the amygdala (lateral nucleus) as essential in forming an association between a conditioned stimulus and an aversive unconditioned stimulus (Davis, 1992; LeDoux, 1995). This learned association leads to activation of the defense response, a cluster of behaviors and activities, such as autonomic activity, associated with the fearful state. For example, the amygdala (central nucleus) sends projections to the nuclei controlling the facial musculature (Fanardjian & Manvelyan, 1987; Holstedge, Kuypers, & Dekker, 1977), presumably triggering facial expressions associated with fear (Davis, 1992). The amygdala also sends outputs to the brain centers (lateral hypothalamus) involved in autonomic responses such as GSR and heart rate changes (Kaada, 1951). Since Lanzetta used facial EMG, GSR, and heart rate as dependent measures of emotion in his studies, amygdala activation corresponds closely with a psychophysiological state that he measured as fear. In addition to these behavioral and autonomic manifestations of emotion, an operational definition of this concept must include self-report—the

third class of dependent measures of emotion as defined by Lang (1978) and followed by Lanzetta.

However, a clear connection between the conscious, self-reported experience of fear and amygdala activity has not been conclusively demonstrated. There is evidence of amygdala activation from recent brain imaging (regional cerebral blood flow) studies of patients with mood disorders (Drevets & Raichle, 1994), as well as normal subjects performing tasks designed to induce negative affect (Cahill, Haier, Fallon, Wu, McGaugh, 1996; Grodd, Schneider, Klose, & Nagele, 1995; Irwin et al., 1996). Yet, because of the poor temporal resolution of measuring activity dependent changes in cerebral blood flow, it cannot be determined if the amygdala is processing information on its way to conscious awareness, as part of conscious awareness, or even possibly after it has attained conscious awareness. In more traditional methods, electrical stimulation of the amygdaloid complex frequently leads to subjective feelings of fear, in addition to visceromotor responses (Gloor, Olivier, Quesney, Andermann, & Horowitz, 1982). Because of the intimate connections between the hippocampus and amygdala such stimulation invariably elicits hippocampal afterdischarges, preventing the localization of this subjective experience to either structure (Halgren, Walter, Cherlow, & Crandall, 1978).

Patients with lesions limited to either the amygdala or hippocampus have demonstrated a dissociation between conscious, subjective fear and unconscious manifestations of a conditioned fearful state (Bechara et al., 1995). Damage confined to the amygdala (bilaterally) prevented conditioning of autonomic responses (skin conductance) to either a colored slide or a computer-generated tone, yet the patient was fully aware of the paired association. She could name and identify the conditioned stimulus in spite of not exhibiting an autonomic response to it. In a separate study, 18 patients with unilateral medial temporal lobe lesions demonstrated a similar dissociation (LeBar, LeDoux, Spencer, & Phelps, 1995). Reciprocally, a patient with bilateral damage restricted to the hippocampus manifested the appropriate autonomic response to the conditioned stimuli, yet was incapable of consciously identifying the appropriate stimulus. Based on this preliminary human evidence, it appears that the hippocampus is involved in the conscious conception of the fearful state, whereas the amygdala is involved in activating the somatic response associated with the fearful state. To distinguish between conscious awareness of a fearful experience and visceral activation associated with the fearful state, we propose using the term *emotion* for the former and the term *affect* for the latter. Therefore with respect to fear, *affect* denotes the state defined by activation of the amygdala (central nucleus), resulting in changes in autonomic activity and motor responses. *Emotion*, then, refers to the subjective experience of fear

and can include the visceral response associated with the *affective* state of fear.[4]

While the amygdala is involved in affective states ranging from sex (Remillard et al., 1983) to sadness (Grodd et al., 1995), one should not view the amygdaloid nuclei as the affective module of the brain. Different affective states appear to be mediated by distinct neural circuits (e.g., George et al., 1995).

Although there is not sufficient neurobiological evidence to describe affective states other than fear in this fashion, we maintain this distinction between affect and emotion in relation to states other than fear. In line with the use of affect in the state of fear, we limit its usage to observable components of the bodily state that may or may not be reflective of the internal emotional state. The degree to which affect is manifested as self-reported, experiential emotion depends on the degree to which awareness is activated. Relegating the term *emotion* to the conscious realm is, moreover consistent with the origin of the word. The prefix *e-* is a derivative of *to be*, referring to an awareness of the self (Marcus, 1991).

In operationalizing our definition of cognition, we narrow it from general mental computation or general information processing to objective transformations of perceptual input. Cognition involves identification and categorization of the stimulus, recognizing its semantic meaning, and relating it to other environmental stimuli. Also included in cognitive processing is relating the stimulus to previously acquired information stored in memory. Such processing does not necessarily have to activate conscious awareness (Kihlstrom, 1987; Weiskrantz, 1986). Thus, cognition relates the stimulus to the world and other exteroceptive stimuli, affect relates the stimulus to oneself. Cognition is affiliated with the realm of reason and language, affect with the realm of passion and feeling. Cognition determines what a stimulus means, affect determines what a stimulus means *to me*.

[4]Consistent with this distinction, the bilateral amygdala patient described previously had impaired psychophysiological responses to fearful stimuli, yet could use the concept fear accurately and describe the situations and bodily responses associated with it. In sorting cards with emotion related words, she even created an appropriate fear category with words like *afraid, terrified,* and *scared* (Adolphs, Tranel, Damasio, and Damasio, 1995). Therefore she had impaired affective capabilities, but intact emotional experience (though her emotional experience lacked affective coloring, or "punch"). This example raises the question of whether an amygdala patient might have cognitive fear, but not emotion and not affect. Is emotion (once conscious) a different type of cortical processing than cognition? This may be a psychological issue, not a neuroscientific one, because emotion that is conscious need not reflect cognitive processing. Is all conscious processing cognitive? Or does cognitive processing refer to different types of neural connections (a different array of neural circuitry) in different brain locations? Only future research bridging neuroscience and social psychology will give us an answer.

It follows that political attitude is a joint cognitive and affective construct. With respect to this research, partisanship exerts a cognitive influence on attitude toward a leader and responses to facial expressions exert an affective influence upon attitude.

This definition of critical terms makes possible a clearer discussion of the question raised by Lanzetta: Can affect influence cognitive processing of political leaders? While much social psychological research has focused on the role of mood and emotion in attitude change (Breckler, 1994), we prefer to address this question with neurological evidence because it reveals a paradoxical interaction between cognition and affect. Determining if affect can modulate the output of cognitive processing necessarily requires an understanding of the sequential order of these processes. Unfortunately, the functional role and sequential activity of the pathways connecting the cognitive and affective processing systems are only partially known. Neurological disorders mentioned previously do, however, provide a foundation from which to build a theory. From this evidence, it is clear that affect and cognition are initially mediated by two separate brain systems.

The dissociation between affect and cognition can be demonstrated by cases pertinent to the research question addressed here—processing of affective facial displays and processing facial identity. Prosopagnosics, patients who have suffered brain damage (usually involving the right occipital-temporal cortex), lose the ability to recognize or identify faces. In spite of retaining normal visual abilities and the capability to name the gender, age, or emotional expression of a face, prosopagnosics simply cannot identify any faces, whether it be their own mirror image, a close friend's face, or even the President's face (Tranel, Damasio, & Damasio, 1988).[5] While such patients are unable to perform a cognitive task such as facial identification and recognition, they do respond emotionally to the stimuli. Not only do they react to the emotional expression of the face, but their autonomic responses can differentiate between familiar and unfamiliar faces (Bauer, 1984; Tranel & Damasio, 1985).

An inverse impairment has also been identified in which patients are capable of identifying faces, but lack the ability to identify and respond to facial expressions (Hornak, Rolls, & Wade, 1996; Kurucz, Feldmar, & Werner, 1979). The recognition deficit does not involve cognitive processing regions as does prosopagnosia, but rather those involved in social and af-

[5]It should be noted that there are varying degrees of dysfunction. Some patients lose just the ability to recognize famous faces, but retain the ability to recognize the faces of personal acquaintances (Bruyer, Rectem, & Dupuis, 1986). Even more surprising is a double dissociation between two prosopagnosic farmers (Perrett, Mistlin, & Chitty, 1987). One could recognize his friends' faces, but not his cows' (Assal, Favre, & Anderes, 1984) and the other could recognize his cows' faces, but not his friends' (Bruyer et al., 1983)! Another farmer could recognize his sheep, but not human face stimuli (McNeil & Warrington, 1993).

fective processes (orbitofrontal cortex and amygdala; Kling, 1986, 1987; Raleigh & Steklis, 1981). For example, a woman with a partial bilateral amygdalotomy had extreme difficulty identifying affective facial expressions in spite of having no difficulty in recognizing faces in disguise or in poor lighting (Young, Hellawell, Van de Wal, & Johnson, 1996). This dissociation carried over to her ability to imagine facial expressions as well.

A similar patient discussed earlier had recognition difficulties limited to fearful facial expressions. While able to draw faces depicting other affective displays, she could not draw a face depicting fear, indicating the amygdala is important in generating the concept fear and possibly other emotions (Adolphs, Tranel, Damasio, & Damasio, 1994).

While lesion studies provide graphic evidence of distinct processing systems, there is additional human neurophysiological evidence consistent with these conclusions. Studies of regional cerebral blood flow (PET) reveal this distinction between regions for facial processing, facial recognition, and facial emotion (George et al., 1993). Recording studies of neural electrical activity reveal (as did the lesions studies) that neurons responsive to faces are in very different positions from those responsive to facial expressions (Allison, McCarthy, Nobre, Puce, & Belger, 1994; Ojemann, Ojemann, & Lettich, 1992). An individual can be rendered temporarily prosopagnosic by disrupting neural activity in the facial recognition areas (fusiform and inferior temporal gyri) (Allison, Ginter, et al., 1994). Likewise, stimulating the regions involved in labeling a facial expression (middle temporal gyrus) can cause a patient to mislabel the affective expression of faces. The errors are reversible, since normal performance resumes after the electrical stimulation ceases. General affective state and ability to process faces was not altered by the stimulation (Fried, Mateer, Ojemann, Wohns, & Fedio, 1982).

The separation between cognitive and affective processing indicates that the two systems initially operate in parallel, rather than in a hierarchical, step-by-step fashion. If stimulus information were processed sequentially, progressing from one module and then to another, damage to one system (e.g., facial recognition) would lead to impaired function in the other system as well (e.g., affective response). Yet, the double dissociation between processing facial affect and facial identity indicates that these analyses are conducted separately. Though receiving similar input, the affective and cognitive systems simultaneously perform different operations.

Therefore humans can evaluate the personal significance of a facial expression (an affective computation), without knowing who the person is. As paradoxical as this sounds, some split-brain patients exhibit an affective response without objective understanding of the stimulus (Gazzaniga & LeDoux, 1978). If these interpretations apply to normal brain functioning, they suggest, as proposed by Lanzetta, that affective or mood states can

alter the computations performed by the cognitive processing system. To explore how affect might influence the cognitive output accessible to conscious awareness, we return to the political leaders paradigm. If our view of separate, but closely integrated systems is correct, affect should be able to influence attitude change, even in the realm of politics where attitudes are often assumed to reflect reasoned issue stances and opinions.

AFFECTIVE STATES AND COGNITION: PRELIMINARY EXPERIMENTAL EVIDENCE

In models of voting behavior, emotion is usually viewed as the end result of cognitive appraisal (Lodge & Stroh, 1993; Rahn, Aldrich, Borgida, & Sullivan, 1990). In such a perspective, the cognitive system completely processes stimulus information before sending it to the emotional system to receive an affective tag. If the neuropsychological theory outlined in the last section is correct, voting models may only offer a partial picture of attitude adjustment. Since Lanzetta suspected that affective states might alter political attitudes, it is fitting to use this occasion to present data from exploratory studies examining an issue which Lanzetta had hoped to study.

There is evidence of affective involvement in political attitude changes in several social psychological mood-induction studies. In one study, subjects recalled pleasant or unpleasant life experiences and then evaluated a hypothetical candidate's voting record. A positive mood led to more favorable ratings of the leader across all subjects, including those with contrary issue stances (Ottati & Wyer, 1993). In another study, viewers exiting a theater showing a happy film rated the local government, the national government, and both party's leaders more favorably than those exiting sad or aggressive films (Forgas & Moylan, 1987). Using a guided-imagery mood-induction technique (Wright & Mischel, 1982), we found in a pilot study that an anxious mood led Republicans to have more negative emotional responses to viewing a happy/reassuring excerpt of President Clinton than their counterparts in the positive condition [analysis of variance (ANOVA) for Partisanship × Mood interaction: $F(2, 21) = 5.48, p < .05$]; mood induction had little effect upon the emotional responses of Democrats (Way, 1994). As one would expect, mood appeared to have valence consistent effects upon attitude change.

Such an influence of mood upon attitude formation is consistent with the hypothesis advocated here, but laboratory mood-induction techniques often require the conscious involvement of the subject, potentially leading to demand characteristics (but see Isen, 1984, 1987, for discussions of mood-induction techniques that avoid this problem). This problem is accentuated

when studying responses to more than one leader, because a mood must be "re"-induced after each excerpt. Also, affective states of which one is not conscious might have different interactions with cognition than moods of which one is aware. Since one of the key aims of this research project is to distinguish between the effects of emotional states that are mediated by—and perhaps entirely due to—our conscious awareness of a feeling or disposition, and the hypothesized influence of an affective state in the absence of any conscious mediation, a different technique is needed.

While there are a variety of ways to elicit affect and moods in the laboratory, each with its own strengths and weaknesses (Gross & Levenson, 1995; Morris, 1989; Philippot, 1993), we chose to insert subliminal affect-laden images prior to the leaders' excerpts. Prior work has indicated that pictures of snakes and spiders are potent fear-producing stimuli, regardless of whether the stimulus exposure is below or above the threshold of awareness (Soares & Öhman, 1993). In addition, affects produced by similar preconscious stimuli can influence attitudes and evaluative ratings of objects (Krosnick, Betz, Jussim, & Lynn, 1992; Murphy & Zajonc, 1993; Underwood, 1995). Since such stimuli do not activate conscious awareness, any changes in attitude cannot be attributable to a process of emotional dissonance.

STUDY 1

Methodology

Both the positive and negative emotionally arousing images were drawn from the International Affective Picture System (IAPS), an archive consisting of 240 slides that have been widely validated in studies using both psychophysiological measures and self-report measures (Lang, Öhman, & Vaitl, 1988). These were supplemented by slides from the subliminal attitude conditioning experiment of Krosnick et al. (1992). To elicit an anxious emotional state, slides of prepared, fear-relevant stimuli such as snakes and skulls were chosen to build upon Öhman and colleagues' findings that evolutionarily relevant, prepared stimuli elicit potent emotional responses even when presented preconsciously. While little research has been directed towards determining stimuli to which humans are prepared to respond to with positive affect, slides of babies and picturesque landscapes were chosen as likely images for eliciting such a response.

Since the excerpts of the political leaders were on videotape, it was desirable to use a videotape presentation of the preattentive images. A backward masking technique was used (Marcel, 1983) so that the preattentive images were presented for one frame of video (1/30 s) immediately prior to the onset of the politicians' excerpt (2 s). Based on prior research

(Esteves & Öhman, 1993; Ladavas, Cimatti, Pesce, & Tuozzi, 1993; Öhman, Dimberg, & Esteves, 1989), a stimulus onset asynchrony of 33 ms was presumed to be sufficient to ensure that the preattentive image was presented below the subjective perceptual threshold of most participants (Cheesman & Merikle, 1986). Two seconds prior to each excerpts a network logo was shown for 1 s to cue the subject that the excerpt would begin in the following second. The excerpts were limited to exactly 2 s in length to replicate previous studies of subliminal images and person perception (Krosnick et al., 1992) and to ensure that the emotional arousal elicited by the excerpt did not overpower the response to the preattentive image.

Target Stimuli—Excerpts of Leaders' Facial Displays. In the first pilot study, each subject group viewed excerpts of four Democratic leaders selected from an archive of newscasts, interviews, and debates assembled for Lanzetta's earlier studies of the political effects of facial displays. The leaders selected were all from the same party to avoid heightening interaction effects between partisanship and emotional response (compare McHugo et al., 1985, with McHugo et al., 1991). For each leader, excerpts with unevocative, neutral nonverbal behavior were shown without the sound, because adding the corresponding verbal information can dampen emotional response (Lanzetta et al., 1985). The excerpts were not pretested for equivalence or arranged in any a priori order.

Procedure. Upon entering the room, subjects were given a questionnaire and consent form stating that they were participating in a study "about their first impressions to network coverage of political leaders." To avoid demand effects, the consent form did not explicitly mention the presence of the preattentive images. However, it did state, "As is sometimes the case with television, there may be some features in the videotapes of which you will not be fully aware." After signing the consent form, subjects responded to a pretest questionnaire asking them to rate their attitude to President Clinton on an analog "feeling thermometer" (0 to 100) similar to the type used in National Election Studies; to indicate their party identification on a bipolar scale running from 0, corresponding with *strong Democrat*, to 6, corresponding with *strong Republican*; and to record their mood state on the Positive Affect Negative Affect Schedule (Watson, Clark, & Tellegen, 1988).

After each excerpt, subjects recorded their description of the leader's behavior (i.e., how he looked to them) on four unipolar scales (0 to 6) anchored by the following adjective triads: *strong, determined, confident*; *angry, threatening, aggressive*; *joyful, happy, amused*; and *fearful, worried, anxious*. Subjects then registered self-reports of the intensity of their emotional responses during the excerpt (i.e., how seeing the leader made them feel) on four similar unipolar, psychophysiologically validated scales (McHugo

et al., 1985): Joyful, Happy, Amused; Angry, Scornful, Irritated; Fearful, Worried, Anxious; and Comforted, Reassured, Supportive.

Subjects viewed 20 total excerpts, five consecutive excerpts of Ernest Hollings, Reuben Askew, Bill Clinton, and Walter Mondale, respectively. For each block of five excerpts, a different preconscious image of consistent valence was paired with each excerpt without controlling for order effects. Although the intended design was a between-subjects comparison of the influence of preconscious images upon perception, emotional response, and attitude, technical problems prevented data collection from one group. Hence, subjects viewed Clinton and Askew excerpts with negative preconscious images and Hollings and Mondale excerpts with positive preconscious images. At the conclusion of each block, subjects rated their attitudes toward each leader, leadership assessment, and issue agreement with him. Subjects were given a thorough debriefing explaining the nature of preattentive images and the reasons for not explicitly mentioning the presence of the images at the outset of the experiment.

Subjects. Forty-four undergraduates enrolled in an introductory Government class received $5 each for their participation in the study. The subjects were run as a group in their classroom with 20 in the treatment group with Clinton excerpts and 24 in the other.

Results

Due to technical difficulties, one treatment group only viewed the first five excerpts of Ernest Hollings. For these excerpts, comparison of the perceptions and emotional responses revealed no significant differences between the group viewing negative preattentive images and the group viewing positive preattentive images. Responses to the remaining leaders, except President Clinton, did not show any significant effects of the preattentive image.

In contrast to the lesser status leaders, both perceptions of President Clinton and emotional responses to him became increasingly negative over the course of viewing the five excerpts preceded by anxiety eliciting preconscious images (Fig. 1); both the overall trends toward more negative descriptions of the neutral excerpts [$t(20) = 8.38, p < .05$], and toward more negative feelings reported while watching them [$t(20) = 5.09, p < .05$] were significant.

In spite of these increasingly negative perceptions and emotional responses, attitudes toward Clinton became more *favorable*. This counterintuitive effect was significant as measured by a two tailed t-test [$t(20) = -2.08$; $p = .05$]. The increases in Clinton's approval ratings were due to Republicans and Independents rather than Democrats (Table I), though only for the Republicans did the change approach significance [two-tailed: $t(9) = -2.19$; $p = .057$]. A simple regression model indicated that party

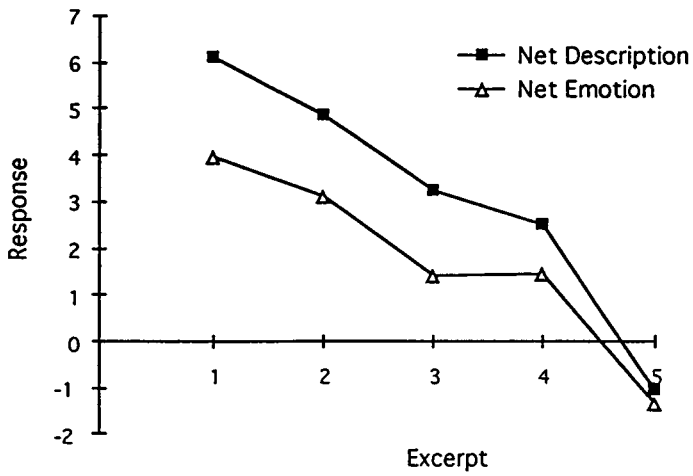

Fig. 1. Perceptions of and self-reported emotional responses to President Clinton after negative preconscious images. The variable *Net Description* is composed by algebraically combining responses for positive scales (Strong and Joyful) minus negative ones (Angry and Fearful). The variable measuring overall emotional response (*Net Emotion*) is composed in a similar manner combining Joyful and Comforted minus the combination of Angry and Fearful. Since each scale is rated from 0 to 6, the composite or net measures could range from +12 to -12.

identification declined as a predictor of thermometer (attitude) ratings of Clinton (for pretest attitudes, $r^2 = .42$, $F = 12.86$; for posttest attitudes, $r^2 = .28$, $F = 7.02$).

Discussion

In this pilot study, viewing neutral excerpts of President Clinton paired with preattentive anxiety-arousing images significantly decreased subjects' net warmth of emotion, leading Republicans' attitudes to become more

Table I. Average Pretest and Posttest Thermometer Ratings[a] of President Clinton by Viewer's Party Identification (Pilot Test) When Viewing Was Preceded by Negative Preconscious Images

		Pretest		Posttest	
Party identification	*n*	*M*	*SD*	*M*	*SD*
Democrats	7	69.29	(9.64)	68.14	(11.19)
Republicans	10	33.8	(22.1)	44.6	(24.5)

[a]Thermometer scale runs from 0 to 100.

favorable to President Clinton. Therefore, it appears that preconscious, affective images can influence episodic emotional responses and precipitate changes in a well-established attitude. The direction of Republicans' attitude change contrasts with a mood-concordance effect predicted by cognitive appraisal (Lodge & Stroh, 1993; Rahn et al., 1990) or mood-as-information models (Schwarz & Clore, 1983). For the next study, therefore, methodological improvements were made to better evaluate the interaction of affect and attitude as well as the interaction between induced affect and responses to leader's expressive displays. Most specifically, it was necessary to contrast the effects of both positive and negative affective images to a control condition without preattentive cues.

STUDY 2

Methodology

Design. A mixed-model design using both between- and within-subjects comparisons was chosen. Blocks of five consecutive excerpts of Gary Hart, Bill Clinton, and George Bush, respectively, were shown, keeping the type of expressive display (angry/threatening or neutral) and preconscious image valence (positive, negative, or no image) consistent within each block. Because these between-subject comparisons necessitated six treatment groups, a completely counterbalanced design was sacrificed. In other words, the design did not control for possible order effects resulting from pairing a specific preconscious image with a specific excerpt. For individual trials (i.e., not the entire block of five trials) in each treatment group, there were four within-subject tests for the effects of the preattentive cue and stimulus order (one for Gary Hart and George Bush and two for Bill Clinton).

Awareness Check. To determine if the presentation of the preattentive image was indeed below the threshold for conscious detection, a forced-choice test of awareness was added at the conclusion of the experiment (Cheesman & Merikle, 1986). The first phase of the test asked these subjects to view four more excerpts (two preceded by a preattentive image and two without such an image) and to indicate whether or not they saw an image or even a flash. For the next portion of the task, subjects were informed that an image would be presented prior to each excerpt and the goal was to classify the image correctly. Four presentations consisted of an animal/human distinction and two consisted of a gender discrimination (male vs. female stimuli). For the final three excerpts, subjects needed to identify the appropriate facial expression of an individual posing a happy, a neutral, and an angry emotional expression.

Table II. Change in Thermometer Ratings (Original Scale Range: 0 to 100) of President Clinton, from Beginning to End of Study

	Preconscious image		
Party identification	Positive images	Negative images	No images
Democrats	8.09 (11)	-0.81 (16)	-4.38 (8)
Republicans	1.43 (7)	11.42 (12)	1.00 (4)

[a]*n* listed in parenthesis. Main effect for image valence and partisanship not significant. Interaction effect, $p < .05$.

Procedural Changes. The descriptive and emotional response scales were shifted from a 0 to 6 format to the analog style (100-mm line) used for the attitude, leadership, and issue agreement measures. In addition, subjects were given a more thorough debriefing and demonstration of the principles underlying backward masking.

Subjects. Thirty-six students enrolled in an introductory-level government class participated in the study as well as 40 introductory psychology students, who received extra credit for their participation. The latter group of subjects were run individually to control for possible mood convection (Lorenz, 1931-1963/1970-1971) and to allow the administration of an awareness check.

Preliminary Results

Because analysis of the data has just begun on this partial sample, we limit this discussion to the role of affective images in attitude changes and episodic emotional responses to neutral excerpts of President Clinton. In the three treatment groups who viewed five neutral excerpts of President Clinton preceded by either positive, negative, or no preconscious images, attitude changes were similar to those in the pilot study. For both thermometer scores immediately after watching the five Clinton excerpts and at the end of the study, a Treatment × Partisanship two-way ANOVA revealed an interaction effect for attitude change, but no main effect (Table II). Both immediately after watching the neutral images of Clinton and at the end of the experiment, Republicans viewing negative preconscious images had more favorable attitudes than Republican subjects in the control or positive preconscious image conditions. Democrats viewing positive images become more supportive of Clinton, whereas this did not occur for Republicans. There were no clear trends in the responses of Independents.

For those who viewed negative preconscious images, the influence of partisanship on attitude declined after viewing excerpts of Clinton. Using

a step-wise regression, the r^2 value declined as did the standard coefficient. At beginning of experiment: $r^2 = .49, p = .00001$, standardized coefficient = –.7. After viewing excerpts: $r^2 = .34, p = .0003$, standardized coefficient = –.58. Although statistical reliability was limited due to sample size, the direction of these effects was the opposite of that predicted by conventional theories of information processing.

The effects of the preconscious affective images on perceptions and episodic emotional response to President Clinton is less clear than in the pilot study. Over the bloc of five excerpts, there was no clear trend in any treatment condition, indicating that the effect of the preconscious images does not require a linear decline in perceptions or emotional responses. The same was found for responses to other expressive displays. To permit within subject evaluation of the preconscious images, two excerpts of Clinton were repeated at the end of the experiment preceded by either the opposite valence preconscious image or no image. While all of the mean responses moved in the hypothesized valence-consistent direction, no change was significant as measured by a two tailed *t*-test.

In the debriefing, three of 44 subjects run individually suspected the presence of preconscious images and in the group conditions once informed of the presence of the images, seven of 35 subjects reported seeing "something," but only two were able to identify specific images. According to the awareness check, once subjects were notified of the presence of the preconscious images, 85% were able to determine if one was presented or not ($n = 38$). However, in the gender discrimination, $t(38) = -.72, p = .47$, and animal/human discrimination tasks, $t(38) = .78, p = .44$, subjects performed no better than chance. The same held true for recognition of angry and neutral faces. Interestingly, recognition of the happy facial expression (69%) was significantly better than chance, $t(38) = 3.72; p = .0007$. Rapid recognition of happy facial expressions is consistent with similar research performed by Esteves & Öhman (1993) as well as other studies of recognition thresholds for the Ekman and Friesen (1976) faces (Kirouac & Doré, 1983, 1984). These findings contrast with hypotheses of an attention bias for threatening information (Hansen & Hansen, 1994; Pratto & John, 1991).

Discussion

As in the pilot experiment, Republicans acquired a more favorable attitude toward President Clinton after viewing excerpts preceded by *negative* preconscious images. In contrast, Democrats became more favorable when viewing these same excerpts preceded by *positive* images. According to results from the forced-choice test of awareness, conscious pressures for cognitive or affective consistency were not mediating the changes in atti-

tude. Based on this preliminary data, it appears that nonconscious affect can influence a largely cognitive variable like Presidential attitude.

The valence-consistent attitude change among Democrats was consistent with a classical conditioning theory of attitude change (Krosnick et al., 1992; Staats & Staats, 1958), the mood-as-information theory (Schwarz & Clore, 1983), the peripheral route of persuasion in the elaboration likelihood model (Petty, Gleicher, & Baker, 1991), theories of heuristic processing strategies (Chaiken, Liberman, & Eagly, 1989; Forgas, 19950, mood-congruent recall (Bower, 1981), and priming (Meyer & Schvaneveldt, 1971). However, none of these theories can account for the direction of attitude change among the Republican subjects. Traditionally, negative affective states lead to less favorable attitudes (McGuire, 1985).

Explanations for how negative feelings might lead to more positive ratings of a stimulus are provided by theories of motivated processing (Forgas, 1995), controlled processing (Clark & Isen, 1982), mood self-regulation (Manucia, Baumann, & Cialdini, 1984; Morris & Reilly, 1987), dissonance (Festinger, 1957; Losch & Cacioppo, 199), adaptation level (Helson, 1964), or context effects (Carroll & Russell, 1996; Manstead, Wagner, & MacDonald, 1983). Yet few can account for the specific effect seen here—anxious Republicans, but not Democrats, becoming more favorable to the President (but see, Isen, 1987, 1990, 1993, for an example of a model that allows for a more context-sensitive interaction between cognition and affect of the sort observed here).

While the lack of social psychological theoretical support and the methodological weaknesses of this research might lead one to discount the findings, the increase in Presidential support from an anxious state is in accordance with the political phenomenon called the "rally-round-the-flag" effect. In the face of international threats or even some domestic crises, Presidential approval ratings often surge; hence the term rally. In the 3 days following the Oklahoma City bombing, for example, public anxiety fueled an 11-point increase in President Clinton's approval rating in the Gallup Poll (47% approval on Friday, 51% on Saturday, and 58% on Sunday). The diffuse anxiety prior to and during the Gulf War boosted Bush's approval rating toward 90%. Similar surges occur even when the President's own actions are judged a failure by a substantial portion of the public, as was the case with the bombing of Pearl Harbor, the downing of KAL flight 007, or the ill-fated attempt to rescue the American hostages in Iran. Following the disastrous Bay of Pigs invasion, this phenomenon led President Kennedy to say: "The worse I do, the more popular I get" (Schlesinger, 1965, p. 292).

To account for both the rally effect exhibited in public opinion polls and our own experimental results, we again turn to theories of brain func-

tion. Just as cognition and affect originate from dissociable brain systems, so too negative and positive affect, and possibly discrete emotions, are mediated by separate brain systems. To cite one example, there is asymmetrical involvement of the hemispheres in positive and negative affect (Davidson & Hugdahl, 1995). As an aside, it is interesting to note that electroencephalogram (Davidson, 1992), lesion (Robinson, Kubso, Starr, Rao, & Price, 1984), and now positron emission tomographic (Drevets & Raichle, 1994) studies have implicated the left frontal region (the dorsolateral prefrontal cortex) in depression. This same region is also involved in cognitive tasks such as working memory and verbal fluency (Cummings, 1993), suggesting it may play an integrative or executive function for the two branches of processing, affect and cognition.

Arising from different brain systems, positive and negative affect should have different influences upon attitude and cognition. One neuroethological theory of anxiety postulates that perception of threat or novelty causes an organism to halt its current behavior and focus attention on the surrounding environment (Gray, 1987). For example, if you are hiking through a forest and encounter a grizzly bear, you are likely to halt your current behavior and train of thought so that you can redirect your attention to the immediate environment and search for alternative actions. This theory has been extended to political behavior by Marcus and MacKuen (1993). Using public opinion polls, they found that anxious feelings led voters to suspend usual partisan behaviors and to reassess their attitudes based on cues in the immediate environment. In an environment of diffuse, undirected anxiety, as is the case during international crises, voters give greater support to their leaders. As in nonhuman primates (Chance, 1976), external threat and diffuse anxiety focus attention on the most powerful or dominant individual for leadership. The increase in positive attitude in our study could then be attributable to Clinton's dominant status as President, with Republicans responding to him as the national leader rather than a partisan rival.

Our data indicate that the negative affect among Republican subjects inhibited partisan influence upon attitude. This affective restraint upon cognitive influence activated a reassessment of the environment, releasing the human tendency to support the group's established leader in times of perceived trial. The rally-round-the-flag effect thus reflects the unique quality of affect, responding more adaptively to changing environmental contingencies than a reflex, and yet partially free of pressures for cognitive consistency.

While the study appears to have external validity as a model of a neglected but important political phenomenon, better control over the preconscious images, excerpts, and especially the dependent measures is needed before claiming that we are seeing a laboratory version of the rally-round-the-flag phenomenon. Lanzetta used both self-report and psycho-

physiological dependent measures, the latter of which should be the next step in validating this paradigm. As measures of central nervous system function improve, these will also offer insight into the interaction between partisanship and affect.

CONCLUSIONS AND A LOOK TO THE FUTURE

Our most recent findings confirm John Lanzetta's insights and represent a step toward fulfilling the research agenda he envisaged. The interaction between affect and cognition underscores the reasons for Lanzetta's interest in integrating the study of political leaders, nonverbal displays, and emotion. As elaborated at the outset, attitudes to political leaders are ecologically valid and already well developed when the subject begins the experiment. Our recent work and prior collaborations with Lanzetta demonstrate that even attitudes to the President can be altered by subtle affective pressures.

Lanzetta also noted that emotion is not just a reflex, but a contextually appropriate response (Lanzetta & Englis, 1989). The rally effect is context dependent in several ways. First, it can only occur for a high-status, dominant figure in a noncompetitive situation. Second, the anxious feelings should be diffuse and not directly elicited by the President. For example, if the President makes a slip of the tongue in the midst of an election year debate, a negative impact upon attitude would be expected. Third, the voter's awareness of his or her mood might trigger pressures for cognitive consistency and hence protect against affective persuasion.

As demonstrated by the rally effect, negative feelings can lead to more positive assessments, which indicates that affect can influence attitude through routes other than the usual path of cognitive appraisal. Drawing from neuropsychological data, we propose a dual interaction and influence between affective and cognitive appraisal. Based on these findings, we propose in Table III a model for how cognition, affect, political figures, and context might interact. Campaign techniques intended to elicit positive affect, whether they be speeches infused with hope and optimism or photos of politicians kissing babies, generally lead to greater support. Less straightforward are attitude changes in the presence of negative affect. As indicated in Table III, the direction of attitude change can depend on the degree of awareness of the affective state and corresponding pressure for cognitive consistency, the context, and the degree to which the affect is associated with the leader. Thus, the rally-round-the-flag effect we have described represents an instance in which preattentively elicited negative affect will, somewhat paradoxically, result in increased support for the leader.

Table III. Four Types of Political Information Processing: Mood Induction, Emotion, and Prior Opinion as Factors in Attitude Change

	Diffuse mood induction: Preattentive or subliminal cues	Conscious mood induction: Verbal rhetoric
	Positive (hedonic) mood	
Methods:	Diffuse hedonic cues	Positive rhetoric Take credit for positive outcome Make fun of enemies
Examples:	Brass bands Display symbols	Patriotic or nationalist appeals Evoke shared symbols and goals
Attitude effects:	Increase support (mood congruent)	Increase support (mood congruent)
	Reinforce leader's supporters Attract neutrals Weaken leader's critics	Reinforce leader's supporters Attract neutrals Weaken leader's critics
	Negative (agonic) mood	
Methods:	Diffuse fear and anger	Negative rhetoric Attribute fault for negative outcome Attack enemies Stereotype scapegoats
Examples:	Rally round the flag	Negative campaign ads
Attitude Effects:	Increase support (mood discordant)	Decrease support (mood congruent)
	Reinforce leader's supporters Attract neutrals Weaken leader's critics	Weaken leader's supporters Repel neutrals Strengthen leader's critics

Because the study of political attitudes can benefit social psychology while experimental designs can be profitable for political science, we envision greater interaction between the two fields. It is puzzling that as campaign strategists increasingly turn to experimental groups to test market their advertising campaigns, political scientists still largely shy away from using experimental designs, instead relying on public opinion data. While opinion polling uncovered the rally effect, only through experimental manipulations will the underlying mechanisms become understood.

This paradigm also points to the need for greater investigation of individual differences in affective style (Davidson, 1992). For example, do primary psychopaths more readily associate an aversive outcome with an angry face than a happy face as normal subjects do? The weakness or absence of affective processes in such individuals (Hare, 1993) points to the significant role of emotion in regulating normal social behavior (see also Damasio, 1994). If so, would individuals of this personality type exhibit a rally-round-the-flag effect?

Recent brain imaging studies of mood induction (George et al., 1995; Grodd et al., 1995; Irwin et al., 1996; Pardo, Pardo, & Raichle, 1993) are indicative of an emerging cross-pollination between social psychology and neuroscience. Although some fear such an interaction will lead to reductionism, we feel such fears seem to be founded on an inadequate understanding of neural phenomena. The brain is a chaotic, or nonlinear dynamic system, meaning that the behavior of the entire system cannot be deduced from understanding the individual components (Freeman, 1995). One cannot gain a full impression of an orchestral piece when only listening to the xylophonist. Furthermore, with the Human Genome Project progressing, the mutual interaction between genes and environment is beginning to be appreciated. For example in animals, social activity can alter genetic expression (Fernald, 1995)—nurture influencing nature. Contrary to fears of reductionism, we believe the disciplinary crossover between social psychology and neuroscience will be a fruitful one. Neuroscientists can benefit from the well-developed methodology and research of social psychology. Likewise, social psychologists can benefit from neuroscientific techniques such as functional magnetic resonance imaging that offer a window on the mind, enabling processes not accessible to conscious awareness, like those studied here, to be investigated more thoroughly.

As the investigation of complex social behavior becomes focused upon the brain and the formulation of theories of social behavior are derived from evolutionary biology, our knowledge will become both more complex and more precise. In so doing, the next generation of research on the interaction of affect and cognition is likely to reinforce and deepen the fascinating approaches to which John Lanzetta was such an important pioneer.

REFERENCES

Adolphs, R., Tranel, D., Damasio, H., & Damasio, A. (1994). Impaired recognition of emotion in facial expressions following bilateral damage to the human amygdala. *Nature, 372,* 669-672.

Adolphs, R., Tranel, D., Damasio, H., & Damasio, A. R. (1995). Fear and the human amygdala. *The Journal of Neuroscience, 15,* 5879-5891.

Allison, T., Ginter, H., McCarthy, G., Nobre, A. C., Puce, A., Luby, M., & Spencer, D. D. (1994). Face recognition in human extrastriate cortex. *Journal of Neurophysiology, 71,* 821-825.

Allison, T., McCarthy, G., Nobre, A., Puce, A., & Belger, A. (1994). Human extrastriate visual cortex and the perception of faces, words, numbers, and colors. *Cerebral Cortex, 4,* 544-554.

Assal, G., Favre, C., & Anderes, J. P. (1984). Nonrecognition of familiar animals by a farmer. Zooagnosia or prosopagnosia for animals. *Revue Neurologique (Paris), 140,* 580-584.

Bauer, R. M. (1984). Autonomic recognition of names and faces in prosopagnosia: A neuropsychological application of the Guilty Knowledge Test. *Neuropsychologia, 22,* 457-469.

Bechara, A., Tranel, D., Damasio, H., Adolphs, R., Rockland, C., & Damasio, A. R. (1995). Double dissociation of conditioning and declarative knowledge relative to the amygdala and hippocampus in humans. *Science, 269*, 1115-1118.

Bente, G., Frey, S., & Treeck, J. (1989). Taktgeber der Informationsverarbeitung. *Medien Psychologie, Heft, 2*, 137-160.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129-148.

Breckler, S. J. (1994). Emotion and attitude change. In M. Lewis & J. M. Haviland (Eds.), *Handbook of Emotions*. New York. Guilford Press.

Bruyer, R., Laterre, C., Seron, X., Feyereisen, P., Strypstein, E., Pierrard, E., & Rectem, D. (1983). A case of prosopagnosia with some preserved covert remembrance of familiar faces. *Brain and Cognition, 2*, 257-284.

Bruyer, R., Rectem, D., & Dupuis, M. (1986). Various kinds of face familiarity and a short report on a case of prosopagnosia. *Psychologica Belgica, 26*, 221-225.

Cahill, L., Haier, R. J., Fallon, J., Wu, J., & McGaugh, J. L. (1996, March). *Amygdala activity in humans correlated with emotional, but not non-emotional memory.* Abstract presented at the Third Annual Meeting of the Cognitive Neuroscience Society, San Francisco.

Carroll, J. M., & Russell, J. A. (1996). Do facial expressions signal specific emotions? Judging emotion from the face in context. *The Journal of Personality and Social Psychology, 70*, 205-218.

Clark, M. S., & Isen, A. M. (1982). Toward understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73-108). New York: Elsevier.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212-252). New York: Guilford Press.

Chance, M. R. A. (1976). Attention structures as the basis of primate rank orders. In M. R. A. Chance & R. R. Larson (Eds.), *The Social Structure of Attention.* New York: John Wiley.

Cheesman, J., & Merikle, P. M. (1986). Distinguishing conscious from unconscious perceptual processes. *Canadian Journal of Psychology, 40*, 343-367.

Cummings, J. L. (1993). Frontal-Subcortical circuits and human behavior. *Archives of Neurology, 50*, 873-880.

Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain.* New York: G. P. Putnam's Sons.

Davidson, R. J. (1992). Emotion and affective style: Hemispheric substrates. *Psychological Science, 3*, 39-43.

Davidson, R. J., & K. Hugdahl (Eds.). (1995). *Brain asymmetry.* Cambridge, MA: MIT Press.

Davis, M. (1992). The role of the amygdala in conditioned fear. In J. P. Aggleton (Ed.), *The amygdala: Neurobiological aspects of emotion, memory, and mental dysfunction* (pp. 255-305). New York: Wiley-Liss.

de Waal, F. (1982). *Chimpanzee politics.* London: Jonathan Cape.

Dimberg, U., & Öhman, A. (1996). Behold the wrath: Psychophysiological responses to facial stimuli. *Motivation and Emotion, 20*, 149-182.

Drevets, W. C., & Raichle, M. E. (1994). Positron emission tomographic imaging studies of human emotional disorders. In M. S. Gazzaniga (Ed.), *The cognitive neurosciences* (pp. 1153-1164). Cambridge, MA: MIT Press.

Eibl-Eibesfeldt, I. (1989). *Human ethology.* New York: Aldine-de Gruyter.

Ekman, P., & Davidson, R. J. (Eds.). *The nature of emotion: Fundamental questions.* New York: Oxford University Press.

Ekman, P., & Friesen, W. V. (1969). The repertoire of nonverbal behavior: Categories, origins, usage and coding. *Semiotica, 1*, 49-98.

Ekman, P., & Friesen, W. V. (1976). *Pictures of facial affect.* Palo Alto, CA: Consulting Psychologists Press.

Ekman, P., & Oster, H. (1979). Facial expressions of emotion. *Annual Review of Psychology, 30*, 527-554.

Englis, B. G., Vaughan, K. B., & Lanzetta, J. T. (1981). Conditioning of counterempathetic emotional responses. *Journal of Experimental Social Psychology, 18*, 375-391.

Esteves, F., & Öhman, A. (1993). Masking the face: Recognition of emotional facial expressions as a function of the parameters of backward masking. *Scandinavian Journal of Psychology, 34*, 1-18.

Fanardjian, V. V. G., & Manvelyan, L. R. (1987). Mechanisms regulating the activity of facial nucleus mononeurons. III. Synaptic influences from the cerebral cortex and subcortical structures. *Neuroscience, 20*, 835-843.

Fernald, R. D. (1995). Social control of cell size: males and females are different. *Progress in Brain Research, 105*, 171-177.

Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford, CA: Stanford University Press.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39-66.

Forgas, J. P., & Moylan, S. (1987). After the movies: Transient mood and social judgments. *Personality and Social Psychology Bulletin, 13*, 467-477.

Freeman, W. J. (1995). *Societies of Brains: A study in the neuroscience of love and hate.* Hillsdale, NJ: Erlbaum.

Fried, I., Mateer, C., Ojemann, G., Wohns, R., & Fedio, P. (1982). Organization of visuospatial functions in human cortex: evidence from electrical stimulation. *Brain, 105*, 349-371.

Frey, S., Hirsbrunner, H., Frolin, A. M. B., Daw, W., & Crawford, R. (1983). A unified approach to the investigation of nonverbal and verbal behavior in communication research. In W. Doise & S. Moscovici (Eds.), *Current issues in European social psychology* (pp. 143-197). Cambridge, England: Cambridge University Press.

Gazzaniga, M. S. (1988). *Mind matters: How mind and brain interact to create our conscious lives.* Boston: Houghton Mifflin.

Gazzaniga, M. S., & LeDoux, J. E. (1978). *The integrated mind.* New York: Plenum Press.

George, M. S., Ketter, T. A., Gill, D. S., Haxby, J. V., Ungerleider, L. G., Herscovitch, P., & Post, R. M. (1993). Brain regions involved in recognizing facial emotion or identity: An oxygen-15 PET study. *Journal of Neuropsychiatry and Clinical Neurosciences, 5*, 384-394.

George, M. S., Ketter, T. A., Parekh, P. I., Horwitz, B., Herscovitch, P., & Post, R. M. (1995). Brain activity during transient sadness and happiness in healthy women. *American Journal of Psychiatry, 152*, 341-351.

Gloor, P., Olivier, A., Quesney, L. F., Andermann, F., & Horowitz, S. (1982). The role of the limbic system in experiential phenomena of temporal lobe epilepsy. *Annals of Neurology, 12*, 129-144.

Gray, J. A. (1987). *The psychology of fear and stress.* Cambridge, England: Cambridge University Press.

Grodd, W., Schneider, F., Klose, U., & Nagele, T. (1995). Functional magnetic resonance tomography of psychological functions exemplified by experimentally-induced emotions. *Radiologe, 35*, 283-289.

Gross, C. G. (1992). Representations of visual stimuli in inferior temporal cortex. *Philosophical Transactions of the Royal Society of London, Series B: Biological Sciences, 335*, 3-9.

Gross, J. J., & Levenson, R. W. (1995). Emotion elicitation using films. *Cognition and Emotion, 9*, 87-108.

Halgren, E., Walter, R. D., Cherlow, D. G., & Crandall, P. H. (1978). Mental phenomena evoked by electrical stimulation of the human hippocampal formation and amygdala. *Brain, 101*, 83-117.

Hansen, C. H., & Hansen, R. D. (1994). Automatic emotion: Attention and facial efference. In P. M. Niedenthal & S. Kitayama (Eds.), *The heart's eye: Emotional influences in perception and attention.* San Diego, CA: Academic Press.

Hare, R. (1993). *Without conscience: The disturbing world of the psychopaths among us.* New York: Pocket Books.

Hasselmo, M. E., Rolls, E. T., & Baylis, G. C. (1989). The role of expression and identity in the face-selective responses of neurons in the temporal visual cortex of the monkey. *Behavioral Brain Research, 32*, 203-218.

Helson, H. (1964). *Adaptation-level theory.* New York: Harper & Row.

Holstedge, G., Kuypers, H. G. J. M., & Dekker, J. J. (1977). The organization of the bulbar fibre connections to the trigeminal, facial, and hypoglossal motor nuclei. II. An autoradiographic tracing study in cat. *Brain, 100*, 265-286.

Hornak, J., Rolls, E. T., & Wade, D. (1996). Face and voice expression identification in patients with emotional and behavioural changes following ventral frontal lobe damage. *Neuropsychologia, 34*, 247-261.

Irwin, W., Davidson, R. J., Lowe, M. J., Mock, B. M., Sorenon, J. A., & Turski, P. A. (1996, March). *Human amygdala activation in response to affective stimuli using echo-planar functional magnetic resonance imaging (EPI-FMRI).* Abstract presented at the Third Annual Meeting of the Cognitive Neuroscience Society, San Francisco.

Isen, A. M. (1984). Toward understanding the role of affect in cognition. In R. Wyer & T. Srull (Eds.), *Handbook of social cognition* (Vol. 3, pp. 179-236). Hillsdale, NJ: Erlbaum.

Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203-253). San Diego, CA: Academic Press.

Isen, A. M. (1990). The influence of positive and negative affect on cognitive organization: Some implications for development. In N. L. Stein, B. Leventhal, and T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 75-94). Hillsdale, NJ: Erlbaum.

Isen, A. M. (1993). Positive affect and decision making. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 261-277). New York: Guilford Press.

Kaada, B. R. (1951). Somatomotor, autonomic, and electrophysiological responses to electrical stimulation of "rhinencephalic" and other structures in primates, cat, and dog. *Acta Physiologica Scandinavica, 24*, 1-285 (Suppl. 83).

Kihlstrom, J. F. (1987). The cognitive unconscious. *Science, 237*, 1445-1452.

Kirouac, G., & Doré, F. Y. (1983). Accuracy and latency of judgment of facial expressions of emotions. *Perceptual and Motor Skills, 57*, 683-686.

Kirouac, G., & Doré, F. Y. (1984). Judgment of facial expressions of emotion as a function of exposure time. *Perceptual and Motor Skills, 59*, 147-150.

Kling, A. (1986). Neurological correlates of social behavior. In M. Gruter & R. Masters (Eds.), *Ostracism: A social and biological phenomenon* (pp. 27-38). New York: Elsevier.

Kling, A. (1987). Brain mechanisms and social/affective behavior. *Social Science Information, 26*, 375-384.

Krosnick, J. A., Betz, A. L., Jussim, L. J., & Lynn, A. R. (1992). Subliminal conditioning of attitudes. *Personality and Social Psychology Bulletin, 18*, 152-162.

Kurucz, J., Feldmar, G., & Werner, W. (1979). Prosopo-affective agnosia associated with chronic organic brain syndrome. *Journal of the American Geriatrics Society, 27*, 91-95.

Ladavas, E., Cimatti, D., Del Pesce, M., & Tuozzi, G. (1993). Emotional evaluation with and without conscious stimulus identification: Evidence from a split-brain patient. *Cognition and Emotion, 7*, 95-114.

Lang, P. J. (1978). Anxiety: Toward a psychophysiological definition. In H. S. Akiskal & W. L. Webb (Eds.), *Psychiatric diagnosis: Explorations of biological predictors*. New York: Spectrum Publications.

Lang, P. J., Öhman, A., & Vaitl, D. (1988). *The International Affective Picture System* [Photographic slides]. Gainesville: Center for Research in Psychophysiology, University of Florida.

Lanzetta, J. T., & Englis, B. G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology, 56*, 543-554.

Lanzetta, J. T., & Orr, S. P. (1980). Influence of facial expressions on classical conditioning of fear. *Journal of Personality and Social Psychology, 39*, 1081-1087.

Lanzetta, J. T., & Orr, S. P. (1986). Excitatory strength of expressive faces: Effects of happy and fear expressions and context on the extinction of a conditioned fear response. *Journal of Personality and Social Psychology, 50*, 190-194.

Lanzetta, J. T., Sullivan, D. G., Masters, R. D., & McHugo, G. J. (1985). Viewers' emotional and cognitive responses to televised images of political leaders. In S. Kraus & R. Perloff (Eds.), *Mass media and political thought* (pp. 85-116). Beverly Hills, CA: Sage.

Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist, 39*, 124-129.
LeBar, K. S., LeDoux, J. E., Spencer, D. D., & Phelps, E. A. (1995). Impaired fear conditioning following unilateral temporal lobectomy in humans. *The Journal of Neuroscience, 15*, 6846-6855.
LeDoux, J. E. (1984). Cognition and emotion: Processing functions and brain systems. In M. Gazzaniga (Ed.), *Handbook of Cognitive Neuroscience*. New York: Plenum Press.
LeDoux, J. E. (1989). Cognitive-emotional interactions in the brain, *Cognition and Emotion, 3*, 267-289.
LeDoux, J. E. (1994, June). Emotion, memory, and the brain. *Scientific American*, pp. 50-57.
LeDoux, J. E. (1995). Emotion: Clues from the brain. *Annual Review of Psychology, 46*, 209-235.
Levenson, R. W. (1992). Autonomic nervous system differences among emotions. *Psychological Science, 3*, 23-27.
Lodge, M., & Stroh, P. (1993). Inside the mental voting booth: An impression-driven process model of candidate evaluation. In S. Iyengar & W. McGuire (Eds.), *Explorations in political psychology*. Durham, NC: Duke University Press.
Lorenz, K. Z. (1970-1971). *Studies in animal and human behavior* (2 vols.). Cambridge, MA: Harvard University Press. (Original work published 1931-1963)
Losch, M. E., & Cacioppo, J. T. (1990). Cognitive dissonance may enhance sympathetic tonus, but attitudes are changed to reduce negative affect rather than arousal. *Journal of Experimental Social Psychology, 26*, 289-304.
Manstead, A. S. R., Wagner, H. L., & MacDonald, C. J. (1983). A contrast effect in judgments of own emotional state. *Motivation and Emotion, 7*, 279-290.
Manucia, G. K., Baumann, D. J., & Cialdini, R. B. (1984). Mood influences on helping: Direct effects or side effects? *Journal of Personality and Social Psychology, 46*, 357-364.
Marcel, A. J. (1983). Conscious and unconscious perception: Experiments on visual masking and word recognition. *Cognitive Psychology, 15*, 197-237.
Marcus, G. E. (1991). Emotions and politics: Hot cognitions and the rediscovery of passion. *Social Science Information, 30*, 195-232.
Marcus, G. E., & MacKuen, M. B. (1993). Anxiety, enthusiasm, and the vote: The emotional underpinnings of learning and involvement during Presidential campaigns. *American Political Science Review, 87*, 672-685.
Masters, R. D. (1989a). *The nature of politics*. New Haven, CT: Yale University Press.
Masters, R. D. (1989b). Gender and political cognition, *Politics and the Life Sciences, 8*, 3-39.
Masters, R. D. (1991). Individual and cultural differences in response to leaders' nonverbal displays. *Journal of Social Issues, 47*, 151-165.
Masters, R. D. (1994). Differences ;in responses of blacks and whites to American leaders. *Politics and the Life Sciences, 13*, 183-194.
Masters, R. D., & Carlotti, S. J., Jr. (1993). Gender differences in responses to political leaders. In L. Ellis (Ed.), *Social stratification and socioeconomic inequality* (Vol. 2, pp. 13-36). Boulder, CO: Praeger.
Masters, R. D., Frey, S., & Bente, G. (1991). Dominance and attention: Images of leaders in German, French, and American TV news. *Polity, 25*, 373-394.
Masters, R. D., & Mouchon, J. (1986). Les gestes et la vie politique. *Le Français et le Monde, 202*, 85-87.
Masters, R. D., & Sullivan, D. G. (1989a). Facial displays and political leadership in France. *Behavioral Processes, 19*, 1-30.
Masters, R. D., & Sullivan, D. G. (1989b). Nonverbal displays and political leadership in France and the United States. *Political Behavior, 11*, 121-153.
Masters, R. D., & Sullivan, D. G. (1993). Nonverbal behavior and leadership: Emotion and cognition in political attitudes. In S. Iyengar & W. McGuire (Eds.), *Explorations in political psychology*. Durham NC: Duke University Press.
Masters, R. D., Sullivan, D., Feola, A., & McHugo, G. J. (1987). Television coverage of candidates' display behavior during the 1984 Democratic primaries in the United States. *International Political Science Review, 8*, 121-130.

Masters, R. D., Sullivan, D. G., Lanzetta, J. T., McHugo, G. J., & Englis, B. G. (1986). Facial displays of leaders: Toward an ethology of human politics. *Journal of Social and Biological Structures, 9*, 319-343.

McGuire, W. J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (3rd ed., Vol. 3). Reading, MA: Addison-Wesley.

McHugo, G. J., Lanzetta, J. T., & Bush, L. (1991). The effect of attitudes on emotional reactions to expressive displays of political leaders. *Journal of Nonverbal Behavior, 15*, 19-41.

McHugo, G. J., Lanzetta, J. T., Sullivan, D. G., Masters, R. D., & Englis, B. G. (1985). Emotional reactions to political leader's expressive displays. *Journal of Personality and Social Psychology, 49*, 1513-1529.

McNeil, J. E., & Warrington, E. K. (1993). Prosopagnosia: A face-specific disorder. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology, 46*, 1-10.

Meyer, D. E., & Schvaneveldt, R. W. (1971). Facilitation in recognizing pairs of words: Evidence of a dependence between retrieval operations. *Journal of Experimental Psychology, 2*, 227-234.

Morris, W. M. (1989). *Mood: The frame of mind.* New York: Springer-Verlag.

Morris, W. M., & Reilly, N. P. (1987). Toward the self-regulation of mood: Theory and research. *Motivation and Emotion, 11*, 215-259.

Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition, and awareness: Affective priming with optimal and suboptimal stimulus exposures. *Journal of Personality and Social Psychology, 64*, 723-739.

Öhman, A., Dimberg, U., & Esteves, F. (1989). Preattentive activation of aversive emotions. In T. Archer & L. G. Nilsson (Eds.), *Aversion, avoidance, and anxiety: Perspectives on aversively motivated behavior.* Hillsdale, NJ: Erlbaum.

Ojemann, J. G., Ojemann, G. A., & Lettich, E. (1992). Neuronal activity related to faces and matching in human right nondominant temporal cortex. *Brain, 115*, 1-13.

Orr, S. P., & Lanzetta, J. T. (1980). Facial expressions of emotion as conditioned stimuli for human autonomic responses. *Journal of Personality and Social Psychology, 38*, 278-282.

Ottati, V. C., & Wyer, R. S., Jr. (1993). Affect and political judgment. In S. Iyengar & W. McGuire (Eds.), *Explorations in political psychology* (pp. 296-315). Durham, NC: Duke University Press.

Pardo, J. V., Pardo, P. J., & Raichle, M. E. (1993). Neural correlates of self-induced dysphoria. *American Journal of Psychiatry, 150*, 713-719.

Perrett, D. I., Mistlin, A. J., & Chitty, A. J. (1987). Visual neurones responsive to faces. *Trends in the Neurosciences, 10*, 358-364.

Petty, R. E., Gleicher, F., & Baker, S. M. (1991). Multiple roles for affect in persuasion. In J. Forgas (Ed.), *Emotion and social judgments: International series in experimental social psychology* (pp. 181-200). Oxford, England: Pergamon.

Philippot, P. (1993). Inducing and assessing differentiated emotion-feeling states in the laboratory. *Cognition and Emotion, 7*, 171-193.

Plate, E. (1984). *The double-bind phenomenon in politics: The influence of nonverbal expressive behavior of male and female political candidates on impression formation.* Unpublished senior honors thesis, Dartmouth College, Hanover, NH.

Pratto, F., & John, O. P. (1991). Automatic vigilance: The attention-grabbing power of negative social information. *Journal of Personality & Social Psychology, 61*, 380-391.

Rahn, W., Aldrich, J., Borgida, E., & Sullivan, J. (1990). A social cognitive model of candidate appraisal. In J. Ferejohn & J. Kuklinski (Eds.), *Information and democratic processes.* Urbana-Champaign: University of Illinois Press.

Raleigh, M. J., & Steklis, D. (1981). Effects of orbitofrontal and temporal neocortical lesions on the affiliative behavior of vervet monkeys (Cercopithecus aethiops sabaeus). *Experimental Neurology, 73*, 378-379.

Remillard, G. M., Andermann, F., Testa, G. F., Gloor, P., Aube, M., Martin, J. B., Feindel, W., Guberman, A., & Simpson, C. (1983). Sexual ictal manifestations predominate in women with temporal lobe epilepsy: A finding suggesting sexual dimorphism in the human brain. *Neurology, 33*, 323-330.

Robinson, R. G., Jubos, K. L., Starr, L. B., Rao, K., & Price, T. R. (1984). Mood disorders in stroke patients: Importance of location of lesion. *Brain, 107*, 81-93.

Rolls, E. T. (1992). Neurophysiology and functions of the primate amygdala. In J. P. Aggleton (Ed.), *The amygdala: Neurobiological aspects of emotion, memory, and mental dysfunction.* New York: Wiley-Liss.

Russell, J. A. (1994). Is there universal recognition of emotion from facial expressions? A review of the cross-cultural studies. *Psychological Bulletin, 115*, 102-141.

Scherer, K. (1994). Emotion serves to decouple stimulus and response. In P. Ekman & R. Davidson (Eds.), *The nature of emotion.* New York: Oxford University Press.

Schlesinger, A. M. (1965). *A thousand days: John F. Kennedy in the White House.* Boston: Houghton-Mifflin.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45*, 513-523.

Soares, J. J. F., & Öhman, A. (1993). Preattentive processing, preparedness, and phobias: Effects of instruction on conditioned electrodermal responses to masked and non-masked stimuli. *Behaviour Research and Therapy, 31*, 87-95.

Staats, A. W., & Staats, C. K. (1958). Attitudes established by classical conditioning. *Journal of Abnormal and Social Psychology, 57*, 37-40.

Sullivan, D. G., & Masters, R. D. (1988). "Happy warriors": Leaders' facial displays, viewers' emotions, and political support. *American Journal of Political Science, 32*, 345-368.

Sullivan, D. G., & Masters, R. D. (1993) Nonverbal behavior, emotions, and democratic leadership. In G. Marcus & R. Hanson (Eds.), *Reconsidering the democratic public* (pp. 307-332). University Park: Pennsylvania State University Press.

Sullivan, D. G., & Masters, R. D. (1994). Biopolitics, the media, and leadership: Nonverbal cues, emotions, and trait attributions in the evaluation of leaders. In A. Somit & S. A. Peterson (Eds.), *Research in biopolitics* (Vol. 2). Greenwich, CT: JAI Press.

Sullivan, D. G., Masters, R. D., Lanzetta, J. T., McHugo, G. J., Plate, E. F., & Englis, B. G. (1991). Facial displays and political leadership: Some experimental findings. In G. Shubert & R. D. Masters (Eds.), *Primate politics* (pp. 188-206). Carbondale: Southern Illinois University Press.

Tranel, D., & Damasio, A. R. (1985). Knowledge without awareness: An autonomic index of facial recognition by prosopagnosics. *Science, 228*, 1453-1454.

Tranel, D., Damasio, A. R., & Damasio, H. (1988). Intact recognition of facial expression, gender, and age in patients with impaired recognition of face identity. *Neurology, 38*, 690-696.

Underwood, G. (1995). Subliminal perception on TV. *Nature, 380* (No. 6485), 103.

Van Hooff, J. A. R. A. M. (1969). The facial displays of the Catyrrhine monkeys and apes. In D. Morris (Ed.), *Primate ethology* (pp. 9-88). New York: Doubleday Anchor.

Vaughan, K. B., & Lanzetta, J. T. (1980). Vicarious instigation and conditioning of facial expressive and autonomic responses to a model's expressive displays of pain. *Journal of Personality and Social Psychology, 38*, 909-923.

Warnecke, A. M., Masters, R. D., & Kempter, G. (1992). The roots of nationalism: Nonverbal behavior and xenophobia. *Ethology and Sociobiology, 13*, 267-282.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

Way, B. M. (1994). *More than meets the eye: Anxiety and political support.* Unpublished senior honors thesis, Department of Government, Dartmouth College, Hanover, NH.

Weiskrantz, L. (1986). *Blindsight: A case study and implications.* Oxford, England: Clarendon Press.

Wright, J., & Mischel, W. (1982). Influence of affect on cognitive social learning person variables. *Journal of Personality and Social Psychology, 43*, 901-914.

Young, A. W., Hellawell, D. J., Van De Wal, C., & Johnson, M. (1996). Facial expression processing after amygdalotomy. *Neuropsychologia, 34*, 31-39.

Zajonc, R. B. (1984). On the primacy of affect. *American Psychologist, 39*, 117-123.