

## ASSESSMENTS OF THE EMOTIONAL STATES OF OTHERS: CONSCIOUS JUDGMENTS VERSUS EMOTIONAL CONTAGION

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Clinicians have identified two techniques for gaining information about clients' emotional states: (1) they can consciously try to assess clients' emotional states and/or (2) they can monitor their own emotional reactions during the therapeutic hour, hoping to "feel themselves into" their clients' emotions.

Usually, clients' emotional self-reports are in synchrony with their facial, vocal, and postural expressions of emotion. But, what happens when they are not? We speculated that when faced with such conflicting messages, clinicians may well *think* one thing but *feel* another: Their conscious appraisals may be heavily influenced by the clients' self-reports; their own emotional reactions may be more influenced by clients' facial, para-linguistic, and postural expressions of emotion. An experiment was conducted to test these hypotheses. It was found that subjects' appraisals of targets' emotions were primarily influenced by targets' self-reports (and, to a lesser extent, by targets' facial expressions). Subjects' own emotions were equally affected by what the targets' said they felt and by the emotions their faces actually expressed.

How do therapists decide what their clients are feeling? Clinical researchers and social psychologists have pinpointed two very different ways in which people can gain knowledge about one another's

emotional states. First, they may *consciously* process emotional information. Fischer, Shaver, and Carnochan (1990) define emotions as:

. . . organised, meaningful, generally adaptive action systems. . . [they] are complex functional wholes including appraisals or appreciations, patterned physiological processes, action tendencies, subjective feelings, expressions, and instrumental behaviors. . . none of these features is necessary for a particular instance of emotion. Emotions fit into families, within which all members share a family resemblance but no universal set of features. (pp. 84-85).

Thus, one way clinicians can assess their clients' emotional states is to carefully weigh clients' emotional statements, their facial, vocal, and postural expressions of emotion; indicators of their autonomic nervous system reactions; their instrumental emotional behaviors; and the context in which these reactions occur. However, there is a second way that clinicians can gain insight into clients' emotional states. Therapists have long observed that feelings tend to be "contagious" (Jung, 1968; Reik, 1948). Some therapists, for example, find it difficult to work with depressed clients. Something about the clients' slow voices, sad facial expressions, or the endless, hopeless details they recite, puts the therapists to sleep.

Recently, clinicians have begun to speculate about the mechanisms underlying the process of "countertransference" and to suggest that such emotional information might be used therapeutically (Emde et al., 1982; Tansey & Burke, 1989). Some have pointed out that by monitoring their own emotional reactions during the therapeutic hour, clinicians may gain some unique and valuable insights into their clients' moment-to-moment emotional reactions.

Social psychologists, too, have accumulated considerable information as to how the process of primitive emotional contagion operates. Hatfield, Cacioppo, and Rapson (1992; 1993) define primitive emotional contagion as:

A tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person's and, consequently, to converge emotionally. (p. 1)

The authors argue that although logically people might take on others' emotions in several ways, generally the process by which people feel others' emotional states is fairly nonconscious, primitive, and automatic. In conversation, people tend continuously to mimic

and synchronize their movements with the facial expressions, voices, postures, and instrumental behaviors of others. People's emotional experience may be influenced by an awareness of either (1) the central nervous system commands that direct such mimicry/synchrony in the first place or (2) the afferent feedback from such facial, postural, or verbal mimicry/synchrony. There is considerable evidence that people do tend to mimic the facial expressions, vocal expressions, and postures of those with whom they interact. There is also evidence that subjects' emotional experiences are shaped by feedback from their facial, vocal, and postural expressions. Finally, there is considerable evidence that people do seem to take on the joy, love, sadness, fear, and anger of others (see Hatfield et al., 1992 and 1993; Hsee et al., 1990, for a review of this research).

Generally, of course, therapists' conscious perceptions and emotional reactions during the therapeutic hour are synchronized. On occasion, however, therapists receive mixed messages from their clients. What happens when clients claim they are feeling "just fine" but their faces, voices, and postures convey the opposite message? How do therapists deal with such conflicting information? Do they believe their clients' reports, but somehow feel inexplicably sad themselves? Are they confused? Currently, there is no comprehensive theory of emotional processing that provides a definitive answer. In this experiment, we explored one possibility. We suspected that in such cases, observers might have a complex reaction. They might tend to think one thing and feel another. For instance, if therapists were asked to describe a client's feelings, they may have tended to be unduly swayed by the client's self-reports. However, if they were asked about their own feelings, therapists might have been more influenced by clients' non-verbal expressions of emotion. On the basis of such reasoning, we proposed that subjects' conscious assessments of targets' emotional states should be primarily shaped by the targets' own assessments of their emotional states. Subjects' emotional experience/expressions, on the other hand, should be primarily influenced by the targets' actual emotional experience/expressions. Is there any evidence in support of the hypotheses that (1) subjects' *thoughts* and *feelings* about others' emotions may be inconsistent, and (2) subjects' conscious assessments and emotional reactions may be differentially influenced by targets' self-reports versus targets' nonverbal expressions of emotion? We were able to find only anecdotal evidence for these two propositions (Tansey & Burke, 1989). Thus, the following experiment was designed to test these two hypotheses.

## METHOD

### DESIGN

This study involved a 2 (Target's appraisal of his own emotional state: happy or sad) x 2 (Target's actual facial expression: happy or sad) x 2 (Type of measurement: Subjects' appraisal of target's emotional state or their own emotional state) x Order (Design). Type of measurement was a within-subject factor; the other three were between-subject factors.

### SUBJECTS

In pretesting, 16 University of Hawaii students from an introductory social psychology class and 16 visitors to the East-West Center were recruited to assess stimuli.

In the experiment proper, 87 University of Hawaii students, 36 males and 51 females, were recruited from an introductory social psychology class. The subjects' average age was 19. The sample was representative of Hawaii's multi-ethnic population. (Twenty five percent of the class was Japanese, 10 percent Chinese, 4 percent Korean, 12 percent Filipino, 7 percent Hawaiian, 2 percent Pacific Islander, 5 percent from other Asian groups, 2 percent Hispanic, 13 percent Caucasian, 2 percent Black, 10 percent from other backgrounds, and 8 percent of mixed ethnic background.) Subjects were randomly assigned to one of the eight (T's A x T's E x Order) experimental conditions.

### PROCEDURE

When subjects arrived, they were ushered into a large room and seated in front of a television monitor. They began by answering a few background questions. Then the experimenter played a videotape that provided the experimental coverstory. Subjects were told that modern-day cinematographers could use any of a wide array of techniques to adapt foreign films for the American market. Major studios might dub in English voices or add subtitles to foreign films. (Two film clips, from *Betty Blue* and *Z*, were shown to illustrate these procedures.) Sometimes, however, filmmakers had to rely on less expensive techniques. To meet this demand, subjects were told, the researchers had developed a computer program: They simply fed the foreign dialogue into a computer, which translated it and sent it to an English voice synthe-

sizer. Presumably, our experiment was designed to evaluate the technique. Students would be asked to view a short clip of a Polish educational film. They would see a Polish factory worker chatting with an interviewer at the worker's tenth high school reunion. In a voice-over, recorded a month later, they would hear the Polish worker describe what he was feeling at the time of the interview. Finally, subjects would be asked to answer a few questions about their reactions to the film.

In fact, both the audio translation and the videotape had been prepared. The *audiotape* was designed to convey factual information about whether the target was claiming to be happy or sad at the time the film was made. It was important that the audiotape contain no paralinguistic cues; neither rhythm, stress, rate, pitch, or amplitude should provide any additional information about the worker's real feelings. The *videotape*, on the other hand, was designed to supply facial cues as to what the target was actually feeling and expressing at the time the interview was filmed. Thus, two audiotapes and two videotapes were constructed.

*Audiotape: Target's Appraisal of His Emotional State.* The first step was to construct an audiotape in which the target described his emotions at the time the videotape was filmed. A woman's voice (rather than a man's) was used in constructing these audiotapes; this was done to make it clear to subjects that they were listening to a computer, not the man who appeared in the videotape. This actress made every effort to duplicate a computerlike simulation of a voice: her voice was flat, machinelike, and unemotional. Half of the time the computerlike voice claimed that she had been extremely happy during the initial interview; half of the time that she had been extremely sad. The target's appraisals were designed to be plausible, regardless of whether they were paired with the film of a Polish worker who was actually experiencing and expressing fairly happy or fairly sad emotions at the time the videotape was shot. Thus, in the happy condition, the script said:

When I look at my film, I am surprised at the look on my face. Although I did not look that happy, I was actually extremely happy at the time the film was shot. The reunion was really a pleasant event. Here, I was telling the interviewer that I met many old friends and that we talked about how our lives have become better and better since high school, how happy our families are, and how filled with hope for the future we feel. I had a great time at the reunion, and I was really happy at the time I was interviewed.

In the sad condition, the script said:

When I look at the film, I am surprised at the look on my face. Although I did not look that sad, I was actually extremely sad at the time the film was shot. The reunion was really an unpleasant event. Here, I was telling the interviewer that I met many old friends and that we talked about how our lives have gone downhill since high school, how miserable our families are, and how hopeless we feel for the future. I had a miserable time at the reunion, and I was really sad at the time I was interviewed.

*Videotape: Target's Actual Facial Expression of Emotion.* Next we filmed a videotape of a target who was fairly happy or sad, and whose face expressed that reality, at the time the film was shot. These tapes were created by asking a man to describe one of the happiest and one of the saddest events of his life (See Hsee, et al., 1990). The interview segments lasted approximately three minutes. During the happy segment, the target's facial expressions conveyed his feeling of moderate happiness. During the sad segment, his facial expressions conveyed moderate sadness. The target's emotional expressions were spontaneous and natural. An attempt was made to avoid posed expressions (See Ekman, 1985, for a discussion of the possible differences between posed and spontaneous emotional expressions.) The videotaped faces were *not* accompanied by a sound track.

The two audio tracks and the two video tracks were merged into four tapes, as follows.

<i>Target's Appraisal of His Own Emotion</i>	<i>Target's Actual Emotional Facial Expression</i>
1. Target claims to be happy	Target's facial expression is actually happy
2. Target claims to be happy	Target's facial expression is actually sad
3. Target claims to be sad	Target's facial expression is actually happy
4. Target claims to be sad	Target's facial expression is actually sad

Each subject watched one of the four tapes.

*Type of Dependent Measure.* After subjects viewed the videotapes, they were asked to fill out a brief questionnaire that assessed their reactions

to the target's emotions in two different ways. Half of the time they were asked to guess what the target felt; then what they felt. Half of the time they were asked to rate their own emotions, then to guess what the target felt. The subjects' ratings of the target's emotions indicate their conscious appraisals of the target; their self-reports are an indicant of their degree of emotional contagion. On both measures, subjects were asked to indicate their ratings on two Borg scales: happiness, and sadness. Possible answers ranged from "Intensity: 0 = nothing at all" to "Intensity: 11 = maximal." (For information on the reliability and validity of this scale, see Borg, 1982.) An Index of Happiness was calculated by subtracting subjects' responses on the sadness scale from their responses on the happiness scale. Possible scores on the Index ranged from +11 (Extremely happy) to -11 (Extremely sad.)

## RESULTS

### MANIPULATION CHECKS

The first step was to ensure that manipulations of the target's appraisal and the target's actual facial expression were effective.

*Target's Appraisal.* The target's verbal messages must satisfy two conditions: (1) the content of the audiotape must convey the message that the target was claiming to be happy or sad and (2) the audiotape must contain no extra-message information as to what the target was actually feeling. We determined that the two audiotapes met these requirements in a duo of pretests. First, we set out to confirm that when the target claimed to be happy or sad, the content of the audiotape conveyed that message clearly. This was done in the following way. In a pretest, eight University of Hawaii students were asked to listen to the two audiotapes and to rate how happy or sad the target was at the time of the interview. They made their ratings on the same Borg scales we described earlier. It is clear that these messages were perceived as we hoped they would be. On the Index of Happiness, the positive audio message was rated much more positively than was the negative message. In the positive condition, the mean Index rating was 5.63. In the negative condition, it was -6.25 ( $F[1, 7] = 43.18, p < .0010$ ).

The next step was to assure ourselves that the para-linguistic characteristics of the tapes did not convey any extra information as to the target's real feelings. This was done in the following way. In a second pretest, 16 non-English speakers attending a conference at the

TABLE 1  
Subjects' Ratings of Target's and Their Own Emotions

Ts' Appraisals Own Emotions	T's Actual Facial Expressions	Ss' Appraisals T's Emotions	Ss' Ratings Own Emotions
Happy	Happy	5.30	2.00
Happy	Sad	3.02	-.23
Sad	Happy	-3.18	-.84
Sad	Sad	-4.62	-1.71

East-West Center in Honolulu, Hawaii were asked to listen to the two audiotapes to see if they could guess whether the tape conveyed a happy or a sad message. As we had hoped, subjects were not able to guess from paralinguistic cues alone—from the intonation, voice quality, rhythm, and pausing of the tapes—whether they described a happy experience or a sad one ( $\chi^2 = 1.00, 1 \text{ df}, n.s.$ )

2. *Target's Actual Facial Expressions.* The next step was to determine whether the target's actual facial emotional expressions had been successfully manipulated (i.e., was the happy target face judged to be happier than the sad target face?). In a third pretest, we asked 8 University of Hawaii students to watch the two video tapes and to rate how happy or sad the Polish speaker seemed to be on the same Borg scales we described earlier. The happy target was judged to be much happier than the sad one. (The mean ratings on the Index of Happiness were 4.25 and -4.13, respectively ( $F [1, 7] = 32.77, p < .001.$ ) These results indicate that our manipulations were effective.

## DEPENDENT VARIABLES

Given the experimental design, the appropriate statistical analysis for this experiment is a 2 (T's appraisal)  $\times$  2 (T's actual facial expression)  $\times$  2 (Type of measurement)  $\times$  2 (Order) analysis. We proposed that the target's appraisal should have a greater impact on the subjects' appraisals of the target's emotional state than on subjects' appraisals of their own emotional states (emotional contagion). We also proposed that the target's facial expression should have a greater impact on the subjects' ratings of their own emotional states than on their appraisals of the target's emotional state. Table 1 makes it clear that the target's appraisal and facial expression have a somewhat different impact on subjects' appraisals and emotions than we envisioned.

Overall, both Ts' appraisals and Ts' actual facial expressions had a significant impact on subjects' ratings ( $F [1, 79] = 67.41, p < .0001$  and  $F [1, 79] = 6.96, p < .01$  respectively).

We also see that, as we hoped, the Order main effect was not significant; nor did it interact with any of the other factors. Thus, order effects could be disregarded.

Next we turned to the interactions. As predicted, T's appraisals did have a significantly greater impact on subjects' appraisals of T's emotions than on their ratings of their own emotions. [Interaction A  $\times$  M:  $F (1, 79) = 27.87, p < .0001$ ]. We also proposed that T's actual facial expression would have more of an impact on subjects' ratings of their own emotional experience than on their assessments of the T's emotions. The data did not support this contention [Interaction E  $\times$  M:  $F < 1, n. s.$ ]. S's assessments and emotions were not differentially affected by T's facial expressions. The A  $\times$  E  $\times$  M interaction was not significant ( $F < 1, n. s.$ ).

## DISCUSSION

Clinicians have long observed that good therapists rely on both their conscious analytic skills and their own emotions to give them information as to what their clients are feeling moment-to-moment. The preceding research provides some information as to how such processes might operate. As predicted, we found that what subjects' *think* and what they *feel* are two different things; differentially influenced by various kinds of information. The targets' self-descriptions had a greater influence on subjects' appraisals of the targets' emotions than on subjects' own emotions, whereas targets' facial expressions influenced subjects' appraisals and their own emotions equally. Surely, both modes of communication can provide unique and valuable information as to others' feelings. In part, observers must place some weight on what targets say about their inner lives. (In part, only they can guide us through their emotional landscapes.) However, we may well want to know more than what targets say. Sometimes targets do not know or are unwilling to admit what they feel. The realization that observers' own emotions may well be affected by the target's emotional expressions—their fleeting facial expressions, the way they tilt their heads, the grace of their gestures, their tones, cadences, the sharpness of their phrases—gives them a unique additional source of information. This experiment is the first in a series designed to tease apart the factors that shape the tangled skein of emotion.

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## NEGOTIATING THE REALITY OF CAREGIVING: HOPE, BURNOUT AND NURSING

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Examined the relation of hope to occupational burnout among 81 nurses in chronic-care rehabilitation units. Hypothesizing from Snyder's (1989) model of hope in the reality negotiation process, it was predicted that hope would be significantly predictive of three separate components of burnout. Nurse burnout was assessed with the Maslach Burnout Inventory (Maslach & Jackson, 1981). Separate regression equations revealed higher levels of hope to be significantly associated with lower emotional exhaustion and depersonalization, and greater personal accomplishment. These findings indicate that hope as theorized by Snyder (1989) has beneficial aspects for persons who have to endure long-term stressful situations that may not be necessarily perceived as threatening to the self.

Although folk psychology maintains that accurate reality perception is characteristic of optimal mental health (e.g., Jahoda, 1953; Jourand & Landsman, 1980), this tenet has been challenged. Researchers investi-

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. . . organized, meaningful, generally adaptive action systems. . . [they] are complex functional wholes including appraisals or appreciations, patterned physiological processes, action tendencies, subjective feelings, expressions, and instrumental behaviors. . . none of these features is necessary for a particular instance of emotion. Emotions fit into families, within which all members share a family resemblance but no universal set of features. (pp. 84-85).

Thus, one way clinicians can assess their clients' emotional states is to carefully weigh clients' emotional statements, their facial, vocal, and postural expressions of emotion; indicators of their autonomic nervous system reactions; their instrumental emotional behaviors; and the context in which these reactions occur. However, there is a second way that clinicians can gain insight into clients' emotional states. Therapists have long observed that feelings tend to be "contagious" (Jung, 1968; Reik, 1948). Some therapists, for example, find it difficult to work with depressed clients. Something about the clients' slow voices, sad facial expressions, or the endless, hopeless details they recite, puts the therapists to sleep.

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A tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person's and, consequently, to converge emotionally. (p. 1)

The authors argue that although logically people might take on others' emotions in several ways, generally the process by which people feel others' emotional states is fairly nonconscious, primitive, and automatic. In conversation, people tend continuously to mimic

and synchronize their movements with the facial expressions, voices, postures, and instrumental behaviors of others. People's emotional experience may be influenced by an awareness of either (1) the central nervous system commands that direct such mimicry/synchrony in the first place or (2) the afferent feedback from such facial, postural, or verbal mimicry/synchrony. There is considerable evidence that people do tend to mimic the facial expressions, vocal expressions, and postures of those with whom they interact. There is also evidence that subjects' emotional experiences are shaped by feedback from their facial, vocal, and postural expressions. Finally, there is considerable evidence that people do seem to take on the joy, love, sadness, fear, and anger of others (see Hatfield et al., 1992 and 1993; Hsee et al., 1990, for a review of this research).

Generally, of course, therapists' conscious perceptions and emotional reactions during the therapeutic hour are synchronized. On occasion, however, therapists receive mixed messages from their clients. What happens when clients claim they are feeling "just fine" but their faces, voices, and postures convey the opposite message? How do therapists deal with such conflicting information? Do they believe their clients' reports, but somehow feel inexplicably sad themselves? Are they confused? Currently, there is no comprehensive theory of emotional processing that provides a definitive answer. In this experiment, we explored one possibility. We suspected that in such cases, observers might have a complex reaction. They might tend to think one thing and feel another. For instance, if therapists were asked to describe a client's feelings, they may have tended to be unduly swayed by the client's self-reports. However, if they were asked about their own feelings, therapists might have been more influenced by clients' non-verbal expressions of emotion. On the basis of such reasoning, we proposed that subjects' conscious assessments of targets' emotional states should be primarily shaped by the targets' own assessments of their emotional states. Subjects' emotional experience/expressions, on the other hand, should be primarily influenced by the targets' actual emotional experience/expressions. Is there any evidence in support of the hypotheses that (1) subjects' *thoughts* and *feelings* about others' emotions may be inconsistent, and (2) subjects' conscious assessments and emotional reactions may be differentially influenced by targets' self-reports versus targets' nonverbal expressions of emotion? We were able to find only anecdotal evidence for these two propositions (Tansey & Burke, 1989). Thus, the following experiment was designed to test these two hypotheses.

## METHOD

### DESIGN

This study involved a 2 (Target's appraisal of his own emotional state: happy or sad) x 2 (Target's actual facial expression: happy or sad) x 2 (Type of measurement: Subjects' appraisal of target's emotional state or their own emotional state) x Order (Design). Type of measurement was a within-subject factor; the other three were between-subject factors.

### SUBJECTS

In pretesting, 16 University of Hawaii students from an introductory social psychology class and 16 visitors to the East-West Center were recruited to assess stimuli.

In the experiment proper, 87 University of Hawaii students, 36 males and 51 females, were recruited from an introductory social psychology class. The subjects' average age was 19. The sample was representative of Hawaii's multi-ethnic population. (Twenty five percent of the class was Japanese, 10 percent Chinese, 4 percent Korean, 12 percent Filipino, 7 percent Hawaiian, 2 percent Pacific Islander, 5 percent from other Asian groups, 2 percent Hispanic, 13 percent Caucasian, 2 percent Black, 10 percent from other backgrounds, and 8 percent of mixed ethnic background.) Subjects were randomly assigned to one of the eight (T's A x T's E x Order) experimental conditions.

### PROCEDURE

When subjects arrived, they were ushered into a large room and seated in front of a television monitor. They began by answering a few background questions. Then the experimenter played a videotape that provided the experimental coverstory. Subjects were told that modern-day cinematographers could use any of a wide array of techniques to adapt foreign films for the American market. Major studios might dub in English voices or add subtitles to foreign films. (Two film clips, from *Betty Blue* and *Z*, were shown to illustrate these procedures.) Sometimes, however, filmmakers had to rely on less expensive techniques. To meet this demand, subjects were told, the researchers had developed a computer program: They simply fed the foreign dialogue into a computer, which translated it and sent it to an English voice synthe-

### EMOTIONAL STATES OF OTHERS

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In fact, both the audio translation and the videotape had been prepared. The *audiotape* was designed to convey factual information about whether the target was claiming to be happy or sad at the time the film was made. It was important that the audiotape contain no paralinguistic cues; neither rhythm, stress, rate, pitch, or amplitude should provide any additional information about the worker's real feelings. The *videotape*, on the other hand, was designed to supply facial cues as to what the target was actually feeling and expressing at the time the interview was filmed. Thus, two audiotapes and two videotapes were constructed.

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When I look at my film, I am surprised at the look on my face. Although I did not look that happy, I was actually extremely happy at the time the film was shot. The reunion was really a pleasant event. Here, I was telling the interviewer that I met many old friends and that we talked about how our lives have become better and better since high school, how happy our families are, and how filled with hope for the future we feel. I had a great time at the reunion, and I was really happy at the time I was interviewed.



In the sad condition, the script said:

When I look at the film, I am surprised at the look on my face. Although I did not look that sad, I was actually extremely sad at the time the film was shot. The reunion was really an unpleasant event. Here, I was telling the interviewer that I met many old friends and that we talked about how our lives have gone downhill since high school, how miserable our families are, and how hopeless we feel for the future. I had a miserable time at the reunion, and I was really sad at the time I was interviewed.

*Videotape: Target's Actual Facial Expression of Emotion.* Next we filmed a videotape of a target who was fairly happy or sad, and whose face expressed that reality, at the time the film was shot. These tapes were created by asking a man to describe one of the happiest and one of the saddest events of his life (See Hsee, et al., 1990). The interview segments lasted approximately three minutes. During the happy segment, the target's facial expressions conveyed his feeling of moderate happiness. During the sad segment, his facial expressions conveyed moderate sadness. The target's emotional expressions were spontaneous and natural. An attempt was made to avoid posed expressions (See Ekman, 1985, for a discussion of the possible differences between posed and spontaneous emotional expressions.) The videotaped faces were *not* accompanied by a sound track.

The two audio tracks and the two video tracks were merged into four tapes, as follows.

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Each subject watched one of the four tapes.

*Type of Dependent Measure.* After subjects viewed the videotapes, they were asked to fill out a brief questionnaire that assessed their reactions

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## RESULTS

### MANIPULATION CHECKS

The first step was to ensure that manipulations of the target's appraisal and the target's actual facial expression were effective.

*Target's Appraisal.* The target's verbal messages must satisfy two conditions: (1) the content of the audiotape must convey the message that the target was claiming to be happy or sad and (2) the audiotape must contain no extra-message information as to what the target was actually feeling. We determined that the two audiotapes met these requirements in a duo of pretests. First, we set out to confirm that when the target claimed to be happy or sad, the content of the audiotape conveyed that message clearly. This was done in the following way. In a pretest, eight University of Hawaii students were asked to listen to the two audiotapes and to rate how happy or sad the target was at the time of the interview. They made their ratings on the same Borg scales we described earlier. It is clear that these messages were perceived as we hoped they would be. On the Index of Happiness, the positive audio message was rated much more positively than was the negative message. In the positive condition, the mean Index rating was 5.63. In the negative condition, it was -6.25 ( $F[1, 7] = 43.18, p < .0010$ ).

The next step was to assure ourselves that the para-linguistic characteristics of the tapes did not convey any extra information as to the target's real feelings. This was done in the following way. In a second pretest, 16 non-English speakers attending a conference at the

TABLE 1  
Subjects' Ratings of Target's and Their Own Emotions

Ts' Appraisals Own Emotions	Ts' Actual Facial Expressions	Ss' Appraisals Ts' Emotions	Ss' Ratings Own Emotions
Happy	Happy	5.30	2.00
Happy	Sad	3.02	-.23
Sad	Happy	-3.18	-.84
Sad	Sad	-4.62	-1.71

East-West Center in Honolulu, Hawaii were asked to listen to the two audiotapes to see if they could guess whether the tape conveyed a happy or a sad message. As we had hoped, subjects were not able to guess from paralinguistic cues alone—from the intonation, voice quality, rhythm, and pausing of the tapes—whether they described a happy experience or a sad one ( $\chi^2 = 1.00, 1 \text{ df}, n.s.$ )

2. *Target's Actual Facial Expressions.* The next step was to determine whether the target's actual facial emotional expressions had been successfully manipulated (i.e., was the happy target face judged to be happier than the sad target face?). In a third pretest, we asked 8 University of Hawaii students to watch the two video tapes and to rate how happy or sad the Polish speaker seemed to be on the same Borg scales we described earlier. The happy target was judged to be much happier than the sad one. (The mean ratings on the Index of Happiness were 4.25 and -4.13, respectively ( $F [1, 7] = 32.77, p < .001$ .) These results indicate that our manipulations were effective.

## DEPENDENT VARIABLES

Given the experimental design, the appropriate statistical analysis for this experiment is a 2 (Ts' appraisal)  $\times$  2 (Ts' actual facial expression)  $\times$  2 (Type of measurement)  $\times$  2 (Order) analysis. We proposed that the target's appraisal should have a greater impact on the subjects' appraisals of the target's emotional state than on subjects' appraisals of their own emotional states (emotional contagion). We also proposed that the target's facial expression should have a greater impact on the subjects' ratings of their own emotional states than on their appraisals of the target's emotional state. Table 1 makes it clear that the target's appraisal and facial expression have a somewhat different impact on subjects' appraisals and emotions than we envisioned.

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Overall, both Ts' appraisals and Ts' actual facial expressions had a significant impact on subjects' ratings ( $F [1, 79] = 67.41, p < .0001$  and  $F [1, 79] = 6.96, p < .01$  respectively).

We also see that, as we hoped, the Order main effect was not significant; nor did it interact with any of the other factors. Thus, order effects could be disregarded.

Next we turned to the interactions. As predicted, Ts' appraisals did have a significantly greater impact on subjects' appraisals of Ts' emotions than on their ratings of their own emotions. [Interaction A  $\times$  M:  $F (1, 79) = 27.87, p < .0001$ ]. We also proposed that Ts' actual facial expression would have more of an impact on subjects' ratings of their own emotional experience than on their assessments of the Ts' emotions. The data did not support this contention [Interaction E  $\times$  M:  $F < 1, n. s.$ ]. Ss' assessments and emotions were not differentially affected by Ts' facial expressions. The A  $\times$  E  $\times$  M interaction was not significant ( $F < 1, n. s.$ ).

## DISCUSSION

Clinicians have long observed that good therapists rely on both their conscious analytic skills and their own emotions to give them information as to what their clients are feeling moment-to-moment. The preceding research provides some information as to how such processes might operate. As predicted, we found that what subjects' *think* and what they *feel* are two different things; differentially influenced by various kinds of information. The targets' self-descriptions had a greater influence on subjects' appraisals of the targets' emotions than on subjects' own emotions, whereas targets' facial expressions influenced subjects' appraisals and their own emotions equally. Surely, both modes of communication can provide unique and valuable information as to others' feelings. In part, observers must place some weight on what targets say about their inner lives. (In part, only they can guide us through their emotional landscapes.) However, we may well want to know more than what targets say. Sometimes targets do not know or are unwilling to admit what they feel. The realization that observers' own emotions may well be affected by the target's emotional expressions—their fleeting facial expressions, the way they tilt their heads, the grace of their gestures, their tones, cadences, the sharpness of their phrases—gives them a unique additional source of information. This experiment is the first in a series designed to tease apart the factors that shape the tangled skein of emotion.

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