Facial Expression of Emotion as a Means of Socialization

David R. Heise, Department of Sociology, Indiana University, Bloomington, IN 47405

Abstract

Recent research indicates that (1) the human face is a highly sophisticated signaling system for communicating affect, and (2) affect plays a key role in the experience of social organization and in the day-by-day production of culture. This essay suggests that emotional displays—on the face especially—are a primary means of socialization, allowing a neophyte to attain knowledge of the sociocultural system rapidly and efficiently.

An intriguing pattern of results emerged from a study of college roomrnates by Melvin Manis several decades ago (1955). Manis had friends and non-friends (i.e., high and low sociometric choices) rate themselves and each other on 24 bipolar semantic differential scales representing eight trait dimensions. Ratings were done after the subjects had lived together five weeks, and again after eleven weeks. Manis found that the extra six weeks produced greater agreement between how a person rated himself and how he was rated by his friends and non-friends. Curiously, though, the increased agreement occurred from Ego changing his self-concepts, not from friends and non-friends changing their concepts of Ego. (That is, Ego's later self-perception, as opposed to early self-perception, was more like friend's early perception of Ego, and also more like non-friend's perception of ego. Friend's and non-friend's later perception of ego, as opposed to earlier perception, was not more like Ego's early conception of self.) Here was evidence of the Looking Glass self, Manis noted.

Manis suggested that self-attitudes must be different from ordinary attitudes because usually attitude influence is mutual. My speculations go in a different direction. I think self attitudes are the same as other attitudes. Rather the peculiarity in the Manis results derives from communication structuring. Typical attitude objects occur as mutual stimuli for all present, each person displays an affective reaction, and each can observe the expressive reactions of the others. All contribute information about their own feelings which can influence others. The case of self as an attitude object is partly similar. People do show their feelings towards us by reacting expressively to us as stimuli, and we read their attitudes in their faces and may be influenced. However, we do not get to communicate our

self-attitudes in the same way. We do not occur as stimuli for ourselves, we do not display expressive reactions towards ourselves, thus we never offer others the emotional displays that might bring their feelings around to our own.

The Manis study indirectly supports the idea that visible affective displays—on the face particularly—are crucial for social sharing of attitudes. This is an unappreciated idea in social psychology though not a new one. Knapp (1972, p. 68) observed: "The face is rich in communicative potential. It is the primary site for communicating emotional states; it reflects interpersonal attitudes. .." And D'Andrade (1981) said: "By fusing fact and 'affective' evaluational reaction, cultural schemata come to have a powerful directive impact as implicit values. What advertising tries to do with problematic success, culture does with great effectiveness—an effectiveness which I think is due to the fact that the 'affective' component is communicated through face and voice by the important people in one's line."

The face is a sophisticated system for disseminating affective responses, and affective responses crystalized into sentiments are the everyday basis for generating cultural events (Heise, 1979). Thus the face is a key element in socialization processes.

The Face as an Affective Signaling System

The credibility of the face as a socialization device can be enhanced by outlining the mechanics of how emotional expressions in the face convey affective information. Studies published since 1970 by Ekman and his associates (Ekman, 1972, 1982, 1982b; Ekman & Friesen, 1975), as well as others (Harper, Wiens, & Matarazzo, 1978; and Izard, 1977), have revolutionized research on facial expressions of emotions. Among the shattered myths are that emotionality is primitive or simplistic, that facial expressions are purely idiosyncratic, and that humans are evolving away from expressivity. Instead, extensive programs of research have yielded the following facts.

The face is our emotional signaling system. Language and talking transmit facts and schemes, and sometimes feelings, too. But language does not match the face's capacity for communicating emotions. The face is our primary channel for communicating feelings.

Our facial expressions are uniquely human. We communicate more with our faces than any other creature. Our vocabulary of facial expressions is too large for most animals to master. Our facial musculature—offering the potential for more than a thousand appearances —is the most developed of any species, and the human face conveys messages more complex than animal faces.

Basic emotional expressions are the same for everyone. Tribesmen in Borneo can read your emotional expressions, and you would understand theirs. People in different cultures vary in what events cause particular emotions, in how emotions are masked in specific situations, and in the extra facial expressions that are added on top of the basic emotion repertory. But there is a common visual code for expressing feelings that cuts across differences of sex, age, race, or origin. This visual system for signaling our feelings to others is universal.

Emotional messages are constructed on the face by the shape of the mouth, eyes, and eyebrows (and sometimes nose, cheeks, and forehead as well). Each of these features has a limited number of major shapes produced by the action of certain facial muscles. Whether a group of muscles is tugging gently or straining hard may suggest the intensity of feeling, but the basic information is in the fact that certain muscle groups are operative, producing the characteristic shape for that muscle group.

Roughly, the brows have four major shapes other than a neutral relaxed position: curved upward (as in surprise), flattened and raised (as in fear), flattened and lowered (as in sadness), or pulled down and inward (as in anger). The opened eyes have essentially six major shapes: neutral, wide open (as in surprise), raised lower lids (as in disgust), raised and tensed lower lids (as in fear), squinting (as in anger), and upper lids drooping and sloped (as in sadness). Some major shapes of the mouth, aside from neutral, are: dropped open (as in surprise), corners pulled horizontal (as in fear), lips pressed tight (as in anger), squared out thrust lips baring teeth (as in anger), upper lip pulled up (as in disgust), corners down (as in sadness), corners raised (as in happiness, with extra stretching for smiles, grins,

or laughs). The end of the nose may be normal or raised by pressure from the upper lip. The upper nose may be normal or crinkled. Cheeks may be normal or raised during laughter. The forehead may be normal or wrinkled by pressures from the eyebrows.

Primary emotions are the universal units in the facial vocabulary. Surprise combines arched eyebrows with wide open eyes and a dropped open mouth. Fear shows in raised and flattened eyebrows, raised and tensed lower eyelids, along with sidestretched lips. Disgust involves raised lower eyelids, and the upper lip curled up so as to raise the nose (the upper nose may be crinkled). In anger, the brows pull down and inward, the eyes squint, and the lips either are pressed tight or squared into a snarl. Happiness is revealed in upturned corners of the mouth (laughing also raises the cheeks which in turn may push the lower eyelids up).

Blends can be formed by combining signs of two emotions. For example, arched eyebrows and a smile indicate surprised happiness. Subtle feelings also may be communicated by rapid sequences of expressions—for example, an angry expression interrupted by a flash of disgust could indicate conflicting feelings.

The facial vocabulary includes more than expressions of feeling. For example, raising the eyebrows briefly is a kind of greeting, and done faster yet, it is a signal of incredulity. Direction of gaze shows where a person's attention is focused. Closed eyelids may mean that attention is focused internally or on a future event. Asymmetric movements like winks may have meanings known only in a specific community.

Dimensions of Facial Expressions

Another line of research has concerned the impressions formed by observers of facial expressions. In the typical study, a number of photographs of faces with different expressions are presented to subjects who rate the stimuli on adjective scales. Sometimes the stimuli are movies of facial expressions, sometimes cartoon faces, and Charles Osgood (1966) once had subjects give their impressions of real faces presented briefly in a window by lifting and dropping a shade. Reviews of this research (cf. Ekman, 1982a; Harper et al., 1978; Izard, 1971, 1977; and Osgood, 1966, which is an important review and synthesis as well as a report of original research) reveal that there are three main dimensions involved in impressions of faces—a pleasant versus unpleasant dimension, a dimension of perceived control, and a dimension of activation (though the names for factors vary from one author to another).

While one or two additional dimensions may be involved in impressions of facial expressions, the three main dimensions are particularly interesting because of their similarity to Osgood's well- established dimensions of affective response—Evaluation, Potency, and Activity (Osgood, May, & Miron, 1975). Different labels are required to meaningfully describe the facial dimensions as opposed to the dimensions derived in analyses of other kinds of stimuli, but the underlying dimensions seem the same. An implication is that the face as a signal system conveys information about basic dimensions of affective response, including attitudes (the Evaluation dimension). Osgood suggested that even the separate features of facial expressions might transmit affective information, and found support for this in an unpublished study by R. Harrison and M. S. MacLean. Those researchers had subjects rate 60 caricature faces against 70 adjectives. They found that: Upturned lips were associated with adjectives like Satisfied, Controlled, Approving, and Happy. Downturned lips or medially upturned brows went with adjectives Worried, Perplexed, Confused, and Unhappy. Medially down brows corresponded to the adjectives Menacing, Disagreeing, Angry, and Domineering. Droopy lids fit the words Unhurried, Remote, Relaxed, and Disinterested.

Harrison and MacLean's cartoon study shows that affective transmissions from the face are accomplished from nothing more than the shapes of features. The affective signaling system operates apart from complications allowed by the muscular complexity of faces and diversity in individual faces. This is confirmed by another study of 60 cartoon faces (Cuceloglu, 1970). The drawings combined four eyebrow shapes, three eye shapes, and five mouth shapes. Ratings of these stimuli on 40 emotion scales yielded the usual three dimensions of response for American, Turkish, and Japanese subjects.

Affect and Social Structure

Over the last decade, Kemper (1972, 1978, 1981) has argued methodically and convincingly that human emotions are an integral facet of social structure. Kemper's position is that emotions are vivid, compelling reminders of how we are doing socially, of where we stand in status and power relative to others, and of

changes in our status and power as a result of events. Emotions are the subjective phenomena that allow us to assess our position and motion within the social system. Kemper's theory magnifies the significance of emotional displays like facial expressions. These are not mere ethological curiosities that allow us to empathize with another. Facial expressions and other emotional displays provide evidence of others' social definitions—of how they see themselves and how they see us in the context of a social structure.

My own work, reported in *Understanding Events* (Heise, 1979), extends the argument. Social definitions translate into affective representations, and key processes of generating social action and of defining others from their actions are conducted mainly in the affective realm. Incorporating common sentiments regarding behaviors and identities allows us to generate normative expectations for behaviors for others and for ourselves. Culture and social organization are represented affectively at the individual level, and they are internalized by learning appropriate affective responses for identities, behaviors, and other cultural units. A forthcoming book (Smith-Lovin and Heise, in preparation) argues additionally that emotions are the signals telling us qualitatively in what ways our identities, and the identities of others, are not being confirmed. Here, as in Kemper's theory, the significance of emotions {aside from enriching experience) is that their largely involuntary expression broadcasts our personal assessments of society to others.

If we assume that society and culture do rest on affective factors, then we crucially require an efficient, open channel for communicating affective data among ourselves. Emotional expressivity—of the face particularly—serves this function. By watching the faces of others, we dissect interpersonal puzzles that would remain mysteries otherwise.

Suppose, for example, that you are visiting a foreign culture, you do behavior X to a native, and his face expresses sheer horror. That emotional reaction tells you that behavior X is viewed as immoral or dangerous in the culture, even if not in your own culture. {This is the right inference under our usual assumption that people feel positively towards themselves. An opposite assumption might be valid in an insane asylum, whereupon inference from a horror display also would be different.) Another example: You again are in a foreign country. A small child asks a man for change, and the man agrees, then obviously cheats the child. You look to the faces of native observers. Seeing disgust you infer the man must have a respected identity, like a doctor. Seeing uncomfortable amusement, you know the man has an identity that led them to expect his behavior, like a scrooge. Seeing surprised relief, you know the man is an evil character, like a child molester. Having inferred the man's identity from the event and observers' emotional reactions, you are ready to generate further expectations for the man in realms other than interactions with a child.

Affect and Socialization

I see emotional expressions at the core of socialization. Observing the expressivity of our parents, friends, and mentors gives cultural shape to the feelings we ourselves experience throughout life. That much is generally acknowledged. Additionally, though, others' emotional expressions, on faces and otherwise, transmit fundamental sentiments about different kinds of people and behaviors which allow us later to generate behavioral expectations and norms as needed. In this sense, reading others' facial expressions is a key aspect of our learning the cultural definitions of roles, relationships, and social institutions.

This explains how socialization is possible at all. If one analyzes society in terms of person-event matricies (as was popular a few decades ago—Biddle & Thomas, 1966), it becomes clear that a lifetime is not long enough to learn, item by item, all the details needed to operate in society. Affect control theory (Heise, 1979) offers a more comprehensible approach to the socialization process by revealing that socialization does not require learning specifications for every possible event but rather is a task of learning key cultural units, like identities and behaviors, and the sentiments attached to them. The assumption here is that affective data can be transmitted efficiently. And indeed emotional displays on others' faces pour out refined data about their affective reactions. Facial expressions allow us to read out important parameters from other people's minds.

A Practical Application

The analysis of faces into key features each with several variations links readily to the kinds of artificial intelligence structures that computer scientists call frames (Minsky, 1975). Indeed, synthesizing the research on facial features with artificial intelligence work leads to the speculation that it should be possible for a computer to generate facial expressions on its screen and to do this fast enough to achieve convincing animation. I can report that this is a true and accomplished fact. I developed a program (Heise, 1982) that draws sketch-like renditions of a female face on a microcomputer screen. Facial expressions, including eye-rolls, winks, blinks, and mouth movements were produced by pressing different keys on the computer keyboard or by entering a program into the computer. The effects are at least as smooth and convincing as the facial expressions of a character in a Disney film.

Now consider an application in computer-assisted instruction. So far computers have been used instructionally for little more than running drills, keeping score, and branching between lessons that are printed on the screen. The most important element of education—the transmission of attitudes and values—is entirely missing. However, henceforth it is possible to write a program that would do all of the old tasks and also keep an animated picture of Miss Megabyte, your computer teacher, on the screen. When you give a right answer, she smiles. When you enter a typo or ungrammatical answer, she looks perplexed. Insult her, and she'll be angry. Give a wrong answer and she will look sad, amused, revolted, or surprised, depending on the manner in which the answer is wrong. The computer becomes something more than a patient drill instructor. She is teaching you how to feel about different concepts—teaching you the kinds of sentiments you need to enjoy your knowledge and to apply it in novel situations. Such programs would humanize computer-assisted education because they would simulate the very processes that are involved in everyday socialization.

References

Biddle, B. & Thomas, E. J. (1966). *Role Theory: Concepts And Research*. New York: Wiley.

Cuceloglu, D. M. (1970). Perception of facial expressions in three different cultures. *Ergonomics*, 13, 93-100.

D'Andrade, R. G. (1981). The cultural part of cognition. *Cognitive Science*, 5, 179-195.

Ekman, P. (1972). Universal and cultural differences in facial expressions of emotions. In J. K. Cole (Editor), *Nebraska Symposium On Motivation*. University of Nebraska Press, 207-283.

Ekman, P. (1982a). *Emotion In The Human Face*. 2nd ed. New York: Cambridge University Press.

Ekman, P. (198Zb). Methods for measuring facial action.. In K. R. Scherer and P. Ekman (Editors), *Handbook Of Methods In Nonverbal Behavior Research*. New York: Cambridge University Press, pp. 45-90.

Ekman, P., & Friesen, W. V. (1975). *Unmasking The Face: A Guide To Recognizing Emotions From Facial Clues*. New York: Prentice-Hall.

Harper, R. G., Wiens, A. N., & Matarazzo, J. D. (1978). *Nonverbal Communication: The State Of The Art*. New York: Wiley Interscience.

Heise, D. R. (1979). *Understanding Events*. New York: Cambridge University Press.

Heise, D. R. (1982). Face synthesizer for PET. *MICRO* No.49 (June), 31-37.

Izard, C. E. (1971). *The Face Of Emotion*. New York: Century-Crofts.

Izard, C. E. (1977). *Human Emotions*. New York: Plenum Press.

Kemper, T. D. (1972). Power, status, and love. In D. Heise (Editor), *Personality And Socialization*. Chicago: Rand McNally.

Kemper, T. D. (1978). *A Social Interactional Theory Of Emotions*. New York: Wiley-lnterscience.

Kemper, T. D. (1981). Social constructionist and positivist approaches to the sociology of emotions. *American Journal of Sociology*, 87, 336-362.

Knapp, M. L. (1972). The field of nonverbal communication: An overview. In C. Steward and B. Kendall (Editors), *On Speech Communication: An Anthology of Contemporary Writings And Messages*. New York: Holt, Rinehart, and Winston, pp. 57-72.

Manis, M. (1955). Social interaction and the self-concept. *Journal Of Abnormal And Social Psychology*, 51, 362-376.

Minsky, M. (1975). A framework for representing knowledge. In P. Winston (Editor), *The Psychology Of Computer Vision*. New York: McGraw-Hill, pp. 211-277.

Osgood, C. E. (1966) .Dimensionality of the semantic space for communication via facial expressions. *Scandanavian Journal Of Psychology*, 7, 1-30.

Osgood, C. E.. May, W. H.. & Miron, M. S. (1975). *Cross~cultural Universals Of Affective Meaning*. Champaign: University of Illinois Press.

Smith-Lovin, Lynn, and Heise, D. R. (1988)**.** *Analyzing Social Interaction: Advances in Affect Control Theory*. New York: Gordon and Breach Science Publishers. (Reprint of a special issue of the *Journal of Mathematical Sociology*, Vol. 13.) [Updated reference.]