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Nonverbal Behavior

Our study of facial expression and body movement began in 1954. The measurement of nonverbal behavior was a means to the end of better understanding group therapy. Soon, however, the challenge of understanding facial expression and body movement became the focus of the research, and the application to group therapy was never pursued. Our first studies were methodologic. Techniques for reliably measuring hand movements, posture, and gaze direction without the use of photographic records were devised. The budget of a graduate student imposed this hesitation to use film. The research made little progress.

In the early 1960's, we conducted at the Langley Porter Institute what we now consider to have been demonstration studies.* The purpose of these studies was to challenge the view current at that time in psychology that nonverbal behavior was a meager source of information, rarely providing accurate information.

In a number of different experiments we showed that an untrained observer, by looking at facial expression or body movement, could accurately determine: if the behavior had occurred during the friendly or hostile portion of a standardized interview; which words were emitted at the

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*Ekman first came to Langley Porter in 1957 as a predoctoral intern in clinical psychology, largely because of his interest in Ruesch's pioneering theoretical statement about nonverbal communication.[1]

same moment in time with the body movement; if the person had rheumatoid arthritis or was a control subject; if the nonverbal behavior had been shown when the patient was admitted to Langley Porter with an acute psychiatric disorder, or if the behavior occurred when the patient had improved sufficiently to be on the verge of discharge.

These studies were termed demonstrations in that they showed the presence of something, but they did not determine just where it was or what it was. Since 1965 (when Friesen joined this research), we have attempted to isolate and describe some of the specific movements of the body and face that could provide information about emotion, mood, changes during an interaction, and psychopathology. The next paragraphs briefly summarize the findings on body movements; then describe at greater length the research on facial expression and emotion.

BODY MOVEMENT

Our research on body movement has studied three types of activity: speech illustrators, symbolic gestures, and self-manipulative movements. Following D. Efron[2] we have distinguished some eight different ways movement can be employed to illustrate what is being said in words: for example, in a *baton* the movement accents a word, in a *pictograph* the movement draws the shape of the object referred to in words. The type of illustrator employed by a person depends upon his ethnic background or culture, although this aspect of Efron's pioneering work has not been pursued. Instead, our research has found that:

1. Among depressive patients illustrators increase from time of admission to hospital to time of discharge.
2. Illustrators are more evident in neurotic than psychotic depressives at time of admission to a mental hospital.
3. A low incidence of illustrators occurs among patients judged by the psychiatrist to show withdrawal or psychomotor retardation.
4. When a person is lying about his feelings, his illustrators decrease.
5. As the illustrators decrease, the average voice pitch level increases.
6. People who show a high rate of illustrators are judged by others to be outgoing, sociable, and expressive.

We have employed Efron's term *emblem* to refer to symbolic actions where the movement has a very specific verbal translation known to most members of a subculture or culture, and is typically intended to send a message. The head nod "yes" or "no" and the shrug are examples of

American emblems. We developed a standard method to survey the vocabulary of emblems, and used it to study middle-class white Americans, urban Japanese, Iranians, members of a preliterate New Guinea culture, and Israeli students living in the United States less than one year. Our research has found that:

1. The number of emblems varies, from less than a hundred in the United States to a few hundred for the Israeli or Iranians.
2. There are no universal emblems, although there are similarities in those emblem performances that refer to bodily functions or use the body in a way that is anatomically constrained.
3. There is no syntax governing the use of emblems among people who employ emblems as a subsidiary rather than as a sole means of communication.
4. In our studies of deceptive interactions among Americans, certain emblems provide leakage, unwittingly revealing some aspect of a message that a person is trying to conceal.

The phrase *self-manipulator* refers to movements in which one part of the body does something to another body part. Scratching the head, picking the nose, wringing the hands, licking the lips are examples of self-manipulators. Self-manipulators are the opposite of emblems; they usually occur with little awareness, without the deliberate intent to communicate a message to another. While others may learn something by observing a self-manipulator, the message is diffuse rather than specific. Our research has found that:

1. A high incidence of self-manipulators occurs among patients whom the psychiatrist judges to be anxious or guilty.
2. Self-manipulators that involve picking or scratching some body part occur among patients judged hostile or suspicious by the psychiatrist.
3. During a stressful interview with normal individuals, those who show self-manipulators lasting more than a second or two are seen by others as being tense and awkward.

Taken together, these findings and those of other investigators support the hypothesis that self-manipulators are an index of discomfort, typically arising when the person is ill at ease, awkward, tense, anxious, etc. When someone is totally at ease, or alone, when they "let their hair down," they may also show more than the usual rate of grooming self-manipulators. Individuals vary markedly, however, in their typical rate of self-manipulators, whether alone or in public. Elsewhere we have reported the research on emblems[3] and the research on illustrators and self-manipulators[4,5] more completely.

FACIAL EXPRESSIONS OF EMOTION

For more than a century there has been argument about whether facial expressions of emotion are universal or are specific to each culture. Can we understand a foreigner's emotions if we observe his facial expressions? Can we do this without a special facial language school, without tutoring as to what expressions mean in each culture? In 1872 Charles Darwin[6] said that human facial expressions have evolved from the expressions of other animals, and they therefore are universal. Since that time, noted scholars[7,8,9] have disagreed with Darwin, arguing that facial expression, like any other language, is the product of culture and therefore different from place to place. By the 1950's, the cultural difference view was dominant within both psychology and anthropology. Facial expression was thought of as a rather meager, culture specific language. It was said to provide little if any accurate information. People usually disagree about what they see, and if they see anything in the face, it is probably stereotype!

It was in that context that we initiated our first series of studies of facial expressions to prove they could and often did provide accurate information about emotion. We showed that the usual person, without any special training, could accurately judge from the face (a) what emotion the person was intending to show; (b) whether the person was being subject to hostile or friendly behavior on the part of an interviewer; (c) whether or not he was suffering from rheumatoid arthritis; and (d) whether he was severely depressed, having just been admitted to Langley Porter for hospitalization, or was feeling much better and about to be discharged.*

Proof that facial expression can provide accurate information does not answer the question of whether such expressions are universal or not. It does heighten one's interest in the question.

In 1966 we undertook a series of cross-cultural studies of facial expression that led us to work in Brazil, Argentina, Chile, Japan, and a preliterate culture in New Guinea. We studied how these people interpreted facial expression—whether the same facial configuration conveyed the same emotion regardless of culture. We also studied the actual facial behavior *emitted* by some of these people—whether the same facial muscle movement happened in the same circumstances regardless of culture. We studied facial behavior within the confines of a laboratory or classroom, and as it naturally occurred in a field situation.

We started this cross-cultural research without any strong commit-

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*These studies were conducted from 1956–1966; they are summarized and integrated with a reanalysis of the research of other investigators in *Emotion in the Human Face*.[10]

ment as to how the question would be resolved. We were somewhat predisposed towards the view that facial expression of emotion is learned in a culturally variable fashion. Our findings led us to reject either extreme or absolute viewpoint. Facial expression of emotion is not universal and it is not culture specific; it is both. We developed what we call a neurocultural theory of facial expression of emotion to account for and explain the bases for the similarities and differences across cultures.[11]

Temporary changes in feelings, reflecting emotions such as fear, surprise, anger, disgust, sadness, happiness can be signaled through rapid contractions of the facial muscles, which move the skin about and temporarily change the shape and even the location of the features, causing wrinkles, pouches, bags, and bulges to appear on the face. These facial expressions of emotions typically flash on and off the face in a matter of just a few seconds, often lasting less than one second. There is now considerable (we judge conclusive) evidence that these facial signs for emotion—the particular muscles likely to be recruited for each of a number of emotions—have evolved and are therefore universal. The evidence regarding the universality of the morphology of facial expressions of emotion and their evolutionary basis comes from many sources. These include studies by psychologists, ethologists, and anthropologists of infants, children, people in different cultures, blind children, and nonhuman primates.*

This is not to suggest that when an emotional event occurs one sees the same facial expression on everyone's face within a culture or in any two cultures. There are important differences within and between cultures in what is learned about the need to control facial expression in public places.

Even when people feel the same way in the same situation, they may not all show the feeling on their faces. Some may mask it with another feeling, some may inhibit it totally, some may amplify or deamplify it. Rules about controlling facial behavior are learned so well that usually we do not know of their operation except when someone fails to follow them. Individual differences in the rules for controlling facial expression probably reflect personality as well as social class. Clearly, there are also differences between cultures in these rules about managing the appearance of the emotion signs.

Another source of differences in facial expressions of emotion within cultures and between cultures has to do with the learned triggers of emotion. While there may be some universal or near-universal emotion triggers (e.g., death of a child), even within a culture people are not all made

*Much of this work is reviewed in different chapters of a book, *Darwin and Facial Expression*.[12] Also see I. Eibl-Eibesfeldt[13] and Izard.[14]

angry, disgusted, sad, by the same events. Often, the same facial sign of emotion among different people in the same situation is not seen because the situation calls forth a different emotion from each individual.

A third way in which cultures may differ is in the extent of verbal naming of the facial expressions of emotion. The evidence for universality of the muscular actions is limited to just five or six emotions: anger, sadness, disgust, surprise, happiness, and fear. There may be unique and distinctive, universal facial expressions for one or two other emotions, but probably for not many more than that. This is not to say that humans don't experience more emotions, but only that the expressions for other emotions is not universal. A culture could designate a particular facial appearance for any emotion, but it need not be universal. Another way in which cultures may differ is in the frequency and naming of specific blends of emotions—the combinations of signs of two emotions within a single facial configuration. We will discuss these blends in greater detail later.

The facial nerve is connected to the very old and to the newer parts of the brain. Facial expressions of emotion are at times an involuntary automatic response, and at other times a voluntary, well managed response system. Facial expressions of emotion can be reflex-like in their speed. They also resemble reflexes because of the natural linkage between sign and significant. Facial expressions resemble language in that they are often voluntary, and the involuntary facial expressions are vulnerable to interference or modification by custom, habit, or choice of the moment. People can and often do put on facial expressions that are false, to play or seriously mislead another.

Simulated and Genuine Expression of Emotion

Much of our current theorizing[15] has described the differences between simulated and felt facial expressions, and where to look for traces (what we have called leakage) of felt facial expressions that a person is attempting to conceal. While we have support for some of our ideas, much of this theory is only now being subjected to empirical testing. We do have evidence that when persons are highly motivated to deceive others, they usually succeed in misleading those who observe their faces, about whether they are having positive or negative feelings. Although some people are better at such facial disguise than others, it seems reasonable to suggest that even successful facial deceivers do make mistakes. There is facial *leakage*, but most people fail to notice or correctly interpret such behavior. We make this inference on the basis of preliminary evidence that people whom we had specially trained in facial interpretation were not misled, but accurately spotted facial deceit.

Much of our work of the last few years has explored and described the rapid facial movements that are signs of emotion. Our book *Unmasking the Face*[15] instructs the reader in how to better recognize emotion signals. Such recognition is easy when the emotion is shown across the entire face, if the movement is held for a few seconds, without competition from words, body movements, voice tone, etc. Those conditions rarely exist, however. Difficulty in recognizing facial expressions of emotion occurs because the expression is usually brief; competes with other signals for attention; is limited to one facial area; and may be blended or masked. Facial expressions of emotion are often shown in just one area of the face, rather than across the entire face; this can happen early in the arousal of an emotion, or when the arousal of an emotion is slight, or when the person is attempting to control facial appearance. Emotions often occur in blends, and the face can show such blends of emotion. Sometimes each of the blended emotions registers within one facial area, such as a mouth movement looking both fearful and surprised. Sometimes each of the blended emotions controls the muscles affecting a different facial area, so that, for example, the brows can register fear and the mouth surprise or vice versa.

The smile not only is shown when someone feels happy or wants to signal compliance or agreement but often is used to mask the expression of a negative emotion. However, determining whether a smile is a blend or a mask requires more information; it is necessary to evaluate the social context in which the expression occurs, other behavior coincident with the expression, the sequence of facial movements in the expression, etc.

Much of the research on the face has been hindered by the lack of a tool for measuring facial movements. We have recently developed a comprehensive system for describing or measuring facial movements. The Facial Action Coding System[16,17] is based upon how each muscle acts to change the facial appearance temporarily. The units of measurement are based upon visibly distinguishable changes produced by movements of the facial muscles. The measurement procedure describes the variety of rapid human facial muscular movements. The Facial Action Coding System distinguishes more than fifty different facial movements that can combine to form tens of thousands of appearances. The Facial Action Coding System was designed not just to study emotion, but to measure facial movement of any kind. In fact (as will be seen), most facial movement has little to do with emotion.

Before mentioning some of the kinds of facial signals other than those for emotion, let us note why this discussion of emotion has focused on the face and not the body. The body does not seem to provide the detailed and varied emotion signals that the face can show. The body can tell us about overall level of arousal—people become either more tense or more active

when emotionally aroused, and more relaxed in appearance when emo-
tional arousal is low. The body also may tell us whether the emotional
arousal seems positive or negative. For example, the body (including the
head) may move backward in fear or disgust and forward with interest.
But it may move forward with anger as well. Perhaps hand illustrators
become more abrupt or angular when the arousal is negative, and more
smooth and flowing if the arousal is positive. Certainly, an increase in
self-manipulators usually is a sign of negative emotional arousal. Yet, the
body movement emotion signals are not nearly as specific as are the facial
expressions. The body may tell that the emotion is aroused, or that the
aroused emotion is negative, but it is the face, more than the body, that
will show that the negative emotion is anger, or disgust, or the blend of
anger and fear, etc. Body movement often reveals how someone is coping
with an emotional state signalled in the face. For example, the face may
tell us the person is angry, while the body will inform us whether he is on
the verge of attack, directing the attack against himself, withdrawing,
freezing the impulse in muscular tension, etc.

What The Face Can Do

Facial expressions of emotion are but a small, though very important,
part of facial activity. While there are so-called peak experiences or
heated exchanges, these occasions are extraordinary just because emo-
tion is predominant. Much of the time emotional arousal is low, low
enough to be considered negligible. However, this does not mean the face
is inactive—quite the contrary; Some of the muscles around the mouth
move when we speak, spit, or eat.

The whole array of facial muscles can be used, much like the hands,
as speech illustrators. We are just beginning the study of facial illus-
trators. Our impression to date is that the brow, forehead, and eyelids are
most often used as speech illustrators, and that the most common type of
facial illustrator seems to be the accent or emphasis mark.

There are also facial emblems; for example, the wink. More compli-
cated is the notion that facial emblems refer to emotion but are not facial
expressions of emotion. Just as the word "fear" can be spoken without
implying the person is experiencing fear at that moment, the face can
signal the message "fear" in such a way that the observer knows the
emotion is being referred to but not experienced. To illustrate: the facial
emblem for fear is to stretch quickly the lip corners back towards the ears
and release them. The timing of the movement and the fact that it is not
accompanied by the characteristic eye and brow expression are crucial to
the signal being an emblem for fear rather than a fear facial expression.
Elsewhere[15] we have distinguished in some detail the difference between

a felt facial expression of emotion that looks genuine: an emblem about an emotion that must not look genuine; and a simulated facial expression of emotion that, if it is to be successful in deceit, should closely resemble a real expression.

Some facial movements can be considered self-manipulative and should be little different than other self-manipulators. For example, licking the lips, biting the lip, sucking a lip, should be little different from hand-rubbing, finger-picking, scratching the arm, and the like.

Other facial movements play an important role as conversational *regulators*, managing the back-and-forth flow of conversation. Smiles, incredulity, or exclamation facial signals are examples of encouragement responses by the listener to the speaker. Facial emblems that signal a question can cause the speaker to explain further. The speaker also may be able to read perplexity in the face, to learn he is not being understood or is understood only with difficulty. He may read various signs of inattention, boredom, or a drift into doze or daydream. Facial signals that precede verbal interruptions may also indicate that the listener wants his turn to speak.

This list by no means exhausts all that the face can do; rather, it indicates some of the other facial activities apart from emotion which we are currently investigating. In other research[18] we have distinguished ten other kinds of information the face may provide, apart from those discussed here.

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