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LEADING ARTICLE

Universal Facial Expressions of Emotion

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Introduction

Prolonged and at times heated controversy has failed to settle the question of whether there are any facial behaviors associated with emotion which are universal for man. Darwin (1872) proposed universal facial expressions of emotion on the basis of his evolutionary theory. Floyd Allport (1924), Asch (1952) and Tomkins (1962, 1963) also postulated universal emotional facial behavior, although each writer offered a different theoretical basis for his expectation. These theorists also recognized that there would be cultural differences in facial behavior as well, and each made a partial attempt to explain these cultural variations in facial behavior.

The culture specific view, that facial behaviors are associated with emotion through culturally variable learning, received support from Klineberg's (1938) descriptions of how the facial behaviors described in Chinese literature differed from the facial behaviors associated with emotions in the Western world. Klineberg has recently said that the axiom "what shows on the face is written there by culture" is not a fair picture of his view, and that there are certain types of expressive behavior which are common to all human societies. LaBarre (1947) has taken a more extreme view, "there is no 'natural' language of emotion gesture." But this quote emphasizes LaBarre's failure to distinguish facial gestures from facial expressions of emotion. While there is overlap in that some emotional expressions of the face can be used as intentional gestures to state explicitly a message to another person (e.g., the smile), there are many facial gestures which are independent of facial expressions of emotion (e.g., head shake no, raising one brow, winking, etc.), and these gestures may well be culturally variable.

Perhaps the most influential writer arguing for the culture specific view of facial expressions of emotion is Birdwhistell. In describing the

history of his own work, Birdwhistell said, "When I first became interested in studying body motion . . . I anticipated a research strategy which could first isolate universal signs of feeling that were species specific. . . . As research proceeded, and even before the development of kinesics, it became clear that this search for universals was culture bound. . . . there are probably no universal symbols of emotional state . . ." (1963:126).

Thus there has been a long history of argument about the existence of any universal facial expressions of emotion. Neither side in the dispute has had systematically gathered quantitative data to support their view. I will describe our two lines of systematic inquiry on this topic, which I believe have firmly established pan-cultural elements in facial expressions of emotion. But first, I will describe a theoretical framework which reconciles the two opposite sides of this controversy by distinguishing between those elements of facial behavior that are universal and those that are culture specific.

Theoretical Framework

Ekman and Friesen (1967, 1969a) have hypothesized that the universals are to be found in the relationship between distinctive movements of the facial muscles and particular emotions (such as happiness, sadness, anger, fear, surprise, disgust, interest). They suggested that cultural differences in facial behavior would be seen because some of the stimuli which through learning become established as elicitors of particular emotions will vary across cultures, because the rules for controlling facial behavior in particular social settings will vary across cultures, and because many of the consequences of emotional arousal will also vary with culture.

While there may well be certain *evoking stimuli* which universally are associated with particular emotions, many of the stimuli which elicit emotion are learned; they are the products of and will vary with culture. A common pitfall in cross cultural research on facial expressions of emotion is to infer a common emotional state simply because the same event was compared in two cultures. In actuality the event may evoke a different affect in each culture, and the differences in facial behavior may reflect those differences rather than differences in the facial muscles associated with affect in each culture. For example, culture X might show up-turned lips, nasalabial folds, and almost closed eyelids at funerals, while culture Y might show down-turned lip, partially closed eyelids, and nostril dilations at funerals. Before concluding that the facial display of sadness varies across cultures, it would be necessary to verify that the stimulus "funeral" normatively evokes the same affect in the two cultures, rather than being a stimulus for joy in one culture and for sadness in another.

Display rules are socially learned techniques acquired early in life for the management and control of facial appearance. Four management techniques can be distinguished. One technique is to de-intensify the appearance clues to a given emotion; for example, when one is ex-

tremely fearful, he must attempt to look only moderately or slightly fearful. A second management technique is to over-intensify the felt emotion. A third management technique is to look affectless or neutral. A fourth management technique is to mask the felt emotion as completely as possible by simulating another covering emotion; for example, when one is fearful, he must attempt to look happy. The display rule specifies which of these management techniques should be applied to which facial behavior and under what circumstances. The display rule dictates the occasion for the applicability of a particular management technique in terms of (a) static characteristics of the persons within the situation (i.e., age, sex, physical body size), (b) static characteristic of the setting (i.e., ecological factors, and social definition of the situation, such as funeral, wedding, job interview, waiting for a bus), (c) transient characteristics of the persons (i.e., role, attitude), and (d) transient regularities during the course of the social interaction (i.e., entrances, exits, transition points, periods in conversation, listening, etc.). Display rules should govern facial behavior on a habitual basis, such that they are more noticeable when violated than when followed. The face appears to be the most skilled nonverbal communicator and perhaps for that reason the best "nonverbal liar", capable not only of withholding information but of simulating the facial behavior associated with a feeling which the person in no way is experiencing. In cross-cultural comparisons of facial expressions, it is important not to interpret evidence as showing a basic difference in the muscles involved in facial expression when the difference was due to the application of display rules differently in the cultures being compared. Returning to our example of a funeral, let us suppose that we are comparing two cultures where this event has the same evoking characteristic of sadness; it is still possible that in one culture the display rule will be to over-intensify the affect, while in the other the display rule will be to mask it with a pleasant demeanor. Without highspeed photography and slow motion inspection of the films to see the initial sad movements in the one culture, the observer may gain the impression that sadness produces different facial muscle movements in the two cultures.

A last variable to be considered is the *behavioral consequence* of a facial expression of emotion. The behavioral consequence can be most readily determined from the body posture and movements, although the face may show the affect associated with a given behavioral consequence. We interpret the movements and postures of the body which coincide with and follow a facial expression of emotion as coping with the facially shown affect. Such movements often do not differentiate one facial affect from another; for example, the behavioral consequence of flight may occur as a coping procedure for anger, fear, or even disgust in particular social contexts. The fact that people show very different body movements after showing the same facial affect should not be interpreted as meaning that the facial affect is meaningless, or inconsequential.

We agree with Darwin and Tomkins that there are distinctive movements of the facial muscles for each of a number of primary affect states, and these are universal to mankind. While what may elicit an emotion may vary from one culture to another, and the display rules for the management of facial appearance may vary, and the consequences may vary with culture, the particular muscles of the face which would move will be the same. For example, lowering and drawing together of the brows, with the tightened lower lid and the firmly pressed together lips is one of the distinctive muscular patterns for anger, and it is such facial patterns which we claim are universal. What makes one person angry may be different from what makes another person angry, but they will both show the same muscular movement on the face if they are not applying different display rules to manage or modify their facial appearance. Obviously if a person in one culture is applying the display rule to mask with happiness and a person in another culture is applying the display rule to intensify the anger, then they will appear quite different.

We have been arguing that the movements of the facial muscles are the basic building blocks of facial expressions of emotion, and that these are the pan-cultural elements of affect. Yet, such movements are embedded in a context; they may be elicited by different stimuli, be operated upon by different display rules, and be followed by different behavioral consequences. We do not mean to belittle these factors; in actuality we want to focus attention on these factors as the major sources of cultural differences in facial expressions of emotion. But our argument has been to emphasize the difficulty in uncovering the pan-cultural elements, and to caution against the danger that they may be obscured by a failure to isolate each of the variables listed in our figure.

Research Evidence

I will now describe two different research approaches which we have undertaken to demonstrate the existence of universal facial expressions. In the first line of investigation, we utilized a research method for studying the face first employed by Charles Darwin. Darwin showed photographs of the face to observers to determine if they could agree about the emotion. We conducted similar experiments in which we showed still photographs of faces to people from different cultures in order to determine whether the same facial behavior would be judged as the same emotion regardless of the observer's culture. The faces were selected on the basis of their representing the distinctive facial muscular patterns described in Ekman, Friesen, and Tomkins' (1971) Facial Affect Scoring Technique. College educated students in Brazil, the United States, Argentina, Chile, and Japan were found to identify the same faces with the same emotion words. (parts of these results were reported in Ekman, Sorenson, and Friesen, 1969). For twenty-nine of the thirty facial expressions used in the experiments, the majority of the observers in every culture chose the same emotion for each face. Izard, (1969) working independently with his

own set of faces, obtained comparable results across seven other culture-language groups.

While we wanted to interpret these results as evidence of universal facial expressions, this interpretation was open to argument; because all the cultures which had been compared had also been exposed to some of the same mass media portrayals of facial behavior, members of those cultures might have learned to recognize the same set of conventions, or become familiar with each others' different facial behavior. To overcome this difficulty in interpretation, it was necessary to demonstrate that cultures which have had minimal visual contact with literate cultures show similarity to these cultures in their interpretation of facial behavior.

Members of the Fore linguistic-cultural group of the Southeast Highlands of New Guinea were studied (Ekman and Friesen, 1971). Until twelve years ago, this was an isolated, Neolithic, material culture. While many of these people now have had extensive contact with missionaries, government workers, traders, and U.S. scientists, some have had little such contact. Only subjects who met criteria established to screen out all but those who had minimal opportunity to learn to imitate or recognize uniquely Western facial behaviors were recruited for this experiment. These criteria made it quite unlikely that subjects could have so completely learned some foreign set of facial expressions of emotion that their judgments would be no different from those of members of literate cultures. Those selected had seen no movies, neither spoke nor understood English or Pidgin, had not lived in any of the Western settlement or government towns, and had never worked for a Caucasian. One hundred and eighty-nine adults and 130 children, male and female, met these criteria. This sample comprises about three percent of the members of this culture.

A different task had to be devised to work with these people, in order to circumvent language difficulties, and problems encountered in utilizing a list of emotion words. Instead of showing the faces one at a time and asking the observers to pick an emotion from a list of six or seven words, as was done with the observers in the literate cultures, the procedure was reversed. The observer was shown three photographs, was told a story about a particular emotion, and asked to pick the picture which fit with the story. The results were very clear, supporting our hypothesis that there is a pan-cultural element in facial expressions of emotion. With but one exception, the faces judged in literate cultures as showing particular emotions were comparably judged by people from this preliterate culture who had minimal opportunity to have learned to recognize any uniquely Western facial expressions. The only exception was in regard to fear, which the New Guineans discriminated from sadness, anger, disgust, and happy faces, but not from surprise faces.

In the last experiment within this first set of studies, we asked the New Guineans to themselves pose emotion. Videotapes of these posed emotions by New Guineans were then shown to college students in the

U.S. who were able to accurately judge the emotion the New Guineans had been depicting.

The second line of research we have pursued used a very different approach to establish evidence of universal facial expressions of emotion. In this study (Ekman, Lazarus, Opton, Friesen, Averill, and Malmstrom, 1970), we have taken videotape of subjects' facial expressions, without their knowledge, while they sat in a laboratory and watched a film which showed both neutral material and stress-inducing films of body mutilation. Such videotapes of the facial response to stress and neutral stimuli were obtained on 25 Japanese college students in Tokyo, and on a similar number of college students in the United States. We have applied a new measurement procedure for isolating and quantifying the movements of the facial muscles (the Facial Affect Scoring Technique) to these records. Our analysis, which is almost complete, shows the same facial responses to stress by members of these two presumably quite different cultures. The correlation between Japanese and American subjects in the frequency that they showed anger, fear, disgust, surprise, sadness, and happiness was .88. The cultural differences in facial behavior were seen later in this experiment when a fellow countryman entered the laboratory and discussed the stress film with the subject. Now that the situation became a social encounter, display rules were operative, and the facial behavior of the Japanese and Americans was quite different. The Japanese masked negative affect with polite smiles while the Americans replayed and showed the negative affect they had experienced.

Conclusions and Applications

These findings provide conclusive evidence that there is a pan-cultural element in facial expressions of emotion. This element must be the particular associations between movements of specific facial muscles and emotions, since the results obtained in the judgment experiments required that in every culture some of the same facial behaviors be recognized and interpreted as the same emotion. There may well be such a pan-cultural element for more than the six emotions we have studied—happiness, sadness, anger, fear, surprise, and disgust. It should be noted, however, that these emotions are not simply a random choice of possible emotion words but include most of the emotion concepts which have been most consistently found by investigators who have studied facial expression of emotion *within* any one culture (Ekman, Friesen, and Ellsworth, 1971).

The conclusion that there are such constants across cultures in emotional facial behavior is further supported by Eibl-Eibesfeldt's research (1970) in which illustrative films have been gathered which depict similar facial expressions across various cultures. Evidence of universal facial expressions of emotion is also consistent with early studies which showed many similarities between the facial behavior of blind and sighted children (Fulcher, 1942; Goodenough, 1932; Thompson, 1941). Universals in facial expression of emotion can be

explained from a number of non-exclusive viewpoints as being due to evolution, innate neural programs, or learning experiences common to human development regardless of culture (e.g., those of F. Allport, 1924; S. Asch, 1952; Darwin, 1872; Ekman and Friesen, 1969; Huber, 1931; Izard, 1969; Peiper, 1963; Tomkins, 1962, 1963). To evaluate these different viewpoints will require further research, particularly on early development.

Let me now explain some of the applications of our findings on universal facial expressions. The evidence of universal facial expressions led to our development of the Facial Affect Scoring Technique, a procedure which delineates the particular muscular movements relevant to the measurement of each of the emotions. We are applying this measurement procedure to a study of how facial expressions of emotion differ with the changes in psychopathology which occur from the time a patient is admitted to the time of discharge from a mental hospital. A second application of our findings is utilizing the Facial Affect Scoring Technique to study the difference between felt and simulated emotion in a situation where normal individuals are engaged in deceptive and honest interactions. We are testing some of our theories (Ekman and Friesen, 1969) about the specific facial behaviors which provide leakage (the betrayal of an emotion the person is attempting to conceal) and deception clues (behaviors which do not provide leakage but are informative that deception is in progress). This research was initiated, in part, because of a clinical interest in being able to determine whether the patient who says he is no longer contemplating suicide is actually telling the truth or deceiving in order to be free of hospital restraints so as to commit suicide. A third application of our findings on universal expressions of emotion is a test procedure which we have devised to measure individual's sensitivity and blocks in recognizing particular emotions. Utilizing still photographs of different facial behaviors, presented at very brief speeds in a tachistoscope, we have found differences between depressive and schizophrenics, and among normal individuals in relation to mood. These differences are *not* in terms of ability to recognize emotions, but instead are in terms of their inability to recognize specific emotions.

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Dr. Coombs to Conference

Robert H. Coombs, PhD, attended by invitation the White House Conference on Children, which was held December 13 to 18, 1970. Dr. Coombs has recently been appointed Chief of Research at Camarillo State Hospital and previously held faculty appointments at Iowa State University and Bowman Gray School of Medicine.