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Chapter 16

Facial Expressions

Paul Ekman
University of California, San Francisco, CA, USA

INTRODUCTION

The argument about whether facial expressions of emotion are universal or culture-specific goes back more than 100 years. For most of that time the evidence was sparse, but in the last 30 years there have been many research studies. That has not served to convince everyone, but it has sharpened the argument. I will review the different kinds of evidence that support universals in expression and cultural differences. I will present eight challenges to that evidence, and how those challenges have been met by proponents of universality. I conducted some of this research and have been active in answering the challenges, so I am not a disinterested commentator, but probably no-one is. I will try to present the evidence and counter-arguments as fairly as I can, so that readers can make up their own minds.

Most of the research on universals in facial expression of emotion has focused on one method—showing pictures of facial expressions to observers in different cultures, who are asked to judge what emotion is shown. If the observers in the different cultures label the expressions with the same term, it has been interpreted as evidence of universality. Most of the challenges have been against this type of evidence, arguing that the lack of total agreement is evidence of cultural difference.

There have been other types of studies relevant to universals, studies in which facial behavior itself is measured. This too has been challenged. Near the end of this chapter I will more briefly summarize still other research relevant to universals, evidence which heretofore has not been brought to bear: studies of other animals, studies of the relationship between expression and physiology, studies of the relationship between expression and self-report, and conditioning studies. In the conclusion I will describe my reading of all the evidence, delineating where there are universals and the many aspects of facial expressions which differ within and between cultures.

THE EVIDENCE

1. Evidence from Darwin's Study

It begins with Charles Darwin's *The Expression of the Emotions in Man and Animals* (1872/1998). His evidence for universality was the answers to 16 questions he sent to Englishmen living or traveling in eight parts of the world: Africa, America, Australia, Borneo, China, India, Malaysia and New Zealand. Even by today's standard, that is a very good, diverse,

sample. They wrote that they saw the same expressions of emotion in these foreign lands as they had known in England, leading Darwin to say: "It follows, from the information thus acquired, that the same state of mind is expressed throughout the world with remarkable uniformity . . ."

There are three problems that make Darwin's evidence on universality unacceptable by today's scientific standards. First, Darwin did not ask a sufficient number of people in each country to answer his questions. Second. Darwin relied upon the answers of these Englishmen, rather than asking the people who were native in each country (or asking his English correspondents to do so). Current research always studies the people who are native to each country, not a foreign observer's interpretation of their behavior. Third, the way in which Darwin worded his questions often suggested the answer he wanted. For example, Darwin asked, "Is astonishment expressed by the eyes and mouth being opened wide, and by the eyebrows being raised?" Instead Darwin should have asked, "What emotion is being shown when a person you observe has their eyes and mouth open wide and their eyebrows raised?" Even better would have been to show photographs of facial expressions to people in each country, asking them what emotion they saw. Although Darwin did use this method, he did so only in England.

Challenge 1: Examples of Cultural Differences

A very influential example of the challenge to Darwin's view that facial expressions are universal to the species was raised by the eminent social psychologist Otto Klineberg. While he acknowledged that a few patterns of behavior are universal, such as crying, laughing and trembling, Klineberg (1940) said that the expressions of anger, fear, disgust, sadness, etc. are not. Klineberg cited many observations of cultural differences in expressions noted by anthropologists, but the deciding evidence for Klineberg was a study which found that humans could not understand a chimpanzee's facial expressions. I describe this later in section 10.

The leading advocate of the view that expressions are specific to each culture in the 1960s and 1970s was the anthropologist/linguist Ray Birdwhistell. Birdwhistell (1970) attempted to prove that body movement and facial expression, what he called *kinesics,* can be best viewed as another language, with the same type of units and organization as spoken language. Birdwhistell wrote as follows:

> When I first became interested in studying body motion I was confident that it would be possible to isolate a series of expressions, postures and movements that 'very denotative of primary emotional states... 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. ... We can expect them [emotional expressions] to be learned and patterned according to the particular structures of particular societies (p. 126).

And again:

> Early in my research on human body motion, influenced by Darwin's *The Expression of the Emotions in Man and Animals,* and by my own preoccupation with human universals, I attempted to study the human smile . . . . Not only did I find that a number of my subjects "smiled" when they were subjected to what seemed to be a positive environment but some "smiled" in an aversive one (pp. 29-30).

Birdwhistell failed to consider that there may be more than one form of smiling. He might not have made that mistake if he had read the work of Duchenne de Boulogne, a nineteenth century neurologist whom Darwin had quoted extensively. Duchenne (1862/1990) distinguished between the smile of actual enjoyment and other kinds of smiling. In the enjoyment smile, not only are

the lip corners pulled up, but the muscles around the eyes are contracted, while non-enjoyment smiles involve just the smiling lips.

We should not fault Birdwhistell too much on this point, however, for up until 1982, no-one else who studied the smile had made this distinction. Many social scientists were confused by the fact that people smiled when they were not happy. In the last 10 years, my own research group and many other research groups have found very strong evidence to show that Duchenne was correct, there is not one smile, but different types of smiling, only one of which is associated with actual enjoyment (for a review, see Ekman. 1992).

2. Evidence in Which Multiple Observers in Different Literate Cultures Judge Expressions

It is only in the last 30 years, nearly 100 years after Darwin wrote *The Expression of The Emotions in Man and Animals,* that psychologists finally focused their attention on the question of whether expressions are universal or specific to each culture. Darwin's method of showing photographs and asking people to judge the emotion shown in the photograph has been the principal method. Because there have been so many studies using this research approach, critics have often ignored the other evidence relevant to universals which used very different methods of research (see sections 7-10 below). But first, let us consider what have often been called "judgment studies," because people in each culture are asked to judge the emotion shown in each of a series of photographs.

Many countries were studied, and it was natives in each country who were examined. They were shown photographs of facial expression and asked, not told, what emotion was shown. Apart from technical problems—a particular photograph not being a very good depiction of a real emotional expression, the words for emotion not being well translated in a particular language, or the task of judging what emotion is being shown being very unfamiliar—people from different countries should ascribe the same emotion to the expressions if there is universality.

Figure 16.1 shows six of the photographs we (Ekman, Sorenson & Friesen, 1969) used in this type of research in 1966. These are all actors who were posed by Silvan Tomkins (1962), an emotion theorist who advised me, and also Carroll Izard (1971), on how to do cross-cultural research on emotional expression. Our research differed from previous work in how we selected the particular facial expressions we would show to people in various cultures.

Figure 16.1 Photographs used in cross-cultural research

Previous studies had uncritically accepted as satisfactory every one of the actor's attempts to pose an emotion, and had shown them to people in each culture. Inspecting the hundreds of poses Tomkins' actors had made, it was obvious that some were better than others. Rather than relying upon our intuitions, however, we scored the photographs with a new technique we had developed for measuring facial behavior (Ekman, Friesen & Tomkins, 1971), selecting the ones which met *a priori* criteria for what configurations should be present in each picture. Izard also selected the photographs to show in his experiments, but by a different procedure. He first showed many photographs to American students, and then chose only the ones which Americans agreed about to show to people in other cultures.

I have chosen as the data set to discuss the findings listed and discussed by Russell (1994) in his attack on universality (a detailed account of how Russell misunderstood those data can be found in my reply; Ekman, 1994). Usually there was only one group of people studied in each country, but in some instances there were two or three, so that the total number of groups is 31. I grouped together the different samples from the same countries, even though they had been gathered at different times, sometimes by different scientists. This results, then, in providing data on 21 literate countries: Africa (this included subjects from more than one country in Africa. and is the only group who were not tested in their own languages but in English). Argentina, Brazil, Chile, China, England, Estonia, Ethiopia, France, Germany, Greece, Italy, Japan, Kirghizistan, Malaysia, Scotland, Sweden, Indonesia (Sumatra), Switzerland, Turkey and the USA. This includes two studies which lied (Ekman, Sorenson & Friesen. 1969: Ekman et al., 1987), and separate independent studies by five other investigators or groups of investigators (Izard, 1971; Niit & Valsiner, 1977; Boucher & Carlson, 1980; Ducci, Arcuri, Georgis, & Sineshaw, 1982; McAndrew, 1986).

In all of these studies the observers in each culture who saw the picture selected one emotion term from a short list of six to ten emotion terms, translated, of course, into their own language. I will focus on just the results for the photographs the scientists intended to show happiness, anger,

fear, sadness, disgust and surprise, for these were included in all of the experiments.

There was an extraordinary amount of agreement about which emotion was shown in which photographs across the 21 countries. In *every* case, the majority in each of the 21 countries agreed about the pictures that showed happiness, those that showed sadness and those that showed disgust. For surprise expressions there was agreement by the majority in 20 out of the 21 countries, for fear on 19 out of 21, and for anger in 18 out of 21. In those 6 cases in which the *majority* did not choose the same emotion as was chosen in every other country, the *most frequent* response (although it was not the majority), was the same as was given by the majority in the other countries. In my own studies, the only studies in which the expressions were selected on the basis of measuring the muscle movements shown in the photographs, *all* the expressions were judged as showing the same emotion by the majority in *every* country we studied.

Contrary evidence, evidence against universality, would have been to find that the expressions that the majority of people in one country judged as showing one emotion (let us say anger) were judged as showing another emotion (fear) by the majority in another culture. This never happened.

Challenge 2: Not Every Culture was Studied

If the requirement is that every country must be studied, and every sub-culture in every country, then no-one could ever establish that anything is universal. The counter to this criticism is that it is not plausible for there to be such high agreement in so many different countries—for 21 is not a small number, and 10 of them were not Western—if expressions are not universal. The anthropologist Brown (1991) wrote on just this point:

> The first and most obvious point about the demonstration of universals is that it is never done by exhaustive enumeration, showing that a phenomenon exists and existed in each known individual, society, culture or language. There are too many known peoples to make this feasible . . . Thus all statements of universality are hypotheses or arguments based on various limited kinds of evidence . . . (p. *51).*

Challenge 3: The Observers Couldn't Choose Their Own Words

A second challenge, which has been forcefully, but I believe fallaciously, made is that the appearance of universality was found only because the people in each culture were not allowed to say what emotion they really thought each expression showed. Recall that the people in every culture had to register their judgment about the emotion shown in an expression by choosing one emotion word from a list of emotion terms, such as anger, fear, sadness, disgust, etc. What if they had been given other words, Russell (1994) argued, might they have not disagreed? Perhaps those facial expressions really didn't show any of the emotions on the list, but instead showed quite unrelated emotions. If only the scientists had allowed them to choose their own words, rather than forcing them to choose from the scientists' list of emotion words, then evidence for cultural differences in emotional expression would have emerged.

There are two answers to this challenge, one logical and the other experimental. If words like fear, anger, disgust, and happiness are truly unrelated to the expressions, if they are as meaningless when it comes to registering the emotion shown in an expression as a set of nonsense syllables (oto, nim, faz, etc.), then widespread disagreement would have been found when people were asked to use this list to choose a word which fitted each expression. People within each culture would have disagreed with each other, and that is not what was found. And people across cultures would have disagreed with each other, and that also was not found. Just

the opposite happened. In every culture the people agreed with each other in their choices of emotion words. And across cultures they agreed in their choice of emotion words. So it is unlikely that these emotion words are unrelated to the expressions they saw.

3. Evidence from Free Choice Judgments of Facial Expressions

Of course, the best rebuttal is to allow people to choose their own words in judging the emotion they see in each expression, and to determine whether the same results are obtained. Izard (1971) did just that in one of his studies. He allowed people in Britain, France, Greece and America to give their own word for each photograph. Boucher & Carlson (1980) did the same in America, Malaysia and among the Temuans, an aboriginal group in Malaysia. Rosenberg & Ekman (1994) did the same thing in the USA, comparing agreement when people choose their own words, with the agreement that is found when people were restricted to choosing one word from a list of six or seven emotions. Neither Izard nor Boucher & Carlson provided much information about how they classified the words their subjects gave them into categories, but the strength of their studies is they compared cultures. Rosenberg & Ekman provided the raw data in their report, but they only studied one culture.

In all of these studies in which people could choose their own word, the words they chose were quite similar, within and between cultures, and the words they chose were quite similar to the emotion words that had been used in the 21 countries in which people were given a list of words to choose from. Russell (1995) dismissed this evidence, because Rosenberg & Ekman had only studied one culture, ignoring the Boucher & Carlson and the Izard data on multiple cultures.

One of Russell's own studies (Russell, Suzuki & Ishida, 1993) in which observers were allowed to choose their own word to describe the emotion shown in a photograph, strongly supports universality. English-speaking Canadians, Greeks and Japanese were shown seven photographs from Ekman & Friesen's set (1976), and allowed to give their own response rather than choosing from a list (I will not report the findings on contempt, as I discuss that emotion later). There were 18 opportunities for disagreement (three cultures x six emotions); on 17 of those 18 opportunities the most frequent word the subjects gave was the emotion term that Ekman & Friesen had specified for the photographs. In further challenging the findings on universality, Russell (1995) only mentions the one disagreement out of 18 (the Japanese called the "fear" photograph "surprise"), and does not mention the high agreement that he had actually found in every other instance. Russell also cites a study using free response by Sorenson (1975), but Sorenson did not know well the languages of the cultures he studied, neither was he trained in how to conduct such a study. His experience at that time was solely as a cinematographer.

Challenge 4: Shared Visual Input Created the Appearance of Universality

A third and perhaps more serious challenge to the findings of universality was that all the people studied had the opportunity to learn these expressions from each other or from a common source. Perhaps everyone learned their universal" expressions from watching *Sesame Street* on television! If people who were visually isolated were studied, this argument goes, if people who had seen no magazines, cinema or television were studied, they might show completely different facial expressions. Birdwhistell made this argument when I first showed him my cross-cultural findings.

4. Evidence from Judgments by Observers in a Preliterate, Visually Isolated Culture

To answer this criticism I went to Papua New Guinea in 1967 to study the South Fore culture. These people were visually isolated: most had seen few or no outsiders. They were still using stone implements, and had never seen a photograph, magazine, film or television. I could not do what I and others had done in the 21 literate cultures. I could not give them a list of emotion words, since they had no written language. I could not ask one of the few translators to read these people the list of emotion words, since it is not easy for anyone to keep in mind the list of words, and it becomes tedious when it is read again and again. I needed a procedure in which the people who saw the photographs could make their judgment without having to speak.

The procedure I adopted had been used many years earlier (Dashiell, 1927) for studying young children who also can not read. My translator read the person a brief story, and asked the person to point to the picture which fitted that story. Before using this procedure I had to have a story which clearly described a situation in which an emotion was likely to occur for these people. To discover the stories I showed people one photograph at a time and asked them to make up a story which described what had happened to produce each expression. This was demanding on both the subject and the translator, and very time-consuming. Even if there is no language barrier, it is harder to make up a story than to hear a story and point to a picture. But I had to ask people to make up a story for each picture so that I could find out what themes are most common in this culture for each of the expressions, so I could use stories based on those themes in the main research study in which the stories were read and the people just had to point to the picture.

These stone-age people, who could not have learned expressions from the media, chose the same expressions for each emotion as had the people in the 21 literate cultures (Ekman & Friesen, 1971). The only exception was that they failed to distinguish the fear and surprise faces from each other, although both were distinguished from anger, happiness, sadness and disgust expressions.

I also did more informal studies, in which I arranged for something to happen and filmed how people acted. For example, I tape-recorded two men while they played their Jews' harp and talked to each other. Then when I had my motion picture film camera going, I played back the audio tape, filming how they acted when they heard their voices come out of this machine. They showed extreme happiness blended with surprise, just as it would be shown anywhere to an enjoyable novel occurrence. On another occasion I waited by the side of a road for people who had not seen each other for some time to meet. Again, I saw expressions of happiness. I could not safely provoke anger, but I inadvertently made a woman angry by looking directly at her in a public situation, and she showed exactly the configuration I had previously identified as anger. I also frightened some children, and their expressions showed the same facial configuration for fear found anywhere else in the world.

5. Evidence from Posing Facial Expressions by Members of a Visually Isolated Preliterate Culture

In another study I asked some of these people to show me what their face would look like if they were in one of the stories. I videotaped them as they enacted the emotions, and then showed these videotapes to Americans. Figure 16.2 shows some frames from the video. If expressions are universal, then the Americans who have never seen any people from this New Guinea culture should have no trouble judging what emotion they are showing. That is just what happened except, once again, that fear and surprise were not distinguishable one from another (Ekman, 1972).

Figure 16.2 Emotion poses by New Guineans

Challenge 5: Unwittingly Biasing the New Guinea Subjects

Although our New Guinea study was considered crucial evidence for universality by many social scientists who commented on our work, Russell criticized this work. He (Russell, 1995. p. 381) tried to dilute the extent of agreement we found by combining our study with a study conducted by Sorenson (1975) who, as I mentioned, did not use our procedures and was a cinematographer when he did that work, not a trained social scientist. But Russell's major attack on our New Guinea study was his claim that we had influenced our subjects to give the responses we wanted. Although we described in our published reports the many steps we took to ensure that neither our translators nor we acted in a way which could have suggested to the New Guineans which photograph was the "correct" choice for each photograph. Russell credited reports by Sorenson, who was present only in our first year study before we developed our procedures to guard against influencing our subjects. Sorenson was not present to see how we did the study reported above.

No matter how many precautions you take, it is impossible to prove that something might not have happened that you were unaware of and which could have biased your results. Fortunately, another study, conducted by a team which was trying to prove us wrong, provides the decisive answer to any such doubts about our work. For if an investigator's attitudes and expectations could influence the findings, then this team should have found results opposite to our own.

6. Evidence from a Second Preliterate, Visually Isolated Culture

Karl Heider, an anthropologist, and Eleanor Rosch, a psychologist, thought we were wrong about universals. The Dani people of West Irian, whom Heider had studied for many years, do not have words for all six emotions we had studied. When Heider heard about our findings in Papua New Guinea, he visited me to learn how to conduct our experiment so that he could go back to West Irian, use our methods and prove us wrong. Their results, with a people more isolated than those I had studied, were nearly identical to our findings (reported in Ekman, 1972).

Challenge 6: Only Posed Expressions Are Universal

Another challenge to the findings of universality came from the anthropologist Margaret Mead (1975). She pointed out that all of our evidence was on posed, not spontaneous, facial expression. Establishing that posed expressions are universal, she said, does not necessarily mean that spontaneous expressions are universal. I replied (Ekman, 1977) that it seemed illogical to presume that people can readily interpret posed facial expressions if they had not seen those facial expressions and experienced them in actual social life. Once again, the best answer to a challenge is not just logical argument, but to have findings that directly meet that challenge.

7. Evidence from Observers Judgments of Spontaneous Facial Behavior

We studied the spontaneous facial expressions shown by Japanese and American college students. We selected Japan as the comparison culture because of the popular notion of their inscrutability. We hoped to show that this was due to display rules about masking negative affect in the presence of an authority. Students in Tokyo and in California watched a neutral travelogue and stress-inducing films (of surgery, accidents, etc.) while a hidden camera recorded their facial expressions. Two studies were done of these materials. In the first, the videotapes were shown to people in the USA and Japan who were asked to guess whether the people they saw had been watching the stressful or the neutral film. In the second study, the actual facial expressions shown by the Japanese and American students when they had been watching the stressful and travelogue films were measured.

The first study of spontaneous facial expressions strongly supported universals. The judgments made by the Japanese and Americans who saw the videotapes of the spontaneous facial expressions were highly correlated. It didn't matter whether a Japanese or an American was judging someone from their own or another culture, they made virtually the same judgments. If the Japanese observers were correct in judging whether a Japanese student was watching a stressful or non-stressful film, so were the Americans. And so it was when Americans were judged by Americans and Japanese. We repeated this study a second time with a new set of students in Japan and in California watching the stressful and non-stressful films, and a new group of observers in Japan and in California judging their spontaneous facial expressions. The results were the same. Neither the culture of the observer nor the culture of the person showing the facial expressions mattered in the accurate judgment of whether facial expressions had occurred during the stressful or neutral film. Facial expressions shown by Americans must have had the same meaning to Japanese observers as they had to American observers, and the same was true for the interpretation of the facial expressions of the Japanese subjects. This is very strong evidence, and it is evidence not on the judgment of still photographs of posed behavior, but on the judgment of videotapes showing spontaneous facial expressions.

Challenge 7: Agreement about Judgments Does Not Prove Identical Expressions

This criticism was not made by someone else, but is a problem we recognized when we did the study. Our results do not rule out the possibility that all the Japanese showed disgust when they saw a surgical film, and the Americans all showed sadness. Remember that the observers were not asked what emotion they saw, but only when that expression was shown, during the stress or neutral film. Our results could have been found as long as both Japanese and Americans observers decided that the Americans' sadness occurred during the stressful, not the neutral film, and the Japanese disgust similarly occurred during the stressful, not the neutral, film. To rule this out—to show that the same facial expressions were shown—a very different type of study had to be done in which the actual facial expressions themselves were measured, not what observers judged them to be.

8. Evidence from Measuring the Spontaneous Facial Behavior of Subjects in Two Cultures

This is the first study which does not rely upon observers' judgments of emotions, but instead measured the actual facial movements to see if they are the same or different in two cultures. The videotapes were measured by persons who did not know which film was being seen when the facial expressions occurred. A very high correlation was found in the particular facial movements shown by the American and Japanese students. Virtually the same repertoire of facial movements occurred at the same points in time. Later in the same experiment, a scientist dressed in a white coat entered the room and sat with the subject while he watched a stress film. We expected that now what we (Ekman & Friesen, 1969) had termed *display rules* for managing facial expressions in the presence of an authority figure would be operative, more so in Japan than in the USA. The Japanese did indeed show more positive emotions (masking the negative emotions) than the Americans, and less negative emotions.

Thus, this study showed that when spontaneous, not posed, facial expressions were studied, once again evidence of universals was obtained. Japanese and Americans interpreted the spontaneous behavior in the same way, regardless of whether they were judging the expressions of a Japanese or an American. When the students were alone, the facial expressions in response to the stress film were the same for the Japanese and the Americans. In the presence of another person, the Japanese subjects masked negative emotions with positive expressions more than did the Americans.

Challenge 8: Flaws in the Design and Contradictions in the Evidence

Fridlund (1994) has criticized just the study (Section 8) in which we measured the facial expressions the students had shown when alone and when with another person. He complained that it was not easy to compare the facial behavior in the alone condition and in the condition in which they watched stress films in the presence of an authority figure, because we used different measurements in each. He is incorrect; we used the same measurement technique in both. Fridlund also objected that we reported only partial face findings in the alone condition, but he must have missed our report, which did also provide findings on the whole face.

Fridlund noted correctly that 20% of our subjects showed no facial activity and wondered why that would be so. Not everybody is expressive, but the key issue is that the same percentage of Japanese and Americans showed no expressions. Fridlund also correctly noted that there was a third condition in which Japanese and Americans showed similar facial behavior. After watching the films alone they were then interviewed by a graduate student (dressed in a white coat to enhance his authority), and then watched the stress films in the presence of that authority figure. The Japanese and Americans showed the same expressions when alone, and when being interviewed, but differed when watching the films in the presence of the authority, with the Japanese showing more positive and less negative expressions. Rather than regarding the similarity when being interviewed as further evidence of universality, Fridlund viewed it as a challenge to our findings of differences in the third condition, when watching the film with the authority figure present. Why did they not show differences in the second condition when being interviewed?, Fridlund asked. The answer is straightforward. The differences occur when negative emotions were being aroused—by a film— and managed, masked by smiling. The interview did not elicit sufficiently strong negative emotion, and was not intended to. It is only when they were viewing the very unpleasant films with the authority figure present, that the differences emerged.

Finally, and considered most important by Fridlund, we can not prove that the Japanese and Americans felt the same emotions when they were alone. He asked why we did not report the data we collected on what the students said after the experiment about how they felt. But these reports should also be influenced by cultural differences. The same display rules which cause the Japanese to mask negative expressions in the presence of an authority figure, would lead them not to report as much negative emotion in questionnaires given to them by that very same authority figure. For that reason we never analyzed those reports. Instead we used a very different strategy. The films we showed to these subjects we already knew had the same emotional impact, from prior research by Richard Lazarus and his colleagues, which found the same physiological response to these films in Japanese and American subjects. We selected these films precisely because of that fact, because we could be certain that they would arouse the same emotions.

9. Evidence from Measuring Spontaneous Facial Behavior in Infants

Camras et al. (1992) measured Japanese and American infants' facial responses to arm restraints with an adaptation of the Facial Action Coding System (Oster & Rosenstein, 1991). Japanese and American infants displayed the same emotional expressions. There was a cultural difference in the latency of negative emotional expressions, with Americans responding more quickly than Japanese to the arm restraint procedure. This study has not yet been challenged by any of the critics of universality. It is an especially powerful study because it examined young infants, and directly measured facial behavior rather than being a judgment study.

A Concession by a Challenger

Russell, one of the most prominent critics of universals in facial expressions of emotion, recently conceded that the evidence from the judgment studies (Evidence in Sections 1-16; he does not deal with Evidence in Sections 7-9) allows us to rule out the possibility that facial expressions have no relationship to emotion, and are totally different in one culture as compared to another. Russell said: "So, we agree that the amount of universality is greater than 0% and less than 100%" (1995, page 382).

I believe this is the wrong way to think about the matter. I will suggest that the evidence strongly suggests universality on some aspects, and cultural differences on other aspects of facial expressions of emotion. But first, more briefly, let me summarize other relevant evidence.

10. Other Evidence

Continuity of the Species

If the particular configuration of facial muscle movements that we make for each emotion are the product of our evolution, as Darwin suggested, it is likely that we might find evidence of these expressions in other primates. Evidence that some of our expressions are shared with other primates would therefore be consistent with the proposal that these expressions are shared by all human beings—universal.

Klineberg (1940, Challenge 1) also thought that commonality in expressions between humans and another primate, such as a chimpanzee, was crucial in deciding whether human expressions are universal: "If expression is largely biological and innately determined, we should expect considerable similarity between . . . two closely related species. If on the other hand culture is

largely responsible for expression we should expect marked differences . . ." (p. 179). Citing a doctoral dissertation by Foley (1938), which found that humans' judgments of a chimpanzee's expressions were not accurate, Klineberg concluded: "[This research] . . . strengthens the hypothesis of cultural or social determination of the expressions of emotions in man. Emotional expression is analogous to language in that it functions as a means of communication, and that it must be learned, at least in part."

Foley had said the students were inaccurate because they disagreed with what the photographer who took the pictures said the chimp had been feeling. I showed Foley's pictures to a modern primatologist, Chevalier-Skolnikoff, and asked her to interpret the expressions based on the decades of research on chimpanzee expression since Foley's time. When I compared what Foley's college students had said the chimp was feeling with Chevalier-Skolnikoff's interpretations, I found that the students had been right all along (this is reported more fully in Ekman, 1973).

Chevalier-Skolnikoff (1973) and another primatologist, Redican (1982), each reviewed the literature on facial expressions in New and Old World monkeys. Each came to the conclusion that the same facial configurations can be observed in humans and a number of other primates.

Expression and Physiology

If the association between facial expressions and emotions is in some part given, then it is logical to expect that facial expressions should be related to changes in the physiology of emotion. Ekman and Davidson found such evidence examining EEG measures of cerebral brain activity while subjects watched emotionally provocative films. Different patterns of brain activity occurred when disgust or a Duchenne smile (i.e. smiling lips plus the contraction of the muscle orbiting the eye) was spontaneously shown (Davidson, Ekman, Saron, Senulis & Friesen, 1990; Ekman, Davidson & Friesen, 1990). These differences were consistent with previous findings on asymmetries in cerebral activity for negative and positive emotions. In another study they had subjects voluntarily make both a Duchenne smile and a non-Duchenne smile. Only the Duchenne smile generated the pattern of EEG activity previously found in many other studies for positive emotion (Ekman & Davidson, 1993). While Ekman & Davidson's findings are only for one culture, there is no reason to expect that these findings would be any different in any other culture.

In another set of studies, Ekman & Levenson found different patterns of autonomic nervous system (ANS) activity occurring with different facial expressions (Ekman, Levenson & Friesen, 1983; Levenson, Ekman & Friesen, 1990). They replicated their findings in a Moslem, matrilineal society in Western Sumatra (Levenson et al., 1992).

Subjective Experience

If facial expressions are universal signs of emotion, they should be related to the subjective experience of emotion. Until very recently it has been uncertain whether such a relationship was weak or strong. Two new studies have found evidence of a very strong relationship. Ruch (1995), studying German subjects, has shown that within subject designs, with aggregated data, yield quite high correlations between expression and self-report. Rosenberg & Ekman (1994) found that when subjects were provided with a means of retrieving memories for specific emotional experiences at specific points in time, there was a strong relationships between expression and self-report.

Conditioning

Further support for an evolutionary view of facial expressions of emotion comes from a series of studies by Dimberg & Ohman (1996). They did *not* find that different facial expressions are interchangeable, as one might expect if expressions are only arbitrarily linked to emotion. Instead, they found that an angry face is a more effective conditioned stimulus for an aversive unconditioned stimulus than a happy face. Conditioned responses could be established to masked angry hut not to masked happy faces.

CONCLUSIONS

Taking account of the evidence, not just the judgment studies (Sections 1-6) but the other evidence (Sections 7-10) as well. I believe it is reasonable to propose that the universal in facial expressions of emotion is the connection between particular facial configurations and specific emotions. That does not mean that expressions will always occur when emotions are experienced, for we are capable of inhibitin2 our expressions. Nor does it mean that emotions will always occur when a facial expression is shown, for we are capable of fabricating an expression (but note that there is evidence to suggest that the fabrication differs from the spontaneous expression when emotion is occurring: Ekman, 1992). How did this universal connection between expression and emotion become established? In all likelihood it is by natural selection; however, we can not rule out the possibility that some of these expressions are acquired through species-constant learning (Ekman, 1979).

It is not certain how many different expressions are universal for any one emotion. There is some evidence to suggest there is more than one universal expression: both closed and open mouth versions of anger and disgust, and variations in the intensity of muscular contractions for each emotion. It is also not certain exactly how many emotions have a universal facial expression, but it is more than simply the distinction between positive and negative emotional states. The evidence is strongest for happiness, anger, disgust, sadness and fear/surprise. I believe that fear and surprise do have separate distinct expressions, but the evidence for that comes only from literate cultures. In preliterate cultures fear and surprise were distinguished from other emotions but not from each other. There is (Ekman & Friesen, 1986; Ekman & Heider. 1988; Matsumoto, 1992) also evidence that contempt, the emotion in which one feels morally superior to another person, has a universal expression. But this evidence is also only from literate cultures, as this research was done in the 1980s and it was not possible to find any visually isolated preliterate cultures. Keltner (1995), has evidence that there is a universal expression for embarrassment. In my chapter on basic emotions (Chapter 3, this volume) I listed 15 emotions which I believe have either a unique facial expression or a unique vocal expression.

To say that there is a universal connection between expression and emotion does not specify to what aspect of emotion the expression is connected. It may be the message that another person perceives when looking at the face (what has been studied in all the judgment studies), or it may be the feelings the person is experiencing, or the physiological changes which are occurring, or the memories and plans the person is formulating, or the particular social context in which the expression is shown.

Even if we limit ourselves just to the message that another person derives when looking at an expression, that itself is not a simple matter. Most of the judgment studies represented that message in a single word or two (e.g. angry, enraged), but such words are a shorthand, an abstraction that represents all of the other changes which occur during emotional experience. It is just as likely that the information typically derived from facial expressions is about the situational context: so that instead of thinking, “he is angry”, the perceiver thinks, “he is about to fight”, or “something provoked him”. Elsewhere (Ekman, 1993, 1997) I have delineated seven

classes of information which may be signaled by an expression.

Culture, social groupings within cultures, and individual differences all produce large differences in facial expressions of emotions. There are differences in the expression itself, and in what the expression signifies to the person showing the expression and to others. I expect the largest difference to be with regards to the words which represent emotions. I expect that languages differ not only in terms of how many words they have for each emotion, but the extent to which they have a word which gives subtle nuances, or combines emotions, or tells us about what caused the emotion or what behavior is most likely to be shown. The Germans have the word *Schadenfreude* for that distinctive enjoyment which comes when one learns about a misfortune which has befallen one's enemy. English speakers have no single word for that feeling, although they feel the emotion. Not having a word for an emotional state, or as many words, may well influence emotional experience. Without being able to name feelings, it is harder to distinguish them, think about them, plan regarding them, etc. Given the likelihood that the words used to refer to emotions are so permeated by culture-specific differences, it is amazing that agreement has been so high in the judgment studies (Evidence 2-6).

There are differences also in display rules, regarding the management of emotional expressions in specific social situations. Izard (1971) reported differences in attitudes about emotions, how positively or negatively the experience of one or another emotion was experienced. Gottman, Katz & Hooven (1996) have defined "meta-emotion philosophy" as one's organized set of feelings and thoughts about one's own and others' emotions. They have shown how individual differences in a parent's meta-emotion philosophy about their child's emotions related to how they parent, the child's regulatory abilities, and various child outcomes in middle childhood. Although the research has yet to be done, I believe it is very likely that, in addition to the individual differences they have observed, there are also social class differences and cultural differences in meta-emotion philosophies.

Cultures differ also in some of the specific events which are likely to call forth an emotion. For example, some of the foods which are prized in one culture may be repulsive in another cultural setting. Of course, such differences in food preferences and aversions are also found within a culture. Notice that, although the specific event varies—the type of food—the general theme—ingesting something repulsive as a cause for disgust, or ingesting something attractive as a cause of enjoyment—is universal. I think this is a good model for all the emotions. The specific event which gets an American angry may be different from what gets a Samoan angry, but the theme will be the same. Anger can be brought forth by something which is provocative, insulting or frustrating, to name just a few of the anger themes, although what each person finds provocative, insulting or frustrating may not be the same across or within cultures.

There are, then, major differences in facial expressions of emotion between cultures, and differences within any culture: in the words for emotions, in what is learned about the events which call forth an emotion, in display rules, in attitudes about emotions and, I expect, in meta-emotion philosophies. All these differences shape our emotional experience. Our evolution gives us universal expressions, which tell others some important information about us, but exactly what an expression tells us is not the same in every culture.

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