

# Getting a Feel for Emotions

## Emotional development attracts cross-cultural explorations

By BRUCE BOWER

**W**ho says scientists are a dispassionate, sober lot? When they start talking about emotions, the fur and the fervent opinions start to fly.

The most bruising clashes have revolved around the relative strengths of biology and culture in producing the rich palette of feelings that color daily life. During much of the first half of the 20th century, the dominant view—prominently espoused by anthropologist Margaret Mead—held that each culture shapes its members' emotional experiences in unique ways. In the past few decades, however, biological and evolutionary forces that transcend any particular culture have received growing attention as orchestrators of a universal set of emotions.

One current theory, for example, posits that evolution has endowed the human brain with a set of basic emotions, each of which produces a distinctive facial expression—at least when people aren't trying to hide their feelings. A contrasting view holds that emotions and facial displays are social communication tools, which take shape from cultural forces rather than hard-wired brain networks.

Everyone agrees, though, that the terrain of emotional development contains many uncharted areas. For instance, researchers have yet to decipher how children attain a sense of when to be angry, how to express anger, or what to do in situations perceived as scary.

Three studies published in the July *DEVELOPMENTAL PSYCHOLOGY* attempt to untangle a few cross-cultural similarities and differences in emotional development. The first project documents the emotional responses of Canadian and Chinese infants to the expressionless face of a parent or stranger. The second investigation tracks the emotional expressions of infants in the United States, Japan, and China during experimental sessions designed to elicit either frustration or fear. The third report delves into the ways Nepalese children

raised in either Hindu or Buddhist ethnic groups respond emotionally to challenging social situations.

Explorations such as these move toward the ultimate goal of teasing out universal features of emotion from realms of feeling that are unique to specific belief systems, says psychologist Carolyn Saarni of Sonoma State University in Rohnert Park, Calif.

"To study the rich variability of emotional experience in individuals and across societies, we will need to add considerable flexibility to our conceptual categories [for describing emotional development]," Saarni contends.

**T**he three new studies stretch ideas about emotional development in different directions. Psychologist Barbara S. Kisilevsky of Queen's University at Kingston, Ontario, directed the exploration of how babies interact emotionally with their mothers. In North America, other investigations have found that if a mother talks and coos with her baby as usual, employing typical facial expressions, vocal tones, and touch, and then presents a neutral "still face" without talking or touching the infant for 1 to 2 minutes, the child largely stops gazing and smiling at the mother.

Researchers suspect that the baby withdraws from social give-and-take when a mother violates her child's expectations. This effect, noted in infants ages 2 to 11 months, also emerges in experimental interactions with strangers and televised images of the mother.

Kisilevsky's group conducted still-face experiments in southeastern China with 13 male and 27 female infants, ages 3 to 6 months. In sessions with mothers, fathers, and strangers, the youngsters exhibited still-face responses much like those of white Canadian peers in previous studies.

There were, however, some behavioral

differences. Chinese infants moved about much less than Canadian children in response to still faces, perhaps because Chinese babies are held continually for at least the first 6 months of life and may be discouraged by their mothers from squirming.

Nonetheless, Kisilevsky and her colleagues assert, "the universality of the still-face effect is perhaps an innate withdrawal response [of infants] to a lack of communication."

**I**n contrast, emotional facial expressions associated with frustration and fear look considerably different in Chinese and U.S. infants, according to psychologist Linda A. Camras of DePaul University in Chicago and her colleagues. Japanese and U.S. infants, intriguingly, display much the same expressions for these emotions.

Camras' team studied 24 white infants in Berkeley, Calif., 24 Japanese infants in the city of Fukushima, and 24 Chinese infants in Beijing. The boys and girls in the investigation were all 11 months old.

In an anger- and frustration-inducing procedure, infants sat in high chairs—with their mothers seated next to them—as a female experimenter gently interacted with them for 10 minutes. The experimenter then grasped each infant's wrists and held them immobile on the high chair tray for up to 3 minutes. The session ended early if a child cried continuously for 7 seconds.

To elicit fear, the experimenter placed a toy gorilla head on a table near each infant. The remotely activated toy emitted loud growls for 15 seconds while its eyes lit up and its lips moved. Several times, the experimenter moved the toy head slightly closer to the child and repeated the performance, unless the child cried for 7 seconds straight.

Videotapes of babies' facial expressions were analyzed for muscle movements previously linked to a number of emotions.

U.S. and Japanese infants expressed both positive and negative feelings with similar intensity, and they markedly exceeded the expressiveness of Chinese infants. "Smile mouths" accompanied by raised cheeks, considered a signal of happiness, occurred much more often during initial contact with an experimenter for the U.S. and Japanese groups than the Chinese. Upon being restrained or seeing the gorilla head, U.S. and Japanese babies cried sooner and exhibited more "cry mouths" than their Chinese peers.

U.S. infants produced the most instances of lowered eyebrows, perhaps related to a greater degree of distress and crying, the researchers say. Japanese infants were most likely to make midfacial movements, such as raising the upper lip, that are elements of cry faces or distaste expressions. Chinese children exhibited

no striking patterns of facial movement, possibly because they had already begun to learn how to mask negative feelings, Camras' team suggests.

No one set of muscle movements was associated with all the infant reactions to procedures intended to elicit either anger and frustration or fear, the researchers assert. Infants may incorporate various facial movements into general expressions of positive and negative emotion, depending on the situation and culture, the psychologists theorize.

Cross-cultural findings based on the still-face procedure and on anger- and fear-provoking situations prove intriguing but difficult to interpret, comments Saarni. These techniques, developed in North American laboratories, may yield behaviors in Japanese and Chinese infants that look familiar to Western researchers but nonetheless have different meanings and functions in the infants' respective cultures, she notes.

**T**he third newly published investigation, in which interviewers probed beliefs about appropriate emotional behavior among Nepalese children and their mothers, comes closer to illuminating how different cultures—even within the same nation—may promote divergent assumptions about feelings, Saarni contends.

Pamela M. Cole of Pennsylvania State University in State College and Babu Lal Tamang of Sanman Prabhi School in Tekanpur, Nepal, directed that project.

The researchers recruited one group of 27 children, ranging in age from 6 to 9, from Nepal's majority ethnic population, known as the Tamang. As Tibetan Buddhists, the Tamang cherish social equality and harmony. Differences between villagers are played down. For example, families share goods that they accumulate to avoid the appearance of an imbalance of community wealth. Consistent with Buddhist principles, the Tamang strive to avoid any strong emotions, particularly anger.

A second group of 23 youngsters in the same age range belonged to a Nepalese Hindu population, the Chhetri-Brahmin, which adheres to a social-caste system. Their daily behavior hinges on disciplined self-control according to religiously inspired rules for avoiding spiritual pollution. For instance, lower-caste people cannot touch the food or bodies of higher-caste individuals, and women cannot taste the food they cook until other family members have eaten. In this society, intense emotions are accepted as occurring from time to time, but people learn to dilute facial expressions and other signs of heightened feeling.

Children were asked in their native tongue to imagine how they would feel in a series of social situations described in stories, each illustrated with a picture.

Story themes involved seeing a friend act aggressively, being separated for a few days from one's parents, receiving directions from one's mother to stop playing and go to bed, being picked on by peers, observing a parental argument, and joining a desirable peer group.

Significant cultural differences emerged, report Cole and Tamang. The Tamang children usually indicated that they would feel "just OK," both in negative and positive scenarios. Chhetri-Brahmin children more often reported feeling negative emotions, such as anger and sadness, but said that they would try to hide them.

The two groups of Nepalese children, however, expressed comparable reluctance to act on negative emotions, consistent with the values of respect for authority and social harmony evident in their farming villages, the investigators assert.

Chhetri-Brahmin mothers reported teaching their children about both how to behave and how to express feelings. Tamang mothers said that children learned proper conduct automatically; their main parental intervention was to cajole youngsters into feeling good and achieving a calm state instead of displaying negative emotions.

For Tamang children, feeling OK when being subjected to teasing or observing a parental argument may stem from their history of being eased into a pleasant state whenever harsh emotions surface.

The internal experience and meaning of emotion for members of foreign cultures is difficult to pin down, Cole says. Consider the results of a 1993 study directed by Michael Lewis of the Robert Wood Johnson Medical School—University of Medicine and Dentistry of New Jersey in New Brunswick. Japanese infants gazed impassively but exhibited steep rises in the stress hormone cortisol as they got inoculation shots; in contrast, U.S. infants cried and looked upset but displayed only modest cortisol increases.

**T**he biological roots of emotion are equally slippery. Research in this area got an early shot in the arm from Charles Darwin's 1872 book, *The Expression of the Emotions in Man and Animals*. The British scientist argued that, as a result of natural selection, all people as well as some nonhuman primates display common facial expressions for certain emotions, including happiness, anger, and fear. Social influences helped to shape this emotional legacy of human ancestors, Darwin contended.

About 40 years ago, psychologist Paul Ekman of the University of California, San Francisco launched a new wave of studies inspired by Darwin's emphasis on innate facial expressions for emotions. Ekman provides commentaries to a new edition of Darwin's book (1998, Oxford University Press).

To people around the world, including

members of an isolated foraging group in New Guinea, Ekman and others have shown posed pictures of various facial expressions. They conclude that people everywhere recognize the same expressions for a handful of emotions: anger, disgust, sadness, enjoyment, and fear or surprise. Clear distinctions between fear and surprise expressions have appeared only among members of literate cultures, Ekman says.

In studies aligned with Ekman's model, scientists now are beginning to use brain-imaging technology to search for neural systems linked to these allegedly universal emotions (SN: 6/13/98, p. 383).

Critics of the Ekman-led approach consider emotions and facial expressions to be ways of communicating with others and regulating social interactions. In their opinion, the brain does not have innately specified emotion circuits. Instead, basic tendencies toward positive or negative emotion are incorporated by a child into a learned repertoire of strategies for navigating the social world.

Plenty of variability has emerged in cross-cultural ratings of facial expressions, notes Alan J. Fridlund of the University of California, Santa Barbara. Smiles, eyebrow movements, and other facial gyrations serve many intentions in different social situations and sometimes occur without any inner experience of emotion, he asserts.

For instance, smiles viewed by Ekman as intentionally false (in which the mouth turns up but muscles encircling the eyes fail to contract as in "genuine" smiles) often honestly express intentions of appeasing another person or giving in to another's authority, Fridlund maintains.

Emotions are commonsense concepts that people use to organize and describe intense social experiences, contends neuroscientist Leslie Brothers of the University of California School of Medicine, Los Angeles. Certain brain regions spark bodily responses to sensations, such as a welling of tears when seeing a loved one about to depart. These responses nudge a person toward socially preferred reactions, such as crying or experiencing a sense of despair.

People apply the term "emotions" to these deeply resonating feelings, but that naming does not mean that emotions exist as entities inscribed in the brain's furrows and ridges, Brothers says in *Friday's Footprint: How Society Shapes The Human Mind* (1997, Oxford University Press).

Scientists who wade into the hubbub of people's daily lives find emotions are certainly real but about as easy to grasp as a handful of water. "How do you distinguish between the occurrence of a genuine emotion and someone's regulation of their emotional display? Is the experience of shame and other emotions the same in Nepal as in the United States?" Cole answers her own questions succinctly, "We don't know yet." □