
Origin Of Smile, Cry and Laughter

In the early days of first year of my stay at IISER Bhopal as a junior, I was concerned about the behaviour of my senior students. When some senior came in my way during regular walk to class, I used to lift up my upper lip, squint the eyes (to protect them), my cheeks grew puffy, shoulders got upward, my torso would come forward, my abdomen would get backwards, arms would come forward to protect my chest and abdomen, tendons in legs tightened in case if I needed to run away- in short, I gave him a friendly smile.

Our friendly gesture at least contain all the above movements, which we are mostly unaware of. It is a defensive strategy. Other gestures like laughter, crying also contain similar set of physical movements. 'Why we do that?' 'what is real reason behind all the emotional expressions like smile, laughter, cry?' etc are some of the questions that have always puzzled scientists around the world. In early days, theorists believed that these gestures are merely the expression of our inner emotions formed due to external stimuli and should vary for different cultures around the world. But Charles Darwin argued that opposite emotions triggered somewhat similar set of physical movements which are common for all the humans on the earth (also common to animals). Hence they must be inherited from our common ancestor. After that, theorists started looking for evolutionary origin of laughter, smile and crying.

In 1960, American psychologist Edward Hall pointed out that every human have personal imaginary bubble or zone of solitude around itself which is generally 3-2 feet wide. It is wider around head and gets narrower towards the legs. If someone enters in this bubble of a person, different receptors on the its body surface get triggered and start reflex actions of defense. This bubble is an evolutionary adaptation. It is for the safety of a person. How my reflex actions in above mentioned encounter favour me?

The key to this puzzle lies in the term 'information'. We have to consider above situation as an encounter between two human ancestors like chimpanzees. What I feel about senior is expressed by my defensive actions as he enters in my bubble. I convey him -'I fear you and I submit'. I make my point to social superior and can influence his decisions. He gets information about my state of emotions. He has benefit to plan his response. He nods at me and goes away. (original responses varied for different seniors). If I remained straight upright, it would have been like -'I don't fear you'. This analogy is superficial and exaggerated, the actual processes happening in brain and body and their expressions during above interactions are much complex. Smile is just an imitation of that defensive stance.

Laughter show diverse emotions. We laugh when someone cracks a joke, we laugh in sarcasm,

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we laugh to praise someone etc. It involves same physical moments except that dry smile. It involves special kind of smile , known as Duchenne smile ,in which muscles around our eyes get too much contracted. We do laugh to appreciate someone in a way like-' you got a point in this mental fight, I surrender to you'. Above meanings may vary with the change in situation. Intense laughter due to tickling happens because of someone has entered into the private bubble of a person. Some children start laughing even before you touch them. They are very sensitive towards bubble.This laughter must have been more violent in case of our ancestors.

To explain the origin of crying, we need to consider the main component of it-tears. Early scientist thought tears flow only to decontaminate eyes. But tears have other roles.We cry to get over stressful thoughts. In case of fights, it is hypothesized that when our ancestors used to punch in the face of opponent, lacrimal glands in opponent's eyes secreted tears to lubricate and decontaminate the injured skin on face.According to recent studies, the shape of human facial bones might well have evolved to withstand the physical trauma of frequent punching. Crying also indicate social comfort. If someone cries ,we comfort to enhance our social relationships. This social comfort and caring is essential for sustainability of our species in the process of evolution.

Newborn babies cry to signify their parents for food and warmth.

Cry , laughter , smile have been evolved as a part of mechanism of our ancestors' survival. Though they changed their original meaning since the dawn of modern human civilization, some original part of their meaning remained as it is.

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