Qualia

Study: Facial expressions of intense joy and anguish are indistinguishable

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Studies looking at how people perceive emotions often rely on stimuli that look like floating faces. What has largely been missing in these studies is the role of the body in emotional processing. A fascinating new study published in Science used a clever experimental paradigm to tease apart how we use visual input from bodies more than faces to determine whether someone is having a very good or very bad day. The study was performed by researchers Hillel Aviezer, Yaacov Trope, and Alexander Todorov.

In the first part of the experiment, the researchers used pictures of tennis players who had either scored or lost a point in an important match. They also showed participants pictures with just the players' faces or just their bodies (you can see examples of these manipulations in figure 1—they're pretty amazing). For all of these pictures, participants rated how positive or negative they thought the player was feeling.

It turns out that it was very easy for people to determine the emotion of a player when presented with the whole image or the body without the face. But people had a harder time with faces alone. In fact, participants rated both the winning and losing disembodied faces as expressing negative emotion. Interestingly, the majority of participants thought that the faces were more informative than the bodies in this task.

While the faces didn't influence the perceptions of the player's emotions, they did influence the intensity ratings of these emotions. The complete and face only stimuli from the winners were rated as showing a more intense emotion than the pictures of the losers. There was no difference in the intensity ratings of pictures showing winning and losing players in the body-only condition. Does this mean that winning a point in tennis is a more intense experience than losing a point?

In the second part of the study, the researchers made body-face hybrids (they put a winning tennis player face on a losing body and vice versa) and asked people to rate the emotion of the player. The results showed that the participants largely ignored the faces and used the bodies to rate the players' emotions. A similar finding was found with the third experiment where the researchers used body-face hybrid stimuli showing other intense emotions (grief, pleasure, intense pain, defeat, intense joy). Here again, the emotion displayed in the body overrode the facial emotion.

The final part of the study was particularly interesting. In this experiment, participants were asked to pose like some of the pictures. For example, a person posed like a hybrid picture showing a winning face on a losing body. The person then posed like a picture showing the same winning face on a winning body. Next, another group of participants viewed photos of the posers' faces from the reenactments and were asked to say which face was expressing a more positive emotion. The results showed that the faces that were made from people reenacting a picture with a winning body were rated more positively than those reenacting a picture with a losing body—regardless of whether the face in the original picture was from a winning or a losing player. This was true even when participants were given unlimited time to study the pictures to perfect their poses. What is interesting about this is that the participants doing the perception part of the task were able to distinguish between winning and losing faces when forced to choose (remember that in the first task participants rated both the original winning and losing faces as expressing negative emotion). Was this because the actors weren't feeling the intensity experienced by the actual tennis players or was this simply a result of the study design (being forced to choose)?

What these results show us is that even though faces are doubtlessly important for conveying and perceiving emotions, the information we get from the rest of the body can overcome that perception—at least for intense emotions. In fact, facial expressions of intense emotions can be indistinguishable from one another. The authors speculate that this might be a muscle issue—perhaps the tiny muscles in our faces just aren't able to differentiate between really happy and really sad. They also suggest that our conscious experience of really intense positive and really intense negative emotions may not actually be that different (a concept that's really interesting to think about).

What does this mean for us practically? Maybe we should work on our "poker bodies" instead of our poker faces—you never know when you'll get a full house.