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Friday, 21 August 2009

Emotions are Still Universal

Are facial expressions of emotion culturally specific, or universal? For decades, the dominant view has been that they are universal, at least when it comes to a set of "basic" emotions: fear, happiness, sadness, surprise, anger, and disgust.

Darwin was an early proponent of the idea that all humans (and indeed other mammals) display emotions in certain ways; his book *The Expression of the Emotions in Man and Animals* is still a very interesting read.

More recently, the universalist view has been closely associated with the psychologist [Paul Ekman](#). In the 1960s Ekman reported that people from diverse cultures, including isolated tribespeople from Papua New Guinea, make similar faces in response to similar situations.



Now, a new paper claims that *Cultural Confusions Show that Facial Expressions Are Not Universal*. This article has got a lot of [media and blog attention](#), not surprisingly, since at least judging by the title, this is a major upset.

But the paper's findings are rather modest. The authors, Jack et al, took 13 white British and 13 East Asian subjects. The Asians, who were mostly from China, had only been in Britain for about a week, and all subjects reported that they had never lived in, or even visited an "other race" country, dated interracialy, etc.

Subjects were shown pictures of faces and had to pick the appropriate "basic emotion" - anger, disgust, fear, happy, neutral, surprise, and sadness. The faces were of actors posing the emotions, in accordance with Ekman's "FACS" system.

The result was that Western subjects did well on all emotions, but the Asians did less well on fear and disgust, as they tended to confuse these two emotions. The authors also used [eye-tracking technology](#) to see where the subjects were looking, and found that the East Asians tended to focus on the eyes more while examining the faces, which may explain their differing performance.

This is quite interesting, especially the eye-tracking data (which goes into a lot of detail). But does it justify the conclusion that:

Our data demonstrate genuine perceptual differences between Western and East Asian observers and show that FACS-coded facial expressions are not universal signals of human emotion. From here

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I just discovered the archives of the Confederate States Medical and Surgical Journal (1864-65) ncbi.nlm.nih.gov/pmc/journals/3... From the titles, there's surprisingly no racist papers. However, we do have "A Woman with Three Breasts", and treatment of insanity with cyanide.

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on, examining how the different facets of cultural ideologies and concepts have diversified these basic social skills will elevate knowledge of human emotion processing from a reductionist to a more authentic representation. Otherwise, when it comes to communicating emotions across cultures, Easterners and Westerners will continue to find themselves lost in translation.

Well, sort of, but the differences found in this study were really rather small. Statistically, the Asians successfully recognized fear and disgust less often than the Westerners. But they still got them right 58% and 71% of the time, respectively, even when the faces were Western; they did better when the faces were Asian. Given that there were 7 options, had they been picking randomly they would only have got 14% right. 58% is still pretty good. The Asians were actually (non-significantly) better at recognizing neutral, surprised, and sad faces.

Table S1. Categorization Accuracy for Western Caucasian (WC) and East Asian (EA) Observers across All Facial Expressions and Same Race (SR) and Other Race (OR) Face Stimuli

		Neutral	Happy	Surprise	Fear	Disgust	Anger	Sadness	
WC	M(%)	90	98	83	85	90	92	91	SR
	SE	2.6	1.3	4.9	3.9	5.1	2.4	3.9	
	M(%)	85	100	84	90	85	85	86	OR
	SE	1.4	0.3	4.2	3.4	5.2	3.7	4.1	
EA	M(%)	95	99	87	58 **	71 *	86	92	SR
	SE	1.7	1.0	3.2	7.3	6.1	5.5	2.4	
	M(%)	91	99	94	69 **	67 *	74	87	OR
	SE	2.6	0.4	2.9	5.3	5.5	5.5	3.2	

*p < 0.05; **p < 0.001.

And the differences notwithstanding, the whole task relies upon the fact that the subjects know the meaning of "happy", "fear", and so forth, and associate them with certain face expressions. The fact that the experiment worked at all shows - as Ekman would predict - that both Westerners and East Asians share an emotional understanding. There appear to be some cultural quirks, but the essential universality of facial emotion still stands.



Jack, R., Blais, C., Scheepers, C., Schyns, P., & Caldara, R. (2009). Cultural Confusions Show that Facial Expressions Are Not Universal *Current Biology* DOI: [10.1016/j.cub.2009.07.051](https://doi.org/10.1016/j.cub.2009.07.051)

Labels: [faces](#), [papers](#)

Posted by Neuroskeptic at 00:35

12 comments:

Anonymous said...

I'm curious why more commentator call the authors of studies like these out on the very small sample sizes. These studies are very underpowered.

21 August 2009 at 01:28

Eric Johnson said...

Hmm - did they use a Bonferroni correction?

21 August 2009 at 05:22



Neuroskeptic said...

Anonymous: Yes, it was small. Although had their been a dramatic effect, it would have been powered to detect it.

Eric: They used a repeated-measures ANOVA and then Bonferroni corrected:

"A three-way (two cultures of observers, two races of face, seven facial expressions) mixed analysis of variance (ANOVA) on mean categorization accuracy (see Table S1 available online) showed a significant culture of observer \times facial expression interaction [$F(6,144) = 5.608, p < 0.001$]. Post hoc Bonferroni comparisons showed that EA observers made significantly more errors when categorizing "disgust" ($p < 0.05$) and "fear" ($p < 0.001$) than WC observers did."

So the stats seem legit. Although there could be reasons other than culture for

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the difference - emotion recognition accuracy has been shown to be impaired in [anxiety disorders](#), for example.

21 August 2009 at 09:30



insider said...

Pharmascold tees

<http://www.zazzle.com/pharmascold+gifts>

Cheers

J

22 August 2009 at 17:22



Neuroskeptic said...

Lovely!

22 August 2009 at 18:59



Unknown said...

Yes, it was small. Although had their been a dramatic effect.

--

Jhon

[Wireless Home Alarm Security Systems](#)

26 August 2009 at 07:09



Chris said...

Nice post. Also, I have always loved that picture

27 August 2009 at 18:00



Neuroskeptic said...

Thanks. Me too. I've always thought that photos like that make the case for the universality of emotional expressions at least as well as any scientific paper...

29 August 2009 at 00:22



Unknown said...

What expression do you think she is making? It's definitely not prototypic. According to FACS, the only facial muscles that are not mostly neutral are her upper eyelids. If her eyebrows were elevated as well, it could be surprise. But they're not so that makes me think anger. Kind of a face that accompanies the phrase "why don't you take a picture, it will last longer."

5 September 2009 at 04:46



Neuroskeptic said...

I don't think it's an Ekman basic emotion because it's not an acute thing. It's more of a mood. Anxiety mixed with weariness. "Oh, what now?"

5 September 2009 at 10:35

jordanhouses.org said...

It cannot succeed as a matter of fact, that's what I suppose.

19 June 2012 at 14:21

Cliff Lansley said...

I struggle with the whole alignment of this study. The research does not support the claim. The hypothesis that 'facial expressions of emotion are not culturally universal' is about the display of the emotion. The universality hypothesis does not claim that all humans communicate emotions universally - the universality hypothesis is more to do with, as the paper states later, the argument that "six basic internal human emotions (i.e., happy, surprise, fear, disgust, anger, and sad) are expressed using the same facial movements across all cultures".

These are two different statements.

This study seeks to evaluate subjective, mental representations of facial

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expressions of emotions and this injects a major contaminant. This alone is reason enough to reject the claim of the research. Paul Ekman's research focuses on those displays which happen, unbidden, as a result of experiencing an emotional episode.

The 'Discussion' in the report attempts to deal with this perception versus production argument. But it doesn't. It argues that, "the facial movements perceived by observers reflect those produced in their social environment because signals designed for communication (and therefore recognition) are those perceived by the observer". As soon as the paper moved onto "cultural groups who use them (facial expressions) for social communication" this took this, for me, firmly into the field of conscious gestures – not emotionally triggered facial expressions.

We know from the extensive research over the last 40 years that facial expressions of some (7) emotions are displayed universally across cultures, sometimes without consciousness, though they are not always judged accurately. Nor can they be always reconstructed consistently. For example, when some people are asked to draw or imitate a sad face, a common expression that is created consists of pursed lips, tight eyelids and brows down – similar to when a child sulks. Yet genuine felt sadness is universally displayed with inner brows up, relaxed eyelids and mouth corners down – the first and the third components here being very hard to manipulate at will by most people.

Eyeball movements do not feature in the universality of expression hypothesis – yet they play a major part in this study. Display rules of different cultures are mentioned yet not developed enough in terms of these being learned choices about what to display on the face and sometimes come into play after the genuine emotional display has occurred on the face – thereby creating the micro-expression of the genuine, universal emotion followed by the (often) conscious suppression or masking that occurs in some groups, families and cultures when we are in the presence of others. This might explain the differences in intensity scores. Blended emotions where one emotion moves into another feature here too of course.

So has this study helped to stimulate debate? – yes. Does it successfully argue that 'facial expressions of emotion are not culturally universal' – no. What it might do is help to describe the differences in conscious displays of emotion in certain cultures – though these are not necessarily connected with the evolved, unbidden, facial expressions of emotion that good research has shown to be universal.

[14 November 2012 at 18:52](#)

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