

Determination might be a very human expression

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Humans might be using facial expressions of determination as a call for help from others, according to new research.

When [children](#) and [chimpanzees](#) were both given a task that was impossible to solve, children's faces expressed determination or frustration the more they tried to solve the task, but chimpanzees did not.

The facial expressions shown by the children – chin raised and lips pressed together – could signal effort or frustration, according to Dr Bridget Waller, of the University of Portsmouth, who said it is possible humans have evolved to use these facial expressions to solicit help from others.

The research is the first to directly compare facial expressions between humans and other primates in an identical experimental situation. The study made comparisons based on facial muscle movements. It is published in Royal Society Journal *Biology Letters*.

Dr Waller said: "By producing expressions which tell others they are frustrated and not able to complete the task, humans might be stimulating empathy in others in order to receive support.

"My guess is that these expressions are produced subconsciously. I doubt that the children in these tests were aware of their own facial expressions and we also don't know if observers recognise these facial movements and respond to them. Even if observers do respond it could also be a subconscious process."

The researchers showed 32 children aged three-six years old and, separately, 34 chimpanzees a transparent box containing a small toy for the children, or a piece of fruit for the chimpanzees. Both children and chimpanzees were shown how to open the box. Out of sight, the researchers then locked the box and placed it back within sight for

two minutes.

Every single facial muscle movement made by the children and the chimpanzees was recorded throughout using observation tools to precisely measure facial expressions.

Children produced [facial movements](#) associated with effort and determination the more they tried to open the box, but the chimpanzees, although capable of making identical movements, did not. The chimpanzees did make facial expressions, but not in relation to how much effort they put into the task.

Co-author of the paper, Dr Esther Herrmann, of the Max Planck Institute for Evolutionary Anthropology, said: "Humans are an intensely co-operative species and the findings suggest these facial expressions could function to solicit co-operation and help from others.

Some facial expressions are similar in different species, for example, the [human](#) smile is equivalent to the bared-teeth display in other primates, and human laughter is equivalent to the primate play face, used during play. But other expressions appear to have evolved differently in different species, such as those produced during effort and determination. Chimpanzees produce similar movements in the bulging lip display used during bluff displays, but this doesn't seem to be produced when they are engaging with a difficult task as it is with humans.

The researchers said human [facial expressions](#) are very similar to other species on the whole, more so than human language, which is unique to humans, but these findings suggest that even though they look the same, they may be produced in different contexts.

More information: "Children, but not chimpanzees, have facial correlates of

determination." B. M. Waller, A. Misch, J. Whitehouse and E. Herrmann. *Biol. Lett.* 20130974.
[dx.doi.org/10.1098/rsbl.2013.0974](https://doi.org/10.1098/rsbl.2013.0974)

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