

# Research shows that two people can learn to cooperate intuitively, but larger groups need to communicate

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(PhysOrg.com) -- Two people can learn to cooperate with each other intuitively – without communication or any conscious intention to cooperate. But this process breaks down in groups of three or more.

A study by members of the University of Leicester's School of Psychology and Department of Economics set out to explain how two people learn to cooperate without even knowing that they are interacting with each other. In larger groups, explicit [communication](#) is needed to coordinate actions.

Professor Andrew Colman, Dr Briony Pulford, Dr David Omtzigt, and Dr Ali al-Nowaihi carried out the study, due to appear in the journal [Cognitive Psychology](#). The research, funded by the British Academy, has helped to explain the mechanisms of intuitive [cooperation](#).

The researchers conducted a series of laboratory experiments with groups of various sizes and developed a mathematical model of the intuitive learning process. Experimental participants received financial gains or losses after pressing one of two buttons on a computer, unaware that the outcome depended not on their own choice but on their neighbour's. It turned out that after many repetitions of the game, gains gradually exceeded losses in groups of two but not in three-person and larger groups.

Professor Colman said: “Here’s a simple example that shows the basic idea. Every morning, Alf chooses whether to give his son raisins or cheese sticks to snack on during the day. Similarly, Beth chooses between popcorn or peanuts for her daughter’s snack. The children are friends and always share their snacks with each other at school, although their parents know nothing about this. Alf’s son is allergic to peanuts and gets ill if he eats any of his friend’s peanuts, and Beth’s daughter is allergic to cheese and gets ill if she eats any of her friend’s cheese sticks. The upshot is that although each parent’s snack choice has no effect whatsoever on his or her own child’s wellbeing, in each case one option leaves the other parent’s child well and its parent happy, whereas the alternative option makes the other child ill and upsets its parent.

“The choices of Alf and Beth govern each other’s fates and, in the game of life, while two people may ‘develop an understanding’ or work intuitively together – this scenario is easily distorted once a third person becomes involved. Without effective planning and ground rules, even the best of working relationships between two people can become undone once a third is involved.

“Married couples or pairs of business partners may be able to rely on this type of intuitive cooperation, to an extent, but larger groups need explicit communication and planning. Mechanisms need to be put in place to facilitate it. Intuitive cooperation is really a case of two’s company, but three’s a crowd.”

Provided by University of Leicester

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