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FOCUS ON THE SUCCESS OF OTHERS LEADS TO SELFISH BEHAVIOUR

A study at the University of Groningen reveals that people differ consistently in how they learn from their peers and that these differences are related to their social behaviour. Individuals who focus on the success of others behave more selfishly than individuals that focus on other kinds of information.

A team of researchers from the University of Groningen (The Netherlands) conducted a decision-making experiment designed to find out how individuals learn from the behaviour and experiences of others, and how this learning affects cooperation in groups. Participants in the experiment were invited to a computer laboratory where they interacted in groups of five. They could earn money by repeatedly making choices between two options. How much money they earned with each decision depended not only on the option chosen by themselves, but also on the choices of the other participants in their group. In between choices, the participants were given the opportunity to pay a small fee to look at information about the earlier decisions and earnings of their fellow group members.

The study shows that there are clear differences between people in how much they are interested in obtaining information about others before making their decisions. But not only that; people also strongly differ in the *kind* of information they collect. Some only focus on which of the two options the other group members chose. This kind of information is useful in finding out what the majority of the group is doing (a learning strategy called 'frequency-based learning'). Others want to know how much money their fellow group members earned with their previous decision. This kind of information is useful in finding out which option pays off the best ('success-based learning'). Individuals differed consistently in their information use across many different settings of the experiment, and these differences remained mostly unchanged over a longer time period. This allowed the researcher to classify most participants as either frequency-based learners or success-based learners.

To find out whether the individual differences in learning strategy has consequences for the social behaviour in groups, the researchers conducted a second experiment, one month later. The same participants were again invited to the laboratory, but were now grouped on the basis of their learning strategy in the first experiment. In these groups, individuals had to choose between a selfish option (keeping their money for themselves) and an altruistic option (investing their money in a group project). It turned out that in groups of success-based learners the selfish option was chosen much more often than in groups of frequency-based learners.

"What is especially interesting, is that we can show that it is really *because* they look at success-information that success-based learners make more selfish decisions", first author Piet van den Berg explains. "We know this, because we have made a detailed analysis of exactly how people behave right after they see different kinds of information. Success-based learners tend to imitate the behaviour of those individuals with the highest earnings. Because the selfish option pays off better than the altruistic option, success-based learners therefore become more selfish." However, there is also another side to the story; people that are only interested in the decisions of others, without paying attention to their earnings, act much more altruistically. Van den Berg: "We see that

frequency-based learners are likely to choose the altruistic option if they observed that other members of their group chose that option as well.”

The researchers are biologists that have a strong interest in how information spreads in communities. Second author Lucas Molleman explains: “Humans are unique animals because they are extremely good at gathering social information and using it to imitate the behaviour of others. How people learn from others is at the basis of how culture spreads through a population. You could say that learning is for the spread of culture, what inheritance is for the spread of genetic information in biological evolution. That is why we are so interested in finding out how social learning exactly works.”

Note to editors:

The paper ‘Focus on the success of others leads to selfish behaviour’ by Pieter van den Berg, Lucas Molleman and Franz J. Weissing will appear on 17 February 2015 in the Early Edition of *PNAS*.

A preprint of the paper is available via the website of the authors at <http://www.rug.nl/research/theoretical-biology/publications/allpubs>.

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