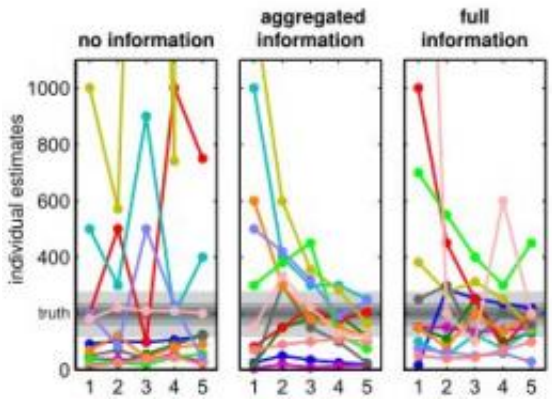
Information sharing interferes with 'wisdom of crowds': study

May 17 2011, by Deborah Braconnier



Social influence effect: Social influence diminishes group diversity without diminishing the collective error. Typical examples of experimental sessions for three information conditions, displaying five individual responses. Image (c) PNAS, doi: 10.1073/pnas.1008636108

(PhysOrg.com) -- A statistical phenomenon, called the Wisdom of Crowds, happens when a group of individuals make guesses and the average of the guesses reveal accurate average answers. However, researchers have discovered that when the individuals are made aware of other participant's guesses, there is a clear disruption to the accuracy of the guesses.

The study, led by mathematician Jan Lorenz and sociologist Heiko Rahut from Switzerland's ETH Zurich published their recent findings in

Proceedings of the National Academy of Sciences, showing that even a small amount of social influence on a group can interfere with the Wisdom of Crowd effect.

For the study, researchers brought in 144 students and placed them in isolated locations and asked them to guess things like how many crimes were committed in 2006 and what the population density of Switzerland was. Based on the accuracy of their answers, participants were given a small monetary award and then the process was repeated for a total of four rounds. The students were broken up into two groups, with one group receiving information on what other peers had guessed and the other remaining isolated.

As each round continued, the group with no influence by other peers showed their results becoming more accurate. The individuals that received information on what their peers were guessing however showed less accuracy in their answers.

Researchers found that those receiving social input from their peers either led individuals to second guess themselves or, seeing others may have answered the same, become more confident in their incorrect responses. According to the results of the study, the Wisdom of Groups phenomenon appears to only be accurate when the individuals in the group are not aware or influenced by others in the group.

More information: How social influence can undermine the wisdom of crowd effect, *PNAS*, Published online before print May 16, 2011, doi: 10.1073/pnas.1008636108

Abstract
Social groups can be remarkably smart and knowledgeable when their averaged judgements are compared with the judgements of individuals. Already Galton [Galton F (1907) Nature 75:7] found evidence that the

median estimate of a group can be more accurate than estimates of experts. This wisdom of crowd effect was recently supported by examples from stock markets, political elections, and quiz shows [Surowiecki J (2004) The Wisdom of Crowds]. In contrast, we demonstrate by experimental evidence (N = 144) that even mild social influence can undermine the wisdom of crowd effect in simple estimation tasks. In the experiment, subjects could reconsider their response to factual questions after having received average or full information of the responses of other subjects. We compare subjects' convergence of estimates and improvements in accuracy over five consecutive estimation periods with a control condition, in which no information about others' responses was provided. Although groups are initially "wise," knowledge about estimates of others narrows the diversity of opinions to such an extent that it undermines the wisdom of crowd effect in three different ways. The "social influence effect" diminishes the diversity of the crowd without improvements of its collective error. The "range reduction effect" moves the position of the truth to peripheral regions of the range of estimates so that the crowd becomes less reliable in providing expertise for external observers. The "confidence effect" boosts individuals' confidence after convergence of their estimates despite lack of improved accuracy. Examples of the revealed mechanism range from misled elites to the recent global financial crisis.

Citation: Information sharing interferes with 'wisdom of crowds': study (2011, May 17) retrieved 19 September 2024 from https://phys.org/news/2011-05-wisdom-crowds.html