Study finds that diversity can trump ability

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Researchers asked participants to guess how many marbles were in a jar

Dr Dick James from the Department of Physics at the University of Bath, UK, working with other colleagues from Germany and the UK, has found that decision making among groups can be significantly better than that of individuals.

The paper detailing the research, titled 'Swarm intelligence in humans: diversity can trump ability', was recently published in Animal Behaviour journal and has now been selected as a Nature Research Highlight.

The team carried out the research by asking visitors to a science museum to play a marble guessing game – requiring them to estimate how many marbles were in a jar.

When the researchers made random groups out of the 2,000 plus guessers, they found that the average guess of groups with more than 40

members was better than the best quarter of individual guesses.

This, they argue, implies that large groups of average intelligence can be smarter than individual brainiacs.

The result of the research suggests that, like schooling fish or swarming bees, humans can fruitfully use collective decision-making. Groups of varying people may out-perform high-ability individuals, hinting at a selection pressure for diverse populations.

More information: Swarm intelligence in humans: diversity can trump ability, *Animal Behaviour*, Volume 81, Issue 5, May 2011, Pages 941-948. doi:10.1016/j.anbehav.2010.12.018

Abstract
We identify some of the possibilities and limitations of human swarm intelligence (SI) using the response of the public to two types of cognitive problems. Furthermore, we propose a simple measure for the quantification of collective information that could form the basis for SI in study populations for specific tasks. Our three main results are (1) that the potential benefits of SI depend on the type of problem, (2) that individual performance and collective performance can be uncorrelated and that a group of individually high performers can be outcompeted by a same-size group of individually low performers, and (3) that adding diversity to a group can be more beneficial than adding expertise. Our results question the emphasis that societies and organizations can put on individual performance to the detriment of diversity as far as teams are concerned. Nevertheless, it is important to point out that while diversity is a necessary condition for effective SI, diversity alone is clearly not sufficient. Finally, we discuss the potential implications of our findings for the evolution of group composition and the maintenance of personality diversity in animals.