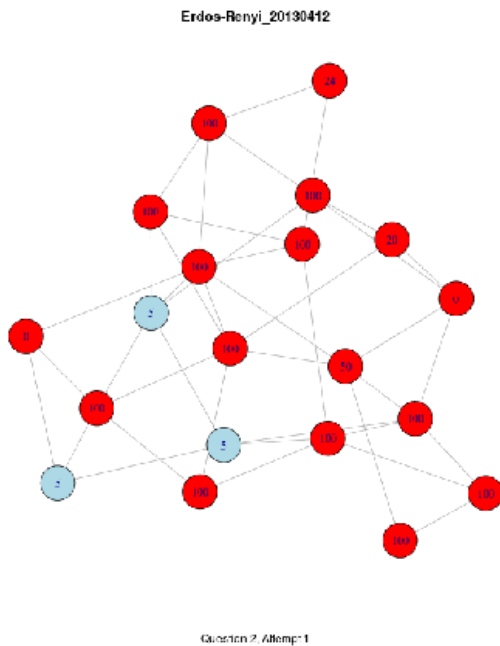


Reliance on social groups for answers pre-empts motivation for independent analytical thinking

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(Phys.org) —If advancing civilization relies on social networks, the world is in trouble. According to newly published research by University of Oregon psychologist Azim Shariff, individuals relying on their social groups can find solutions but also pre-empt the motivation for independent analytical thinking.

Social networks encompass many scenarios, from divisions within organizations, to fraternities and sororities, to connections on Facebook and Twitter. The four-member research team is not proclaiming a doomsday scenario; it is studying the impacts of social learning in networks from a broad cultural perspective.

While social learning "is a key cultural mechanism that improves the performance of individuals and groups," writes Shariff and international colleagues in the introduction of their paper placed online by the *Journal of the Royal Society Interface*, watching and copying others while seeking solutions has some limitations on analytical development that drives innovation.

"Social networks are extremely convenient because they give you the response," said co-author Jean-François Bonnefon, who studies judgment and decision-making at the National Center for Scientific Research (Centre National de la Recherche Scientifique) in France. "You have a problem, you go on YouTube and you see someone solving your problem and you imitate the solution. And that works short term. But that will not tell you how to think through the problem so that you can generalize the solution to a related problem. You become dependent to your social network."

The study, conducted at the UO, involved 100 subjects, whose average age was just under 20. Working alone on a computer, each subject faced seven questions and had five opportunities to provide a solution.

A control group involved individuals working solo, while other subjects were placed randomly in groups representing four differently configured network clusters. Subjects in the experimental groups tackled each question alone under a time limit in five rounds. In each subsequent round, subjects saw the answers provided by others in their group. As the rounds progressed, each subject could stay with an answer or adopt one from others in their network. As the sequence progressed, more correct answers emerged.

"If you have a good enough system to get information, you don't have to think at all," said Shariff, who heads the Culture and Morality Lab of the UO Department of Psychology. "You don't need to develop a solution yourself. The problem with that, from a cultural evolutionary standpoint, is that if nobody is actually out there discovering solutions, if everybody is just imitating things, we create no new knowledge. We need people who are actually figuring out these questions."

innovation and dean of the UO Graduate School. "This study by Dr. Shariff and his team is furthering our understanding of social networks and the implications for [social learning](#)—an area of research that is only likely to grow in importance."

AUDIO

?Bonnefon: Convenience of social networks, 13 seconds

Examples of the problems (answers are proved below) included:

?Shariff: Networking affects thinking, 8 seconds

- In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half the lake?

In the two problems above, the correct answers, respectively, are 47 days and 5 cents.

- A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?

Provided by University of Oregon

Lead-author Iyad Rahwan, head of the Social Computing & Artificial Intelligence Laboratory at the Masdar Institute of Science and Technology in Abu Dhabi, United Arab Emirates, conceived the study and reached out to Bonnefon, who also is affiliated with the University of Edinburgh in the United Kingdom, and Shariff, to design it. Co-author Dmytro Krasnoshtan, a research assistant and student at the Masdar Institute, developed the programming for analyses.

Notably, the researchers found that networking participants were able to use information from others to solve each problem. Subjects also realized along the way that analytical thinking was required, but they started from square one each subsequent problem. "The social information is useful—it helped participants get to the answer—but it didn't help them understand the thinking process underlying that answer," Shariff said. "So when confronted with another similar question, it's as if they had learned nothing about how to solve it."

"Researchers at the University of Oregon are addressing the individual and societal impacts of our increasingly online world," said Kimberly Andrews Espy, vice president for research and

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