

The downside of a good idea

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Good ideas can have drawbacks. When information is freely shared, good ideas can stunt innovation by distracting others from pursuing even better ideas, according to Indiana University cognitive scientist Robert Goldstone.

"How do you structure your community so you get the best solution out of the group?" Goldstone said. "It turns out not to be effective if different inventors and labs see exactly what everyone else is doing because of the human tendency to glom onto the current 'best' solution."

Goldstone's findings were published this month in the January/February issue of the journal "Current Directions in Psychological Science." Michael E. Roberts, a doctoral student in the Cognitive Science Program, and Todd M. Gureckis, assistant professor of psychology at New York University, are co-authors of the article "Emergent Processes in Group Behavior."

Goldstone's research examines and charts group behavior and the patterns in which people unknowingly participate -- much like ants creating colony structures about which they are clueless.

This study used a virtual environment in which study participants worked in specifically designed groups to solve a problem. Participants guessed numbers between 1 and 100, with each number having a hidden value. The goal was for individuals to accumulate the highest score through several rounds of guessing. Across different conditions, the relationship between guesses and scores could either be simple or

complex. The participants saw the results of their own guesses and some or all of the guesses of the others in their group.

In the "fully connected" group, everyone's work was completely accessible to everyone else -- much like a tight-knit family or small town. In the "locally connected" group, participants primarily were aware of what their neighbors, or the people on either side, were doing. In the "small world" group, participants also were primarily aware of what their neighbors were doing, but they also had a few distant connections that let them send or retrieve good ideas from outside of their neighborhood.

Goldstone found that the fully connected groups performed the best when solving simple problems. Small world groups, however, performed better on more difficult problems. For these problems, the truism "The more information, the better" is not valid.

"The small world network preserves diversity," Goldstone said. "One clique could be coming up with one answer, another clique could be coming up with another. As a result, the group as a whole is searching the problem space more effectively. For hard problems, connecting people by small world networks offers a good compromise between having members explore a variety of innovations, while still quickly disseminating promising innovations throughout the group.

Source: Indiana University

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