When Two Heads Are Better Than One
And When They're Not

Problem solving is often enhanced when people collaborate with each other, especially during the "brainstorming" phase of generating possible solutions. The knowledge base of two people usually expands the information pool from which to draw in thinking up answers to questions or solutions to problems. But is such collaboration always helpful? Recently two psychologists at the University of Pennsylvania looked into the matter to see how pairs of problem-solvers reacted to input from outsiders while trying to guess the answers to general information-type questions.

Participants consisted of 252 college students, some of whom were grouped into pairs for the experiment. All participants were asked to estimate percentages about common facts that are not readily known or obvious. If you would like to try the experiment yourself or with a partner, below are the nine questions:

1. What percentage of Americans own pets?
2. What percentage of members of Congress are Catholic?
3. In the 2008 presidential election, what percentage of voting age citizens voted?
4. What percentage of students who entered the high school class of 2002 left high school with a regular diploma?
5. What percentage of homeless men in the United States are veterans?
6. What percentage of all U.S. undergraduates received some type of financial aid in 2007-2008?
7. What percentage of the population in the District of Columbia is white?
8. In 2008, what percentage of corporate officers in the Fortune 500 companies were women?
9. What percentage of homes with an iPad have two or more tablets?

Individual participants made their initial guess on each question, and pairs were allowed to discuss the question and make a joint guess. After the initial guesses, all participants were offered estimates from another individual guesser or pair of guessers. They were then given the option of changing their guesses based on the new information. All participants also rated their confidence in their own estimates, whether or not they estimated alone or in pairs.

Results. With regard to guessing accuracy, there was no significant difference between the estimates of individuals and pairs of individuals. However, pairs of guessers were less likely than individuals to revise their estimates after receiving feedback from others. As a result, pairs of guessers were less accurate in their estimates than they would have been if they had taken into consideration the guesses of others.

With regard to confidence, participants who guessed alone were less confident in their estimates than were those in pairs, and the more confident the pairs of participants were in their estimates, the less influenced they were by the estimates of others.

The authors conclude that the mere act of two people collaborating with one another makes them more confident in their solutions to problems and also makes their solutions more impervious to outside influences. This would be great if the two-person team came up with the best solution, but if they come up with a bad solution their confidence in it will actually work against them in the long run.

Other studies of group decision have found that independent judgments averaged among group members are more accurate than judgments arrived at by group discussions. Perhaps such "group-think" starts with a pair of individuals who come together on a solution and then persuade the rest of the group to go along with it. Think about group discussions you have been in. Whether it's a planning committee, a problem-solving task force, or just brainstorming with friends on what to do this weekend, how many people does it take to reach a "consensus" that shuts out other ideas or solutions? Results of this study suggest it may only take two people who agree on a decision.

Here are the answers to the questions above:
1-63%, 2-30%, 3-64%, 4-71%, 5-40%, 6-66%, 7-38.5%, 8-15.7%, 9-17%

Minson, J.A. & Mueller, J.S. 2012. The cost of collaboration: Why joint decision making exacerbates rejection of outside information. *Psychological Science,* Vol. 23, Pages 219-224