The “Wisdom of Crowds” Effect

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Psychologists have historically conceived of crowds as suppressing individuality. Recently an alternative vision of crowds has emerged—each person potentially brings unique insights, which if combined properly can make the crowd a better decision maker than most individuals. This entry will discuss the conditions under which crowds are wise, whether individuals acting alone can mimic the effects of a crowd, as well as psychological biases that may prevent people from taking full advantage that crowds have to offer.

Published demonstrations of the Wisdom of Crowds effect go back to the early twentieth century. In one early study from the 1920s students estimated the temperature in a classroom. When the estimates were averaged together, the resulting group answer was more accurate than the estimate of a typical member. Although early authors attributed the result to some mysterious group property, the statistical underpinning of the effect is now generally understood: A large sample of imperfect estimates tends to cancel out extreme errors and converge on the truth. Subsequent research demonstrated that simple algorithms that weight people equally, such as averaging, often compare favorably to more sophisticated statistical methods of combination.

The literature on aggregation was reviewed by Robert Clemen in a 1989 paper in the *International Journal of Forecasting*, and more recently by J. Scott Armstrong in his 2001 book *Principles of Forecasting*. The power and simplicity of averaging was also featured in James Surowiecki’s 2004 best-selling book *The Wisdom of Crowds*. The logic of tapping diverse perspectives extends to many tasks, including identifying decision objectives, generating alternatives, and choosing among alternatives.
Conditions for Crowd Wisdom

To take full advantage of collective wisdom, groups should be composed of people with topic-relevant knowledge or expertise. As important, the group needs to hold diverse perspectives and bring different knowledge to bear on a topic. Diversity helps because any given perspective is likely to be wrong. People who share a perspective will all be wrong in the same way (e.g., numerical estimates which all over- or underestimate the truth), in which case there is little benefit gained from a crowd. For numerical estimates, the benefit comes when errors “bracket” the truth and cancel out. Interestingly, diversity is so valuable that one can still benefit from averaging when individuals differ greatly in accuracy. In short, knowledge and diversity are the reasons that crowds are often wise.

Differences in perspective (and bracketing) are created both through who is included in the group—when people have different experiences, training, and judgment models—and through process—when ideas are formed and expressed independently from the ideas of others. The importance of process is illustrated by a result in the brainstorming literature. In the classic approach to brainstorming, people generate ideas face-to-face, and build upon one another’s ideas. However, these interacting groups perform less well—in terms of quality and quantity of alternatives—than non-interacting groups. Although exposure to others’ perspectives benefits individuals, over time it can also lead people to think more alike, and diversity of perspective is lost.

Can a Person be a Crowd?

An intriguing recent area of research has extended the logic of the wisdom of crowds to individuals. It turns out that people can achieve some of the benefit of a crowd by digging deeper into their own minds. The key insight is that people typically rely on only a sample of the
evidence available to them at any given time. But what if people had a reset button, so that they could retrieve facts from memory anew or handle the same facts in a new way? Simply asking people to answer again does not work—people will inevitably anchor on their initial opinions. There are at least two effective ways to break this anchoring effect, both illustrated in recent papers in *Psychological Science*. First, Edward Vul and Hal Pashler showed that people can be freed from their original answer by delaying a second answer. With the time delay people may forget their initial perspectives and think about the problem differently. The second approach, developed by Stefan Herzog and Ralph Hertwig, is to ask people to assume that their first answer was wrong and to answer the question again. Overall, averaging two opinions from the same person using either time delay or ”assume you’re wrong and answer again” improves performance by about half as much as averaging across two people.

*Psychological Obstacles to Crowd Wisdom*

Given that crowds are often wise (including the crowd in the mind), an important question for psychology is whether people make the best use of knowledge that is distributed across perspectives. In general, one can conceive of people using advice from others in three stages: People first collect opinions, combine the opinions into a judgment or belief, and finally hold this belief with a certain degree of confidence. When it comes to making the most of diversity, people fall short at all three stages. First, people do not uniformly seek out additional opinions. When they do, they often do not seek diversity. Instead, they collect opinions from relatively homogenous sources that share a common perspective, either because they seek confirmation or because similar others are more proximate. For example, a doctor may talk to a colleague with the same specialty or training, and an economist may discuss a forecast with someone who shares the same theoretical assumptions. Second, people combine fewer opinions
than they should. One reason for this is that many people have incorrect intuitions about averaging, believing that it locks in the accuracy of the average judge in a crowd. Another reason is that people are overconfident in their ability to identify expertise, and consequently “chase the expert” by selecting the single opinion they believe to be most accurate. Even with a larger group, people may focus on themselves or on just a few judges, and miss out on the wisdom of the rest. In a 2009 article in *Management Science*, Albert Mannes showed that neglecting others comes at a high price in large crowds. Third, as shown by David Budescu and his colleagues, people are more confident when opinions are in agreement as opposed to disagreement. Although agreement is a signal of accuracy, it is also a signal of a shared perspective and shared error. People rarely recognize this latter implication of agreement. In fact, Ilan Yaniv, Shoham Chosen-Hillel, and Maxim Miyavsky have shown that confidence increases even when people understand that others’ opinions were cherry-picked to agree with their own initial answer.

To tap into the crowd’s wisdom, appreciating the roles of both knowledge and diversity are essential. People value the knowledge of individuals, and they often chase the expert to obtain it. But in doing so they may forsake diversity, and risk missing out on the combined knowledge of the collective.
Further Reading


