



SOCIETY OF ACTUARIES

Article from:

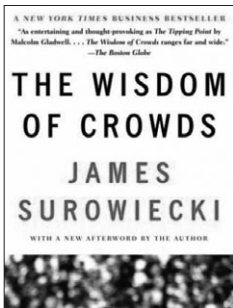
Forecasting & Futurism

July 2010 – Issue 2

The Wisdom of Crowds

by James Surowiecki

Reviewed by Scott McInturff



Trivial Pursuit is a game in which, in order to win, numerous questions related to general knowledge and pop culture must be correctly answered. Imagine a contest of Trivial Pursuit played by three distinct teams composed entirely of individuals with an actuarial background. Team One is composed of a single member who was the

highest paid actuary in North America in the most recent calendar year. Team Two is a group of the five actuary wannabes who scored the highest on the most recent P/CAS Exam 1. Team Three is a group of 10 randomly chosen actuaries who are members of a North American Actuarial Society. Which team would you bet on to win the Trivial Pursuit contest?

TEAM ONE—INTELLECTUAL AND FINANCIAL SAVVY

Team One is likely comprised of a very intelligent actuary who is certainly the most financially successful participant in the game. Because of this intellectual and financial savvy, Team One might be expected to be able to out-think any other participant on any other team. It is quite probable that Team One is older than the average age of the other two teams participating in the contest, assuming that increasing financial success typically occurs with increasing age. Therefore Team One has additional years of experience to call upon in answering the general knowledge Trivial Pursuit questions. Based on the credentials of having the highest pedigree, Team One has an excellent chance to win the Trivial Pursuit game.

TEAM TWO—MASTERY OF PROBABILITY

Team Two is composed of five very bright individuals as evidenced by their superior mastery of probability relative to their peer exam takers. They are also likely to be five very young persons since they have recently completed one of the first actuarial exams. Their average age is most certainly younger than the average age of either of the other

two teams. Their youth will likely give them some advantages on pop culture questions. Because of their youth, their life experience is lacking. However, Team Two may be able to compensate for this by having the collective experience of five members to draw upon in answering general knowledge questions. Based on their superior collective intelligence, Team Two will be a formidable competitor.

TEAM THREE—LIKELY TO LOSE OR MORE LIKELY TO WIN?

Team Three is somewhat of an enigma. Other than the fact that they are members of an actuarial society, we can't assign any details to any single member of the group to the extent we can with the first two teams. Because the 10 members were chosen randomly, it would be fair to assume that they are somewhat representative of an average actuary/actuary-in-training. The average financial success of Team Three is assuredly materially below that of Team One. Their intelligence is average (for actuaries) and not at the superior level that we assign to Team Two participants. Team Three's average age is likely lower than Team One's age and higher than the average age of Team Two. This may present some disadvantage with regard to general knowledge questions relative to Team One and with regard to pop culture questions relative to Team Two. The only profile we can compile is that of an average group of actuaries. Team Three is lacking the proven performance of Team One and the demonstrated intelligence of Team Two. Since they are an average group, we should expect average performance in Trivial Pursuit, making them the least likely of the three teams to win. Average must always lose out to proven individuals or teams with superior intelligence. Or is it possible that there are exceptions to this rule?

Since success in Trivial Pursuit is dependent on the collective result of all team members' wisdom, knowledge and experience, most readers of this article will readily conclude that in spite of their average profile, Team Three should be the odds on favorite to win at Trivial Pursuit. The strength of Team Three is in its diversity. This team most likely has members who are: young, seasoned and in between; female

CONTINUED ON PAGE 20

and male; life, health and casualty professionals; varying degrees of intelligence; astute business professionals, strong technicians and those with developing skills; and a host of other characteristics that will most likely be lacking in the other, less diverse, teams. Trivial Pursuit does not require every team member to know the answer to every question. It simply requires that one team member know the answer to the question posed and that this individual express a conviction that their answer is correct. Because of their diversity, Team Three should be favored to win at Trivial Pursuit over the other two teams.

CROWDS MAKE BETTER DECISIONS

This Trivial Pursuit example amplifies the primary tenet of James Surowiecki's book that a diverse group of individuals, namely, a crowd, has greater wisdom and can make better decisions than a very accomplished individual expert or a very smart group of individuals who are similar to each another. This idea runs counter to many people's intuition and to the practices of many corporations. Company decision makers are often the heads of departments or heads of companies who often use the input of external experts or the recommendation of homogeneous groups of employees to make decisions. Surowiecki argues that decision making would be better left in the hands of a diverse group of employees.

Why is that which is obvious to Surowiecki not clear to the rest of us? Why do we place so much value on leaders as decision makers? Why do we value opinions of experts more than we value our own judgments? Perhaps the answer is as simple as the fact that we over-value individual intelligence and under-rate the wisdom of the masses.

Using examples and statistics, Surowiecki suggests that individual experts are considerably less effective at finding the best solutions or approaches than diverse groups. Experts have a great confidence in their own abilities and tend to overestimate the correctness of their solutions or decisions. Studies have shown that experts are as likely to disagree with the opinion of another expert as they are to agree. Although there may be some exceptions, chasing

a single expert opinion is generally a losing proposition. It would be far superior to gather the perspectives of several independent experts than to rely on the perspective of only one. Many companies choose to use the opinions of experts rather than accepting the average opinions of groups because they believe that averaging is equivalent to dumbing-down or compromising. Their prejudice and practice is towards finding the one right person to guide and direct them to the right decision. Companies who chose one expert based on past successes are, according to Nassim Taleb, fooled by randomness when they judge that the past success of any one individual is repeatable. More likely the prior success was a result of a string of good luck.

TO TAP THE WISDOM OF CROWDS, A GROUP MUST BE DIVERSE

If forming a group leads to better decisions, why would we expect Team Two, a group of highly intelligent individuals to lose to Team Three with their average profile? Because simply forming a group to make a decision is not enough. To tap the wisdom of crowds, a group must be diverse. Homogeneous groups are prone to "groupthink." Due to their commonality they quickly become cohesive. As they become cohesive they tend to become isolated from outside opinions and convinced of their own judgment. Because the group's beliefs are easily reinforced amongst themselves, these groups quickly sense the feeling of consensus and close out dissenting opinions. Members find it easier to change their opinion to conform to the group than to challenge the group with their independent and conflicting ideas. Surowiecki gives examples as to how this groupthink occurs in homogeneous groups and uses psychological experiments as evidence to support this.

In contrast to homogenous groups, diverse groups make it easier for individuals to say what they really think. In diverse settings, the varied opinion of each individual does influence the thinking of the entire group. Diversity allows individuals to maintain an independence of opinion that is critical for groups to function at an optimal level. The smaller the group, the more important it is to have diversity of thought, experience and perspective. Having intelligent and

informed members is important to any group but equally important is having members who may have less information but have different skills than the more knowledgeable members. Diverse groups not only generate a more diverse set of solutions than homogeneous groups; they are also better equipped to distinguish between good solutions and bad. A diverse group needs to operate without hierarchy if it is to produce the best decisions. Top down structure will more likely produce the answer provided or desired by the senior leader whereas a more decentralized group will maintain an independence of opinion. Decisions must not be dictated from a centralized source but rather must be made by the individuals in the group using their own local and specialized knowledge. Specialized knowledge must make its way into the decision-making process even though often the details of the specialized knowledge are difficult for the person who owns them to explain to others. I think actuaries understand all too well how their own specialized knowledge can be difficult to explain. Perhaps more important to the group decision making process than the actuary's explanation of their specialized knowledge is the actuary's description as to how their specialized knowledge should impact the final decision.

Another key element of good group decision making is arranging for people to offer their judgments simultaneously rather than sequentially. This eliminates a significant element of peer pressure that will stifle independence of thought. Every independent thought and perspective should be a part of the discussion of an issue. Based on his studies, Surowiecki goes so far as to suggest that encouraging people to make guesses and/or state their opinions based on their private information—even if their guesses or opinions are judged by others to be obviously incorrect—will actually make the group as a whole smarter.

THE USE OF THE DEVIL'S ADVOCATE

One of Surowiecki's ideas that I find especially appealing is the use of the devil's advocate to help groups make better decisions. Often teams formed to make a decision will start, either overtly or tacitly, with an expected conclusion. When this occurs, all information from that point forward is

shaped to conform to the foregone conclusion. Generally the only information that will be discussed is information that everyone already knows. A devil's advocate can change the dynamics of this entirely by causing the group to pay attention to the available information without conforming it to the preconceived notion that supports the conclusion. Studies have shown that, especially in small groups, having even a single different opinion can make the entire group wiser.

Surowiecki discusses prediction markets in some detail in his book since these seem to epitomize how to tap into the wisdom of crowds. Prediction markets have an advantage over small groups in that their sheer numbers produce the diversity necessary for the wisdom of crowds to emerge. Prediction markets allow large numbers of independent investors to make bets about the likelihood of various events occurring. Sports-betting is already well established and is fairly efficient at predicting outcomes of many sporting events through the collective intelligence of those betting. Following this model, prediction markets have already been established to tap into the wisdom of crowds on a variety of topics including predicting outcomes of elections, which movies will be successful and the expected period of success of political leaders. The potential of prediction markets has barely been tapped and represents a great tool for actuaries for forecasting and gathering information, both currently and in the future.

Surowiecki's book is full of interesting examples of how groups function. Not all groups produce superior results and studying what doesn't work with groups is as important as studying what does work. Surowiecki gives numerous examples how groups make bad decisions. He describes in fascinating detail various groups gone amuck including:

- How the bowling investment bubble formed and popped in the 1950s and 60s.
- How traffic jams form.
- How poor group process led to bad decisions in the Bay of Pigs.

CONTINUED ON PAGE 22

- How bad decision making and group dynamics led to the Columbia Shuttle tragedy.

Other examples Surowiecki spotlights make informative case studies of group dynamics including:

- How within hours Wall Street pointed to the most likely contributor to the Challenger explosion six months before the Presidential Commission did so.
- Why people tip when there is no personal benefit to doing so.
- Why capitalism requires impersonal trust.
- How Google uses the wisdom of crowds to produce search results in fractions of seconds.
- How a naval officer assembled a team with a varying background and offered prizes of Chivas Regas to accurately pinpoint the location of the missing U.S. submarine Scorpion in 1968 when the only available information was the Navy reports of its last known location.

SPREADING THE WORD ABOUT THE WISDOM OF CROWDS

One interesting result of my reading *The Wisdom of Crowds* is that every day since finishing the book I have been mentioning, discussing and applying what I have learned with my coworkers. The potential opportunities to apply the learnings from this book are present in life every day. From a practical perspective, this demonstrates that the ideas of this book have a great utility and can impact the way we interact with others in our daily living. Because of my personal experience in discussing and using the insights from my reading, I highly recommend this book.



Scott McInturff

I'd like to extend the Trivial Pursuit example given to start this article. It might be expected that Team Four, a team of 10 randomly chosen adults from North America would outperform Team Three, North American Actuaries, in Trivial

Pursuit even though—and forgive my arrogance—the average intelligence of the North American Cross-Section Team would likely be less than the average intelligence of the North American Actuaries Team. The greater diversity of the North American Cross-Section Team would most certainly give them an advantage relative to the somewhat insular professional homogeneity of the North American Actuaries Team in a game of Trivial Pursuit. However, winning at trivial pursuits should be considered small stakes. The big stakes for actuaries involve the decisions we make in our businesses. Based on the information presented in *The Wisdom of Crowds*, you should ask yourself the following questions:

- When you are involved in a decision-making meeting, are you meeting only with other actuaries or are you meeting with a wide range of interested parties?
- Are all voices and perspectives being expressed and processed?
- Is anyone expressing dissent?
- Is one person suppressing or shaping the opinions of others?
- Are you sharing your perspective, your specialized knowledge?

By understanding the wisdom of crowds and the importance of diversity in the decision-making process, you can not only extend your influence by making your opinions heard but you can also improve the decision-making process for your entire organization by making certain that the opinions of a diverse group of thinkers are part of a group-based decision-making process. I hope you'll take the time to read *The Wisdom of Crowds* to better understand what it takes to allow groups to make better decisions. ▼

Scott McInturff, FSA, MAAA, is vice president—Individual Insurance Product Management of the U.S. Operations—Sun Life Financial in Wellesley Hills, Mass. He can be reached at scott.mcinturff@sunlife.com.