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Abstract: Reviews the book, "Infotopia: How Many Minds Produce Knowledge" by Cass R. Sunstein (see record 2006-12263-000). Cass R. Sunstein, a professor of law at the University of Chicago, brings together in this book much of what is known about how human groups make collective judgments and decisions. His discussion focuses on the four methods of averaging, deliberation, prediction markets, and the use of various Internet tools. He illustrates each method with vivid examples drawn from the world of business and politics. Throughout the text, psychological forces emerge as important moderators of how well information integration succeeds and when it fails. Hence, the story turns on the tension between the promise of new techniques of information integration on the one hand and the psychological constraints of individual minds and the social psychological dynamics of group interaction on the other. All told, Sunstein succeeds in stimulating interest in a traditional topic of social psychology. The world of information aggregation is clearly in a state of flux, and readers are advised to stay tuned for new developments. (PsycINFO Database Record (c) 2009 APA, all rights reserved)

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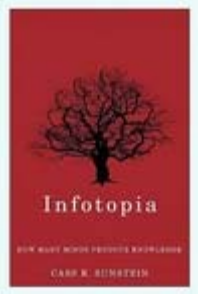

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Which Way to Infotopia?

Review By: Joachim I. Krueger
Theresa E. DiDonato

Review of: Infotopia: How Many Minds Produce Knowledge
By: Cass R. Sunstein, New York: Oxford University Press, 2006. 273 pp. ISBN 978-0-19-518928-5. $25.00

Cass R. Sunstein, a professor of law at the University of Chicago, brings together in *Infotopia: How Many Minds Produce Knowledge* much of what is known about how human groups make collective judgments and decisions. His discussion focuses on the four methods of averaging, deliberation, prediction markets, and the use of various Internet tools. He illustrates each method with vivid examples drawn from the world of business and politics. Throughout the text, psychological forces emerge as important moderators of how well information integration succeeds and when it fails. Hence, the story turns on the tension between the promise of new techniques of information integration on the one hand and the psychological constraints of individual minds and the social psychological dynamics of group interaction on the other.

Galton's Ox Weighs in Again: Averaging

The search for Infotopia begins with the most basic descriptive statistic, the arithmetic mean. Since Sir Francis Galton found that the average of many guesses of an ox's weight was uncannily accurate, social scientists have valued polls and surveys based on large and representative samples. Averages estimate latent truths very well when individual observations can be modeled as composites of a signal (i.e., “truth”) and noise (i.e., “random error”). Aggregation then allows the signal to emerge from the noise. When, however, observations contain systematic bias, aggregation brings both truth and bias into focus, and the two remain indistinguishable. Likewise, aggregation is pointless when observations do not contain an element of truth at all. As Sunstein quips, “If every person in France were asked to [estimate] the number of World Series won by the New York Yankees… the average answer would probably be wildly off” (p. 36).

Condorcet's jury theorem applies the signal-plus-noise model to dichotomous decisions. If an individual's probability of being correct is, however, slightly larger than .5, the probability of the majority being correct rapidly increases with the size of the group. If, for example, most people in the Timber State predict that Senator Blowhard will be reelected in the Corn State, it is a good bet that he will. Like numerical predictions, categorical predictions are vulnerable to distortion. Systematic biases (e.g., non-Bayesian thinking) and nonindependent responses (e.g., behavioral cascades) limit the accuracy of majority decisions.

Sunstein stresses the negative implications of heuristics and biases. It is worth remembering, however, that many judgmental heuristics, like the conformity heuristic, are efficient most of the time. As social beings, humans are sensitive to the knowledge and the behavior of others, and they often adjust their own judgments and actions accordingly. They usually recognize the wisdom of running for cover when everyone is doing it. The possibility that others might know of a bomb threat outweighs the risk of being embarrassed by a false alarm. Unless social information is clearly discredited, people tend to give it the benefit of the doubt, even when doing so is not strictly rational.

Trust entails risk, and it can thus be abused. In 1997, the movie *Wag the Dog* (Levinson, 1997) dramatized this possibility to great entertaining effect. Under the pressures of a political campaign, the movie's protagonist fabricates news footage of a war in an obscure Balkan country. The deception, complete with battle scenes and heroic action, almost succeeds, thus posing the question “Could this really happen?” Sunstein suggests that it should be ever more difficult for power elites to pull off such massive deception. Decentralized and democratic, a true Infotopia would rapidly trigger challenges to misinformation and hence self-correction. Nonetheless, the nagging question remains of whether Infotopia could be an unattainable utopia after all. In other words, can elites manage to stay one step ahead of the collective everyperson in an information–technological arms race?

Overall, the first section of the book is highly accessible, and it is consistent with classic work in psychology (e.g., Meehl, 1954; Wegner, 1986). Sunstein's treatment of this material is not, however, as thorough as Surowiecki's (pronounced “Sir Wiki”; 2004) treatment in a similarly conceived book (see Krueger, 2005, for a review).

The Dark Side of Group Dynamics: Deliberation

In the second section, Sunstein questions the popular view that deliberation is an excellent way to elicit information, generate ideas, and optimize decisions. Ideally, deliberation makes known to everyone what everyone else knows and thereby moves the judgmental burden from the individual to the group. This is at least what members of corporate boards, university admissions committees, and juries in the legal system, among others, hope to achieve.

Yet, the evidence shows that deliberation often does not live up to its billing. The promise of the once popular method of brainstorming, for example, fell apart when it became evident that people generate more diverse ideas when jotting them down privately before sharing them with the group (Nijstad & Stroebe, 2006). The familiar forces of groupthink, attitude polarization, and hidden profiles (i.e., the barriers that keep unique knowledge from being shared) all diminish infotopian hopes by curtailing the average group members' ability or willingness to reason independently. For some of these corrosive effects to occur, it is sufficient for people to *think* they are in a group.

Are group influences always so bad? The standard social psychological reply is “it depends.” In this case, the type of task is critical. Sunstein notes that so-called Eureka problems are more readily solved by interacting groups than by social aggregates. Like a good joke, a Eureka problem has one solution, which, once offered, is obvious to everyone. Infotopia thus requires a mechanism that separates Eureka problems from all others and that limits deliberation to such problems.

Put Your Money Where Your Mouth Is: Prediction Markets

In the third section, Sunstein takes his cue from Friedrich Hayek, who famously argued that markets efficiently integrate knowledge that is widely dispersed across individual agents. The prices for goods and services reflect this collective knowledge. Prediction markets extend this idea by letting individuals trade their predictions. Consider the possibility that the constitution of the United States will be amended by 2008 to allow foreign-born citizens such as Arnold Schwarzenegger to become president. As many people will find this unlikely, few will bet on such an amendment. Their bets will be cheap, but they will yield a large payoff if the prediction should turn out to be true. Conversely, a bet on constitutional continuity would be expensive (because almost everyone is making it) and would yield small profits if verified. In short, share prices reflect the expected probabilities of the outcomes of interest.

Sunstein sees the promise of prediction markets in their ability to uncover information that individuals withhold when interacting in groups. Individuals bet that their own beliefs are correct, and they stand to gain if it turns out to be so. The amount they bet reveals their confidence, and there is no conflict between individual and collective interest. When each individual tries to make the best prediction, deliberation plays no role and can therefore not degrade group performance.

Prediction markets also beat conventional averaging; they predict the winners of presidential elections and the successes at the box office better than polls and surveys. Averaging still occurs, but now it is the individuals' predictions and not their own private data that are averaged. Therefore, the conditions required for conventional averaging still apply to prediction averaging. Most fundamentally, the data going into the average must be dispersed and independent. If, for example, one gathered predictions about the next election only from Republicans, the aggregate forecast would likely underestimate the chances of the Democrats.

Of course, prediction markets can be led astray by systematic biases. Here, Sunstein's discussion is incomplete because it overlooks the Keynesian notion of beauty contests. In the stock market, for example, people make bets on what most people bet on, and hence outcomes are not independent of predictions. In such an environment, behavioral cascades can lead to large fluctuations in gains and losses.

The Return of the Group Mind: “Wikis”

The fourth section of the book presents the biggest leap toward Infotopia. Here, Sunstein turns to the Internet, the prototype of distributed collective knowledge of our time. Amazon.com displays numerous lay book reviews, but they are still individualized (there were no reviews yet of *Infotopia* as of November 17, 2006). Rottentomatoes.com provides links to the sites of accredited movie critics, but it also rates and averages these reviews. For example, the site reports an average rating of 7.3 out of 10 (based on 60 reviews) for *Wag the Dog*. The summary consensus statement (http://www.rottentomatoes.com/m/wag_the_dog/) praises the movie as a “smart, well-acted, and uncomfortably prescient political satire.” Urbandictionary.com is a fast-growing slang repository that

allows anyone to submit words and definitions. Submissions are still reviewed and voted on by volunteer editors before being added to the dictionary.

“Wikis” are Web sites that anonymous volunteers collectively create, edit, and update. They are most alluringly infotopian. Anyone can volunteer, and no one receives individual credit. Yet, the ultimate product has the potential of being more comprehensive and accurate than what any one individual could achieve alone. The smash success of Wikipedia.com illustrates this potential well. The rapid growth of the site (as of November 2006, there were more than 5 million articles) belies the view that individuals will not contribute to a common good if they do not reap personal benefits. Likewise, disruptions by vandals are rare, and they are swiftly corrected when they do occur.

Ideally, wikis minimize the social psychological hazards that plague deliberating groups. Nonetheless, Sunstein does not explore the question of whether wikis become more extreme over time in the way that attitudes of deliberating groups do. Indeed, there may not yet be any pertinent research on this topic. Just how wikis work, and how their progress toward “truth” can be charted, is a topic for future study. Clearly, the Galtonian averaging model will not do. Perhaps an evolutionary model that Hayek might have liked will do better. In other words, one wonders if wikis might be adaptations. If so, the trick will be to show how they can become better and better when no one receives reinforcement. It seems that Sunstein is not aware that there is a dilemma. How can one evaluate the quality of a collective product (here, the wiki) if not by an expert or a small group of experts? One horn of the dilemma is that if expert opinion is the standard against which the collective effort is evaluated, the experts might as well write the encyclopedia (or whatever is being wikied) themselves. The other horn is that if the collective outperforms the experts, one would never know it.

Wikis and other Internet creatures raise fascinating questions for psychology, which Sunstein may not be expected to explore. There are, however, implications for Sunstein's own field of the law, which he surprisingly skirts. Although he recognizes the relevance of aggregation, deliberation, and prediction markets for juries, he never wonders what a “Jurywiki” might look like. Meanwhile, the era of the wiki has begun for the field of psychology with the advent of Psychwiki.com. If current trends continue, PsycCRITIQUES might one day become wikified. Editors, editorial boards, and expert reviewers would then be remembered as creatures of a quaint past.

All told, Sunstein succeeds in stimulating interest in a traditional topic of social psychology. The world of information aggregation is clearly in a state of flux, and readers are advised to stay tuned for new developments.

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