

# *Marketing Papers*

---

*University of Pennsylvania*

*Year 2006*

---

## How Practitioners Can Use Evidence-based Forecasting: Reply to Commentaries

J. Scott Armstrong  
University of Pennsylvania, [armstrong@wharton.upenn.edu](mailto:armstrong@wharton.upenn.edu)

Postprint version. Published in *Foresight: The International Journal of Applied Forecasting*, Volume 5, 2006, pages 14-15.

This paper is posted at ScholarlyCommons.  
<http://repository.upenn.edu/marketing-papers/51>

## How Practitioners Can Use Evidence-based Findings: Reply to Commentaries

J. Scott Armstrong

Published in

*Foresight: The International Journal of Applied Forecasting*, 5 (2006), 14-15

The commentaries reinforce my belief that research evidence alone is not sufficient for organizations to consider new methods. I suggest procedures to facilitate the implementation of evidence-based findings.

### **Is there a need for more evidence?**

Are there conditions under which face-to-face meetings improve forecasting and decision-making? The commentators all provide opinions from their experiences, but Marcus O' Connor was the only one to offer evidence from a research study. Ang & O'Connor (1991), in a comparative study of 36 three-person student groups, found that when the forecasting task was difficult, a procedure whereby one person prepared forecasts prior to a face-to-face meeting led to improved forecasts vs. a nominal group process (in which face to face meetings do not occur).

Ang & O'Connor's evidence conflicts with much of the prior evidence. This makes it worthy of replications or extensions that would allow for feedback within the nominal group procedure and within Delphi, as well as controls for reflection time. The prior evidence, much of which has been around for decades, is not favorable to the use of face-to-face meetings. For example, van de Ven and Delbecq (1974), based on a laboratory experiment, concluded that nominal groups and Delphi were superior to face-to-face meetings with respect to decision-making. In my judgment, the weight of the scientific evidence suggests that face-to-face methods harm creativity, forecasting, and decision-making

Interestingly, research on persuasion suggests that examples are more persuasive than scientific evidence when people hold strong beliefs that are contrary to the evidence. So here is my story. In developing a procedure for forecasting the vote in political elections, I worked in a virtual group consisting of myself and two others, neither of whom had I met previously. For the first few months, all communications were by email, which provided a written record of what was done by each of us. We eventually had a conference call, mostly for social reasons. In my experience, this

is probably the most creative and efficient group (defined as three or more people) with which I have been involved. We produced a successful website and a near perfect forecast for the U.S. Presidential election of 2004, and received recognition in Foresight for forecasting accuracy (Cuzán, Armstrong, and Jones, 2005).

### **How can you implement research-based findings?**

Some of the commentators reacted to my arguments by giving their opinions on why their organizations' current procedures are optimal. How can one get around this problem of resistance to research evidence?

Important changes in organizations should be under the control of the decision-makers who are affected. Thus, the question might be framed "What type of information (e.g., experimental, trial and error, or prior research) should we obtain in order to decide when we can use alternatives to face-to-face meetings?" Unfortunately, the commentaries did not address this question.

There may be some value in using the "second solution" technique, in which the decision makers are prohibited from solving the problem as they currently do. Instead, they must develop an alternative procedure. Once that is done, the constraint is relaxed and they can compare the new procedure with their original one. Maier and Hoffman (1960), in a problem involving a change in employee work procedures, found that solutions were of higher quality when groups were instructed to find a second solution after they had presumably solved the problem. The second solutions were obtained in about two-thirds of the time needed for the initial solutions, and the groups generally preferred their second solutions to the first ones.

Restrict your consideration of alternative procedures to those supported by comparative studies. Procedures that have been tested fairly and found useful might be useful for you as well. There are many such methods.

Joe Smith and Marcus O'Connor comment that prediction markets -- a major alternative to face-to-face meetings recommend by Surowiecki and myself -- are not feasible for sales forecasting within organizations. However, Ray (2006) mentions that Microsoft, Hewlett-Packard, Eli-Lilly and other major firms use prediction markets; he also makes suggestions on how to implement them. The proposal to use nominal groups dates back at least three decades. Detailed operational

suggestions were provided in Delbecq, Van de Ven and Gustafson (1975); the book also includes testimonials on the successful application of the nominal group technique in a health care and in a business, ARA Services. I also believe that the Delphi technique is feasible --; you can go to 'Software' on [forecastingprinciples.com](http://forecastingprinciples.com) and obtain freeware to guide you. My paper also provided operational guidelines for conducting face-to-face meetings.

Jamilya Kasymova and Catalin Vieru comment that their organization could not afford to adopt the procedures recommended by Surowiecki and me. I believe this to be contrary to the evidence. For example, based on comparisons among 12-person groups, Gallupe et al (1992) found that electronic brainstorming groups produced about three times as many unique ideas as did traditional brainstorming groups. In any event, this issue can be easily resolved; one has only to try alternative procedures and monitor the costs.

## References

- Ang, S. & M. O'Connor (1991), "The effect of group interaction processes on performance in time-series extrapolation," *International Journal of Forecasting*, 7, 141-149.
- Cuzán, A., Armstrong, J.S & Jones, R.J. (2005), "How we computed the Pollyvote," *Foresight*, Issue 1, 51-52.
- Delbecq, A. L., Van de Ven, A. H. & Gustafson, D. H. (1975), *Group Techniques for Program Planning*. Glenview, Ill.: Scott, Foresman.
- Gallupe, R. B., et al. (1992), "Electronic brainstorming and group size," *Academy of Management Journal*, 35, 350-369.
- Maier, Norman R. F. & L. R. Hoffman (1960), "Quality of first and second solutions in group problem solving," *Journal of Applied Psychology*, 44, 278-283.
- Ray, Russ (2006), "Prediction markets and the financial 'Wisdom of Crowds'," *Journal of Behavioral Finance*, 7, (1), 2-4.
- Van de ven, Andrew L. & A. L. Delbecq (1974), "The effectiveness of nominal, Delphi, and interacting group decision making processes," *Academy of Management Journal*, 17, 605-621.