J. Scott Armstrong

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Personal Information

Born in Glenside, Pennsylvania, on March 26, 1937. Attended eight grade schools before going to Mt. Lebanon (PA) High School. Married Kay Kristine Anderson of Rochester, N.Y. on August 1, 1964. We lived in Pittsburgh and Cambridge (MA) before moving to Drexel Hill (PA) in 1968.

Kay is a public health researcher. She has read all of my books and papers and is my best editor.

We have two daughters: Kathy J. Armstrong, who married Christopher Gillis; They have two children, Peter and Astrid Armstrong— and Jennifer L. Armstrong, who married Gregory Jackson and who have a daughter, Sophie K. Jackson.

Cherished times: Living with our young daughters as a Visiting Professor in Stockholm, Honolulu, Lausanne, and Canterbury (NZ). Winning the Philadelphia Broad Street ten-mile run for the over-70 age group, and then 2nd place for over-75.

Education

M.I.T., Cambridge, MA: Ph.D. in Management (1968)
Carnegie Mellon University, Pittsburgh, PA: M.S. in Industrial Administration (1965)
Lehigh University, Bethlehem, PA: B.A. in Applied Science (1959), and B.S. in Industrial Engineering (1960)

Career Objectives

Following Benjamin Franklin's objectives for the University of Pennsylvania, I view my objectives to be the discovery and dissemination of useful knowledge. My primary approach is to test alternative reasonable hypotheses by using experimental evidence to improve principles and techniques for management. I start research projects as a skeptic about current practices and policies (see the Alain Elkann 'thought leader' interview in 2015).

Honors, Awards and Recognition

- "Lifetime Achievement Award in Climate Science" from the Heartland Institute at the 12th International Conference on Climate Change (2017) Acceptance speech. For summary of my research, see here.
- Received the initial award for the "Armstrong Brilliance in Research in Marketing Award" from the Global Alliance of Marketing and Management Associations at the Global Marketing Conference, Hong Kong, (2016).
- For my career as a forecaster, see the "Interview of J. Scott Armstrong," *International Journal of Forecasting* (2012)
- Named one of the "25 Most Famous College Professors Teaching Today" (2010)
- Listed as one of the "55 of the Hottest, Smartest, Most Talked About College Professors." (2007)
- My AdPrin.com won the Merlot Award as the best educational site in business and economics in 2004
- Received the "Distinguished Scholar Award" from the *Society for Marketing Advances* (2000)
- The Silver Jubilee Lecturer for the College of Business, Massey University, New Zealand (1997)
- Honorary Fellow for "Distinguished Contributions to Forecasting" by the International Institute of Forecasters (1996).
- Ranked 15th among U. S. marketing professors based on peer ratings, citations, and publications (Kirkpatrick & Locke 1989)

Founded or Co-founded (date)

Journal of Forecasting, (1982). Citation impact factor in 1982-83 was 7th for business, management, & planning journals.

International Symposium on Forecasting (annually since 1981).

International Institute of Forecasters, (1982).

International Journal of Forecasting, (1985). Its 1988 citation impact factor almost as high as that for *Management Science*.

ForecastingPrinciples.com (1997). Five awards and nearly 15 million visits to date despite being frequently hacked.

AdvertisingPrinciples.com (2000). Received MERLOT Award in 2004 for "Best online learning resource business & management."

PollyVote.com (2004). Most accurate forecasts of U.S. Presidential popular vote for 2004 through 2016.

TheClimateBet.com (2007). Monthly updates since 2007 of my 10-year "bet" on global warming with former VP, Albert Gore. (See findings here)

IronLawofRegulation.com (2016). To determine whether there is scientific evidence showing that regulations might be useful in certain situations and thus to better design regulations.

GuidelinesforScience.com (2016). Provides checklists of operational guidelines to aid scientists to comply with science principles and to help others to assess the extent to which research complies with science.

Dissemination of Scientific Findings

Books

Long-Range Forecasting: From Crystal Ball to Computer. New York: Wiley Interscience, 1978 (1st Edition) and 1985 (2nd Edition). Sold more than 15,000 copies. Now freely available in full text at forprin.com.

Principles of Forecasting: A Handbook for Researchers and Practitioners. Boston: Kluwer Academic Publishers, 2001. Chapters by 40 authors who summarized evidence-based principles for improving forecasting methods. (Korean version forthcoming.)

Persuasive Advertising: Evidence-based Principles. Basingstoke, U.K.: Palgrave Macmillan, 2010. Finalist Berry-American Marketing Association 2011 Award. German translation, 2011. Chinese translation, 2016.

Journal Papers

Of the 330,000 scholars listed on SSRN, I was ranked #37 based on the number of publications.
ResearchGate lists about 400 of my publications.

Impact Index: Top 1% for "impact on researchers" of the 12,000 business authors on the SSRN.

Citations: As of July 1, 2018, there were over 32,400 Google Scholar Citations for my research, with an h-index of 69 (papers with at least 69 cites) and 156 papers cited ten or more times. This occurred despite a bias against citing papers with findings that conflict with current beliefs, and by low citations for papers in new areas.

Commentaries and reprints: More than 35 of my papers have been the subject of commentaries by others. More than 30 papers have been reprinted in books for a total of over 60 reprints.

Mass media coverage of research: Google News lists over 200 articles related to my research, but few old ones were counted; in addition, radio, and TV interviews were seldom included. See some news items here. Interviewed in a documentary film, The Global Warming War. My policy is that I do not do any interviews as a member of the faculty unless I am familiar with experimental research on the topic.

Readership: It is difficult to estimate readership of my journal articles, but it is possible to track downloads of some of my *working-paper* versions. Of the 20 or so repositories, the top two for me seem to be:

* *Scholarly Commons:* About 70,000 downloads of my research papers in 2017.
* *ResearchGate:* Over 20,000 "Reads" in 2017.

Useful Scientific Findings

While many of my findings have been upsetting to many, no evidence has been found to refute any of them— thanks to extensive peer review and many revisions. For example, there were 468 revisions of our paper "Golden Rule of Forecasting."

Here is a summary of 96 useful scientific findings in 17 areas of research. Most were the result of collaborations. (Space does not permit a full list, but special thanks to Fred Collopy, Andreas Graefe, Kesten C. Green, Raymond Hubbard, and Willie Soon.)

Advertising

1. Developed the Persuasion Principles Checklist for creating persuasive ads.
2. Developed and validated the Persuasion Principles Audit which yields a Persuasion Principle Index (PPI) to assess the compliance to evidence-based principles.
3. Persuasion Principles Index provides accurate predictions of the effectiveness of advertisements than those obtained from copy testing.
4. Our audit found no evidence-based persuasion principles in a sample of advertising textbooks and handbooks
5. Government mandated disclaimers in advertising confuse customers and harm their decision-making.

Applied Statistics

1. Attempts to identify causality by using regression analysis of non-experimental data are misguided
2. The Root Mean Square Error (RMSE) is inappropriate for comparing forecasting methods.
3. The Relative Absolute Error (RAE) is an intuitive and valid for comparing the accuracy of forecasting methods across series and has become an accepted metric in forecasting.
4. Statistical significance tests harm scientific progress
5. Trees (segmentation methods) are more accurate than regression analysis when forecasting using data with interaction, non-linear effects, and very large sample sizes.
6. Showed dangers with the failure to assess reliability in factor analysis.

Climate Change

1. There are no scientific forecasts to support the U. S. Government's plan to list the polar bears as an endangered species; we forecasted minor population increase in 2007 is a U.S. Senate hearing, which is true to date.
2. Forecasts that adhere to scientific principles show no long-term trends in global mean temperatures.
3. The IPCC forecasts of global warming violate the Golden Rule of Forecasting.
4. The IPCC forecasts of global warming violate Occam's Razor.
5. The IPCC forecasts of global warming violate all of the eight criteria for the scientific method.
6. The IPCC forecasts of global warming violate 72 out of the 89 principles relevant to forecasting climate temperatures
7. There is no scientific basis for the forecasts of dangerous manmade global warming.

Conflict Situations (e.g., war, negotiations, terrorism)

1. Determined that expertise, used in the current approach, has no value in forecasting decisions in conflict situations.
2. Developed active role-playing procedure for 2 or more parties as a way to predict decisions in conflict situations. Tests found Role playing (AKA "Simulated Interaction") to be enormously more accurate than expert judgment, the current method.
3. Role-thinking ("put yourself in their shoes") does not improve accuracy of judgmental predictions in conflict situations.
4. Developed "Structured analogies" to use expert information. In our tests, it was substantially more accurate than expert judgments for predicting outcomes in conflict situations.
5. *Game theory does not yield accurate forecasts.* An analysis of predictions of outcomes for five conflict situations found that experts in game theory did no better than "guesses" by students.

Economic Forecasting

1. Contrary to expert opinions by econometric experts, econometric methods are relatively more useful for long-range forecasts than for short-range forecasts.
2. Econometric methods provide more accurate long-range forecasts than do judgment and extrapolation methods.

Education

1. Business school prestige rests upon research , not teaching, based on analyses of non-experimental data.
2. Students' use of "time contracts" increased learning.
3. Experiential exercises increase the rate of learning.
4. Developed and assessed a method of "learning by objectives". Found that it increased the rate of learning.
5. Proposed the "natural learning" approach to learning and provided experimental research on its effectiveness.
6. Student evaluations of teachers reduces student learning and the satisfaction of students and teachers.
7. Government expenditures on higher education have a negative return on investment.
8. Experiential exercises are more effective than lectures for skill training.

Election Forecasting

1. Developed and tested a knowledge model (index method) to predict issues. It improved accuracy.
2. Developed a "Biographical Index" predicting for U.S. Presidential elections for accuracy and advice.
3. Politicians who look competent are more likely to get elected.
4. The "take-the-best" (variable) strategy is a quick and accurate way to forecast U.S. Presidential elections.
5. Combining forecasts within and across six different combined methods reduced error by half.
6. Using all 24 unique variables from 8 econometric models in an equal-weights "knowledge model" for U.S. elections reduced forecast error by 43%.

Financial forecasting

1. A review of 15 previously published forecasts showed that annual earnings forecasts by the firm's managers were more accurate that those by professional analysts, and judgmental forecasts were more accurate than extrapolations.

Forecasting Methods

1. *Golden Rule of Forecasting*: Be conservative by adhering to cumulative knowledge about the situation and forecasting methods. Our review of experimental evidence found that, on average over the 28 guidelines, violations of a typical guideline increased forecast error by more than 40%.
2. *Simple Forecasting:* Complexity *increases* forecast error by 27 percent on average in the 25 papers with quantitative comparisons for all types of forecasting methods. This is, we believe, the first test of the predictive validity of Occam's razor.
3. *Seer-sucker Theory:* People do not accept evidence that domain expertise has little relationship to forecasting accuracy.
4. *Forecasting audit*: Developed a procedure to conduct a "forecasting audit" along with software.
5. *Knowledge Models:* Developed and tested knowledge models (AKA "index models") as a way to forecast when there are many important variables and much knowledge. Knowledge models are much more accurate than data models.
6. *Data models (multiple regression, stepwise regression, data mining, machine learning) should not be used for forecasting.*
7. *Rule-based forecasting (RBF):* Proposed and validated RBF for the selection and combination of extrapolation forecasts. Found to be more accurate than equal-weights combining for annual sales forecasts.
8. Proposed and tested the use of causal forces for the selection and weighting of extrapolation methods. This produced substantial improvements in accuracy for long-term forecasts.
9. *Contrary-series rule*: Trends should not be extrapolated for "contrary series" (historical trend contrary to expectations)
10. *Decomposition by causal forces:* Developed and tested this approach for the extrapolation of time series where causal forces in a series conflict with one another. It yielded substantial improvements in accuracy,
11. Nowcasting, based on three comparative tests, reduced error by 1/3 for short-term forecasting.
12. Multiplicative decomposition improves the accuracy of judgmental predictions for problems involving uncertainty
13. Time series with trends that are not in the expected direction have prediction intervals that are asymmetric in the logs. They should be flagged and shifted in the direction of the causal forces.
14. Proposed that damped seasonal factors should improve accuracy (*Long-Range Forecasting* 1978). Later confirmed.
15. Combining forecasts within a method reduced forecast error by 12%.
16. Conducted meta-analysis and found that judgmental bootstrapping improves accuracy vs. judgmental forecasts.
17. Proposed that trends in extrapolation should be "modified" toward zero, later called "damping" (*Long-Range Forecasting*, page 153).
18. Simple extrapolation methods are as accurate as complex extrapolation methods

Marketing

1. Experts were no better than non-experts in predicting the outcomes of experiments on consumer behavior
2. Found no evidence-based principles in our audit of marketing principles textbooks.
3. Found frequent conflicting findings, and a detrimental trend with respect to replications in marketing.

Marketing Research

1. Discovered that extrapolation across waves can be used to correct for non-response bias in mail surveys.
2. Prepaid monetary incentives increase mail survey response rates; promised incentives do not.
3. Brief descriptions are sufficient for estimating intentions to purchase new products.
4. Business-reply postage is not cost-effective for mail surveys: Provided experimental evidence.

Organizational Behavior

1. Face-to-face meetings harm forecasting and decision-making,
2. Summarized evidence-based procedures for implementing change in organizations.
3. Proposed "Multiple Anonymous Authentic Dissent" (MAAD) to evaluate proposals (Persuasive Advertising, 288-289).

Peer Review

1. Complex writing increases the likelihood that a paper will be accepted for publication.
2. Invited papers were more highly cited, had more important findings, and were less expensive to process than papers published through traditional reviewing procedures.
3. My experiment showed that less intelligible writing enhances academic prestige.
4. Journal peer review retards advances in science. We suggest ways to solve that problem.

Personnel Research

1. High pay and incentive payments for top executives are detrimental to firms, based on experimental evidence
2. Practitioners are unaware of well-established variables for personnel selection.
3. Reviewed further evidence which concluded that subjective factors should not be used in personnel selection.

Scientific Method

1. Developed an evidence-based checklist to guide scientists for "compliance to science".
2. Found that few papers in leading scientific journals comply with the scientific method. Advocacy papers are replacing scientific papers.
3. Developed checklist enabling novices to rate whether a paper complies with science. See Guidelinesforscience.com.
4. It is common for academics to cite papers incorrectly. Proposed that authors contact those they cite to verify all substantive findings are correct.
5. It is common to cite papers that have not been read by the authors. We proposed that authors verify that each of the references that have substantive findings have been read by at least one of the authors.
6. The "method of multiple reasonable hypotheses" is underutilized in science.
7. Obtained evidence of bias against the publication and citation of papers with controversial findings.
8. Showed conflicts between scientific advancement and the advancement of scientists.
9. Proposed the use of a science court as an alternative to the "marketplace of ideas," given the bias in this marketplace.
10. Role-playing can serve as a useful substitute for experimentation.
11. Experimental findings are highly replicable when compared with findings from other experiments.
12. Non-experimental data are not highly replicable
13. Quasi-experimental findings are valid. They yield directional results consistent with other types of experiments.

Social Responsibility

1. Stakeholder role, in combination with social accounting, reduces socially irresponsible decisions.
2. Our review of experiments found that *government-mandated programs for corporate social responsibility are harmful*.

Strategic Planning

1. Formal planning improves organizational effectiveness
2. Some popular marketing techniques are based on incorrect folklore.
3. Our experiments found that market-share objectives harm profits
4. Use of a portfolio planning matrix (BCG) leads to less profitable decisions.
5. Thinking about how another party acts did not improve predictions of how that party will act
6. "Escalation bias" failed to replicate among decision makers in marketing

Service

1. Developing low-cost valid and reliable procedures to eliminate prejudice and improve decisions in the hiring and other personnel decisions associated with faculty. (continuing since 2015)
2. Co-Editor of a Special Issue: "Simplicity in Forecasting," in the *Journal of Business Research* (2015).
3. Advisory Board, Crime Prevention Research Center (2014 –)
4. Testified in a U.S. Congressional Hearing on climate change (March 31, 2011)

5. Testified in a U.S. Senate Hearing on whether polar bears should be listed as an endangered species (January 30, 2008)
6. U.S. Congressional presentation on climate change (September 14, 2007)
7. Served on the University of Pennsylvania Faculty Senate Advisory Board (2003-4)
8. General Chairperson of the 1987 "International Symposium on Forecasting" in Boston (800 participants).
9. Editor, *Journal of Forecasting* (1981-5)
10. International Institute of Forecasters (Director, 1981-1989; President, 1982-1983)
11. General Chair & Program Chair, 1983 International Symposium on Forecasting in Philadelphia (1,100 participants)
12. Editor, *International Journal of Forecasting* (1986-8)
13. Co-Editor of a Special Issue: "Forecasting in Marketing," *International Journal of Forecasting* (Vol. 3, 1987)
14. Proposed "Individualized major" for Wharton that was implemented in the late 1970s.
15. Proposed the installation of student mailboxes at the Wharton School in 1976. Still in use despite of the Internet.
16. In 1971, our committee proposed an Ombudsman Office at the University. (Successful and still exists.)
17. Formed ad hoc committee for Ralph Nader's Campaign in 1971 to put interest groups on GM Board.

Visiting International Appointments (17 universities & 24 visits)

LMU Munich, Visiting Fellow (September 2013)
University of South Australia, Ehrenberg-Bass Institute, Visiting Fellow (Feb 2007 & July 2011)
Universidad de Navarra, IESE Business School, Barcelona, Visiting Professor (May 2008)
University of Otago, Distinguished Visiting Professor (July 2005)
Manchester Business School, Honorary Simon Visiting Professor (March 2003 & May 2004)
Lancaster University, Visiting Fellow of the Management School (January 1997 & April 2002)
University of Auckland, Visiting Professor of Marketing (April 1990, July 1992 & March 1997)
University of Tokyo, Hakuhodo Professor of Marketing (October 1994)
Instituto para el Desarrollo Empresarial de la Argentina (IDEA), Visiting Professor of Marketing (July 1988 & May 1993)
Universiti Sains Malaysia, External Examiner (July 1987)
University of Capetown, Visiting Professor of Marketing (January 1986)
University of Canterbury, Department of Business Administration, Erskine Fellow (June - August 1985)
Chulalongkorn University, Graduate Institute of Business Admin, Visiting Professor of Marketing (Nov-Dec 1984)
University of Hawaii, College of Business, Visiting Professor of Decision Sciences (Summer 1976 & Summer 1983)
University of New South Wales, Honorary Visiting Professor of Marketing (October 1982)
International Institute for Management Development (IMEDE, Lausanne), Visiting Professor of Marketing (1980-81)
Stockholm School of Economics, Visiting Professor of Marketing (January 1974 - July 1975 & Summer 1977)

Invited Lectures at International Universities

About 110 invited lectures at universities in 27 countries: Argentina (2), Australia (14), Austria, Brazil, Canada (6), Chile, China, (2), Denmark (3), Finland (3), France (2), Germany (3), Hungary, Malaysia, New Zealand (23), Norway, Peru, Poland (2), Romania (2), Singapore (2), South Korea, Spain (2), Sweden (5), Switzerland (3), Thailand, The Netherlands (2), United Arab Emirates, and the United Kingdom (19).

Editorial Boards

Present
- *Applied Economics Research Bulletin* (2007-)
- *Interfaces*, Contributing Editor (1982 -)
- *International Journal of Forecasting*, Editor (1985-7)
  Editor-in-Chief (1987-1990), Associate Editor (1990-
- *Journal of Advertising Research (2010-)*
- *J of Empirical Generalizations. in Marketing Science* (1995-
- *Journal of Managerial Issues* (1995-)

Past
- *Journal of Modeling in Management*, (2006-)
- *International Journal of Research in Marketing* (1994-8)
- *Journal of the Academy of Marketing Science* (1990-2000)
- *Journal of Business Ethics*, Associate Editor (1981-1992)
- *Journal of Business Research*, Review Board (1988-2000)
- *Journal of Experiential Learning & Simulation* (1979-81)

Selected Consulting

Expert witness in about 15 cases (e.g., a free speech case involving the American Academy of Implant Dentistry. Most related to forecasting, some to marketing

Consulted for the Department of Justice, Department of Defense, Defense Threat Reduction Agency's Advanced Systems and Concepts Office, Central Intelligence Agency (CIA), National Intelligence Council (NIC), and National Security Agency (NSA) in an attempt to gain acceptance of the *Simulated Interaction* and *Structured Analogies* methods of forecasting decisions in conflict situations such as wars or terrorism to replace the use of *unaided expert judgment*.

Teaching

- Finalist for Wharton MBA "Anvil Teaching Award" during each of my first 5 years at the Wharton School.
- My AdPrin.com site is currently rated as the second best of 316 advertising sites on Merlot. Sections also mentioned in #7, #10 and #11.
- Obtained quasi-experimental evidence that time contracts, an alternative to traditional grading, increased learner responsibility and their perceived gain in skills.
- Published cases: e.g., "Forecasting the Air Travel Market", "The Panalba Role-Playing Case," (AKA the Vanatin Case).
- Developed 97 short experiential exercises designed to demonstrate evidence-based techniques for management.
- Developed Persuasive Advertising, an evidence-based course with self-directed "experiential lectures," exercises, and testing.

Evidence-based tools and checklists by Armstrong and Green

Forecasting

Forecasting Methods,
Forecasting Audit,
Golden Rule of Forecasting
Delphi (free software)

Persuasion

Persuasive Management Reports
Persuasion Principles (for creating ads)
Persuasion Principles Audit (for evaluating ads)
Proposal Report Outline
Rating Ad Proposals (for use by experts and novices)
Tools and Techniques for advertising managers

Planning

Planning Process Checklist
Preparing Time-lines
Multiple Anonymous Authentic Dissent (MAAD), for evaluation of plans

Regulation

Conditions required for effective regulations

Scientific research

Criteria for useful scientific research (Checklist for sponsors, clients, and other stakeholders)
Guidelines for scientists (A checklist for meeting scientific criteria. Can be used by experts and novices)

Statistical analysis

Regression Analysis Checklist

Other Work Experience

• *Polaroid Corp.,* Cambridge, MA: Market Research (May - September 1966): Developed Polaroid's first sales forecasting program for international markets.
• *Xerox Corporation*, Rochester, NY (June - August 1964): Developed Xerox's first computer program for forecasting for inventory control.
• *Eastman Kodak*, Rochester, NY (June 1960 - September 1963): Industrial engineer. Developed improvements to incentive systems for employees, a quality-control program for production, and an exponential smoothing forecasting program for production planning.

• *U.S. Army* (August – November 1961)

APPENDIX

Selected Publications in 17 Research Areas

Advertising

"Predictive Validity of Evidence-Based Persuasion Principles," (w/ Du, Green & Graefe), *European Journal of Marketing*. 50 (2016), 276-293 (followed by Commentaries, pp. 294-316).
"Persuasion Principles Index" (w/ Du, Green & Graefe), *European Journal of Marketing*, 50 (2016), 317–326.
"Evidence on the Effects of Mandatory Disclaimers in Advertising," (w/ K. C. Green), *Journal of Public Policy & Marketing*, 31 (2012), 293-304.
"Evidence-based Advertising: An Application to Persuasion," *International Journal of Advertising,* 30 (2011), 743-767 [followed by commentaries and my reply on pp. 768-794].
"Using Quasi-experimental Data to Develop Principles for Persuasive Advertising," (w/ S. Patnaik), *Journal of Advertising Research*, 49 (2009), 170-175.
"How to be Less Persuaded or More Persuasive – Review of *Age of Propaganda*", *Journal of Marketing*, 67 (2003), 129-130.
"How Should Firms Select Advertising Agencies? A Review of *Where the Suckers Moon,*" *J. of Marketing*, 60 (1996), 131-134.

Applied Statistics

"Illusions in Regression Analysis," *International Journal of Forecasting*, 28 (2012), 689-694.
"Significance Tests Harm Progress in Forecasting," *International Journal of Forecasting,* 23 (2007), 321-336 followed by commentaries
"Exploratory Analysis of Marketing Data: Trees vs. Regression," (w/ J. Andress), *J. of Marketing Research,* 7 (1970), 487-92.
"How to Avoid Exploratory Research," *Journal of Advertising Research,* 10 (1970), 27-30.
"On the Interpretation of Factor Analysis," (w/ P. Soelberg), *Psychological Bulletin,* 70 (1968), 361-364.
"The Derivation of Theory by Means of Factor Analysis," *American Statistician*, 21 (1967), 17-21.

Climate Change

"Forecasting global Climate Change," (w/ K. Green) In A. Moran (Ed.), *Climate change: The facts 2014* (pp. 170–186), Melbourne: Institute of Public Affairs.
"The Global Warming Alarm: Forecasts from the Structured Analogies Method." (w/K.C. Green), 2015. SSRN Working Paper 1656056.
"Research on Forecasting for the Manmade Global Warming Alarm, " (w/ K. C. Green & W. Soon), *Energy & Environment*, 22 (2011), 1091-1104.
"Validity of Climate Change Forecasting for Public Policy Decision Making," (w/ K.C. Green & W. Soon), *International Journal of Forecasting*, 25 (2009), 826-832.
"Polar Bear Population Forecasts: A Public-Policy Forecasting Audit," (w/ K. C. Green & W. Soon), *Interfaces*, 38 (2008), 382–405.
"Global Warming: Forecasts by Scientists versus Scientific Forecasts," (w/ K. C. Green), *Energy and Environment*, 18 (2007), 995-1019.

Conflict Situations (e.g., war, negotiations, terrorism)

"Role Thinking: Standing in Other People's Shoes to Forecast Decisions in Conflicts," (w/ K.C. Green), *International Journal of Forecasting*, 27 (2011), 69-80.
"Structured Analogies for Forecasting," (w/ K. C. Green), *International Journal of Forecasting,* 23 (2007), 365-376.
"Assessing Game Theory, Role Playing, and Unaided Judgment," *International Journal of Forecasting*, 18 (2002), 345-352.

Economic Forecasting

"Review of *The Great Depression of 1990* by Ravi Batra," *International Journal of Forecasting,* 4 (1988), 493-495.
"Forecasting with Econometric Methods: Folklore vs. Fact," *J. of Business*, 51 (1978), 549-564 (commentary & reply pp. 565-94).
"A Comparative Study of Methods for Long-Range Market Forecasting," (w/ M. Grohman), *Management Science*, 19 (1972), 211-221.

Education

"Natural Learning in Higher Education," in N.M. Seel (Ed.), *Encyclopedia of the Sciences of Learning.* Springer (2012), pp. 2426-2433.
"The Devil's Advocate Responds to an MBA Student's Claim that Research Harms Learning," *J. of Marketing*, 59 (1995),101-6.
"Business School Prestige: Research versus Teaching," (w/ T. Sperry), *Interfaces*, 24 (1994), 13-43 [w/ commentary and reply]
"Review of Allen Tough's *Intentional Changes*," *Academy of Management Review*, 8 (1983), 509-511.
"Learner Responsibility in Management Education," *Interfaces,* 13 (1983), 26-38 [w/ commentary and reply].
"The Natural Learning Project," *Journal of Experiential Learning and Simulation*, 1 (1979), 1-12.
"Designing and using Experiential Exercises, in M. D. DeLozier, et al., *Experiential Learning in Marketing Education* (1977).

Election Forecasting

"Accuracy gains from conservative forecasting," (w/ Graefe, and Green), 2018 Working Paper.
"Assessing the 2016 U.S. Presidential Election Popular Vote Forecasts," (w/ Graefe, Jones, and Cuzan.) in *The 2016 Presidential Election: The causes and consequences of an Electoral Earthquake*, Lexington Books, Lanham, MD.
"The PollyVote Forecast for the 2016 American Presidential Election**" (w/** Graefe, Jones, & Cuzan), *Science & Politics*, 49, 687-690.
"Forecasts of the 2012 U.S. Presidential Election based on Candidates' Perceived Competence in Handling the Most Important Issue," (w/ A. Graefe), *Political Science Research and Methods,* 2 (2014), 141-149.
"Accuracy of combined forecasts for the 2012 Presidential Elections: The PollyVote," (w/ A. Graefe, R. J. Jones, & A. Cuzán), *PS: Political Science & Politics* 47 (2014), 427-431.
"Forecasting Elections from Voters' Perceptions of Candidates' Ability to Handle Issues," (w/ A. Graefe), *Journal of Behavioral Decision Making,* 26 (2013), 295–303.
"Predicting Elections from the Most Important Issue," (w/ A. Graefe), *Journal of Behavioral Decision Making*, 25 (2012), 41-48.
"Predicting Elections from Biographical Information about Candidates: A Test of the Index Method" (w/ A. Graefe), *Journal of Business Research*, 64 (2011), 699-706.
"Predicting Elections from Politicians' Faces," (w/ K. C. Green, R. J. Jones, & M. Wright), *International Journal of Public Opinion Research*, 22 (2010), 511-512.
"Combined Forecasts of the 2008 Election: The PollyVote," (w/ A. Graefe, A. G. Cuzán & R. J. Jones, Jr.), *Foresight*, 12 (2009), 41-42.

Financial Forecasting

"Relative accuracy of judgemental and extrapolative methods in forecasting annual earnings,"*J. of Forecasting* 2 (4), 437-447.

Forecasting Methods

"Forecasting methods and principles: Evidence-based checklists" (w/K.C.Green). *Journal of Global Scholars in Marketing Science*, 28, (2018), 103-159.
"Simple versus complex forecasting: The evidence" (w/ K. Green), *Journal of Business Research*, 68 (2015), 1678-1685.
"Golden Rule of Forecasting: Be Conservative" (w/ K. Green & A. Graefe), *Journal of Business Research*, 68 (2015), 1717–1731.
"Golden Rule of Forecasting Rearticulated: Forecast unto Others as You Would Have Them Forecast Unto You**.** (w/ K. Green & A. Graefe), *Journal of Business Research*, 68 (2015), 1768–1771.
"Combining forecasts: An application to elections," (w/ Graefe, A. Cuzán & R.J. Jones (2014). *Inter J of Forecasting*, 30, 43-54.(see IJF Best Papers Award 2017.
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