

Decision Research Strategies

Baruch Fischhoff

**National Research Council
Workshop on Adolescent Decision Making
April 30, 2004**

Research Strategy Choices

Begin with formal analysis?

Persuasive or non-persuasive?

Optimality or mastery?

Which individual differences?

circumstances, values -- necessarily

but also...affect? physiology? social context?

genetics? resources? competence? ...

Behavioral Decision Research

Interdisciplinary field, at intersection of psychology, economics, management science, statistics, philosophy...sharing utility theory as a conceptual framework.

Behavioral Decision Research

As practiced by Herb Simon, Ward Edwards,
Paul Slovic, Sarah Lichtenstein, Robyn
Dawes, Amos Tversky, Daniel Kahneman,
Tom Wallsten, George Loewenstein, Colin
Camerer, Elke Weber, Jenn Lerner ...

Behavioral Decision Research

Normative analysis of decision situation

Descriptive behavioral research, in terms
comparable to normative analysis

Prescriptive interventions, closing gaps
between normative ideal and
descriptive reality

Applications Are Iterative

Normative analysis focuses descriptive research on apparently critical topics.

Descriptive research forces reformulation normative analysis, with new goals, values, insights.

Prescriptive interventions refine goals, prompt supplementary research

Behavioral Decision Research Strategy Choices

Begin with formal analysis? yes

Persuasive or non-persuasive? non(default)

Optimality or mastery? either

Which individual differences?

circumstances, values, competence

What Difference Does It Make?

Terminological: The Other “Normative” Analysis

Principled norms, defined by utility theory, not behavioral norms, defined by a reference community. Behavioral norms are one, potentially relevant outcome.

Normative

Focus on Sensitivity of Decisions

Effect size is critical to the importance of non-rational behavior. Robust, theoretically revealing effects can still have limited practical impact. Decision insensitivity can even contribute to the robustness of effects. (Risk as feeling vs. risk and feeling.)

Normative Focus on Sensitivity of Decision Models

Behavioral decision research largely ignores social psychology decision-making models, which are seen as representing a class of linear models that achieves predictive ability at the price of limiting its explanatory capacity.

(Hoffman, 1960; Goldberg, 1968; Dawes & Corrigan, 1974)

Descriptive Decision Specification

Seek individual's perception of options and goals. Accept possibility of expanding choice set (self-efficacy, circumstantial changes) and of persuasive value change. Accept socially unacceptable behavior as potentially reasonable (rational).

Descriptive Task Specification

BDR emphasizes on precisely defined tasks (response mode, event descriptions). Should facilitate performance evaluation. Interpret tasks as researchers intend; diagnostics for sources of error (accuracy, calibration). May add element of artificiality.

Prescriptive Additional Intervention Resources

Diagnostics for help that people need
optimality, mastery

Expository techniques
structural (dm), substantive (domain)

Evaluation criteria
knowledge, calibration of beliefs ,
coherence of preferences, inferential ability

Some Research Questions Requiring Collaboration

What choices do teens face (number, difficulty)?

How do teens conceptualize their choices?

How do cognitive and emotional control interact?

How general is BDR tasks' external validity?

How adequate competency for real-world choices?

Cooperative interpretation of interventions,
imaging, experiments ...

A Complex Working Hypothesis

People often do sensible things if they:

get key facts in a credible, comprehensible form

have control over themselves and their
environment

are judged by their own goals

have minimal decision-making competence

Collaborators

Lita Furby, Marcia Morgan, Ruth Beyth-Marom,
Marilyn Quadrel, Julie Downs, Wändi Bruine de
Bruin, Sara Eggers, Paul Fischbeck, Claire Palmgren,
Robyn Dawes, Jenn Lerner, Roxana Gonzalez, Deb
Small, Shana Millstein, Bonnie Halpern-Felsher,
Andy Parker, Pam Murray, Joyce White, Ralph Tarter,
...

<http://sds.hss.cmu.edu/risk/>

Sources

- Beyth-Marom, R. & Fischhoff, B. (1997). Adolescent decisions about risk: A cognitive perspective. In J. Schulenberg, J. Maggs & K. Hurnelmans (Eds.), Health risks and developmental transaction during adolescence (pp. 110-135). New York: Cambridge.
- Downs, J. S. Murray, P. J., Bruine de Bruin, W. et al. (in press). An interactive video program to reduce adolescent females' STD risk. Social Science and Medicine.
- Fischhoff, B. (1992). Giving advice: Decision theory perspectives on sexual assault. American Psychologist, 47, 577-588.
- Fischhoff, B. (1999). Why (cancer) risk communication can be hard. Journal of the National Cancer Institute Monographs, 25, 7-13.
- Fischhoff, B., Bostrom, A., & Quadrel, M.J. (2002). Risk perception and communication. In R. Detels et al. (Eds.), Oxford textbook of public health. London: Oxford.
- Fischhoff, B., Downs, J., & Bruine de Bruin, W. (1998). Adolescent vulnerability: A framework for behavioral interventions. Applied and Preventive Psychology, 7, 77-94.
- Fischhoff, B., Parker, A., Bruine de Bruin, W., Downs, J. et al. (2000). Teen expectations for significant life events. Public Opinion Quarterly, 64, 189-205.
- Morgan, M.G., Fischhoff, B., Bostrom, A., & Atman, C. (2001). Risk communication: The mental models approach. New York: Cambridge University Press.
- Parker, A. & Fischhoff, B. (in press). Decision-making competence: An individual-differences approach. Journal of Behavioral Decision Making.