

Expert Decision Making
Psy 407/507
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Thursday 1400-1550 Straub 257

This seminar will explore what we know about how domain experts make decisions. Although experts often fall prey to the same biases that affect non-experts, domain expertise allows experts to use decision strategies that are substantially different from those used by non-experts. These strategies may confer some protection from common biases but may also expose experts to other problems. Research from a variety of different fields including psychology, sociology, business, political science, and law will be considered. We will be reading Phil Tetlock's work on "Expert Political Judgment" (available at the bookstore and online) and assorted additional chapters and articles (see tentative reading list below).

Objectives

By the end of the course, participants will have a broad familiarity with the psychology of expert decision-making and how expert decision-making is similar to and differs from non-expert decision-making.

Requirements – All Students

This is a seminar. We will focus on learning from one another. Most of our time will be spent discussing aspects of the topic based on readings. For every session everyone will be expected to read the assigned materials before class and to participate in class discussions. Prior to each discussion session, students will be asked to post questions and/or comments about the readings to the class Canvas site. For each of these sessions, one or more students will be assigned the role of "lead discussant." These students will be expected to have prepared a set of questions and/or comments inspired by the readings and to join the instructor in leading the class discussion for that session.

Unit & Grading Options

Students may choose either 3 or 4 credits and Pass/No Pass or Graded options.

4 credits. In addition to participating in the discussions, students choosing this option will be required to complete a term project and present that project to the class during the last week of the term. The term project can take on any number of forms; the only strict rule is that the plan receives prior approval from the instructor. Possible projects include (but are not limited to) reviews of the

literature on some aspect of the phenomenon, an analysis of an historical event, the development of a proposal for empirical research on a topic related to the course, or a prototype educational program. It is expected (but not required) that students choosing this option will take the course for a grade.

For students choosing this option, grades will be based on 4 components (rough weighting of components in parentheses):

- Participation in class discussions (including posting questions and/or comments) (20%)
- Leadership of assigned discussion session (20%)
- Presentation of term project (10%)
- Term project (50%)

3 credits. In addition to participating in the discussions, students choosing this option will be required to complete a take-home essay examination covering the topics discussed during the course.

For students choosing this option, grades will be based on 4 components (rough weighting of components in parentheses):

- Participation in class discussions (including posting questions and/or comments) (20%)
- Leadership of assigned discussion session (20%)
- Final Examination (60%)

Books

Kahneman, D. (2011). Thinking, Fast and Slow. Farrar, Straus, & Giroux. New York

Tetlock, P. (2005). Expert Political Judgment: How Good Is It? How Can We Know? Princeton University Press, Princeton, NJ.

Tentative Syllabus

Week 1: Introduction

Shanteau, J. & Stewart, T. (1992). Why Study Expert Decision Making? Some Historical Perspectives and Comments. *Organizational Behavior and Human Decision Processes*, 53, 95-106.

Week 2: Approaches to Decision Making

Kahneman, D. & Tversky, A. (1974). Judgment Under Uncertainty: Heuristics and Biases. *Science*, 185, 1124-1131.

Gigerenzer, G. & Gaissmaier, W. (2011). Heuristic Decision Making. *Annual Review of Psychology*, 62, 451–82.

Mosier, K., Fischer, U., Hoffman, R.R., Klein, G. (2018) Expert Professional Judgments and “Naturalistic Decision Making.” In K.A. Ericsson, R.R. Hoffman, A. Kozbelt, & A.M. Williams (Eds.) *Cambridge Handbook of Expertise & Expert Performance*, 2nd Ed., (pp. 453-475). Cambridge University Press, Cambridge, UK.

Kahneman, D., & Klein, G. (2009). Conditions for Intuitive Expertise: A Failure to Disagree. *American Psychologist*. 64, 515-526.

* **Kahneman**, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, 47, 263-292.

* **Gigerenzer**, G. & Goldstein, D. (1996). Reasoning the Fast and Frugal Way: Models of Bounded Rationality, 103, 650-669.

***Lipshitz**, R., Klein, G., Orasanu, J., & Salas, E. (2001). Taking Stock of Naturalistic Decision Making. *Journal of Behavioral Decision Making*, 14, 331-352.

Week 3: Nature of Expertise

Glaser, R. & Chi, M. (1988). Overview. In Chi, M., Glaser, R., & Farr, M. (Eds) *The Nature of Expertise*. Hillsdale, NJ: Lawrence Erlbaum.

Feltovich, P. J., Prietula, M. J., Ericsson, K. A. (2018). Studies of Expertise from Psychological Perspectives: Historical Perspectives and Recurrent Themes. In K.A. Ericsson, R.R. Hoffman, A. Kozbelt, & A.M. Williams (Eds.) Cambridge Handbook of Expertise & Expert Performance, 2nd Ed., (pp. 59-83). Cambridge University Press, Cambridge, UK.

Posner, M. (1988). Introduction: What Is It to be an Expert? In Chi, M., Glaser, R., & Farr, M. (Eds) The Nature of Expertise. Hillsdale, NJ: Lawrence Erlbaum.

Campitelli & Gobet (2010). Herbert Simon's Decision-Making Approach: Investigation of Cognitive Processes in Experts. Review of General Psychology, 14, 354-364.

Week 4: Development of Expertise

Ericsson, K. A. (2009). Enhancing the development of professional performance: Implications from the study of deliberate practice. In Ericsson, K. A. (Ed.) Development of Professional Expertise Toward Measurement of Expert Performance and Design of Optimal Learning Environments. New York, NY: Cambridge University Press.

Militello, L. & Quill, L. (2007). Expert apprentice strategies. In Hoffman, R. (Ed.) Expertise Out of Context. New York, NY: LEA.

Week 5: Competence in Experts

Shanteau, J. (1992). Competence in Experts: The Role of Task Characteristics. Organizational Behavior and Human Decision Processes, 53, 252-266.

Simon, H. A. & Chase, W. G. (1973). Skill in Chess: Experiments with chess-playing tasks and computer simulation of skilled performance throw light on some human perceptual and memory processes. American Scientist, 61, 394-403.

Connors, M., Burns, B., & Campitelli, G. (2011). Expertise in Complex Decision Making: The Role of Search in Chess 70 Years After de Groot. Cognitive Science, 35, 1567-1579.

Cokely, E.T., Feltz, A., Ghazal, S., Allan, J.N., Petrova, D., Garcia-Retamero, R. (2018). Skilled Decision Theory: From Intelligence to Numeracy and Expertise. In K.A. Ericsson, R.R. Hoffman, A. Kozbelt, & A.M. Williams (Eds.) Cambridge Handbook of Expertise & Expert Performance, 2nd Ed., (pp. 476-505). Cambridge University Press, Cambridge, UK.

Week 6: Complex Expert Decision Making

Klein, G. (1997). Developing expertise in decision making. Thinking & Reasoning, 3, 337-352.

Yates, F. & Tschirhart, M. (2006). Decision-making expertise. In Ericsson, K., Charness, N., Feltovich, P., & Hoffman, R. (Eds.) *Cambridge Handbook of Expertise and Expert Performance*. New York, NY: Cambridge University Press.

Payne, J., Bettman, J., & Johnson, E. (1988). Adaptive strategy selection in decision making. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 14, 534-552.

Klein, G., Phillips, J., Rall, E., Peluso, D. (2007). A data-frame theory of sensemaking. In Hoffman, R. (Ed.) *Expertise Out of Context*. New York, NY: LEA.

Mosier, K. & Fischer, U. (2011). *Informed by Knowledge: Expert Performance in Complex Situations*. New York, NY: Taylor & Francis.

*Johnson, E. (1988). Expertise and Decision Under Uncertainty: Performance and Process. In Chi, M., Glaser, R., & Farr, M. (Eds) *The Nature of Expertise*. Hillsdale, NJ: Lawrence Erlbaum.

Week 7-8: Expert Political Judgment

Tetlock, P. (2005). *Expert Political Judgment*. Princeton, NJ: Princeton University Press.

Week 9: Medical Decision Making

Reyna, V., & Lloyd, F. (2006). Physician decision making and cardiac risk: Effects of knowledge, risk perception, risk tolerance, and fuzzy processing. *Journal of Experimental Psychology: Applied*, 12, 179-195.

Arkes, H. (2013). The Consequences of the Hindsight Bias in Medical Decision Making. *Current Directions in Psychological Science*, 22(5), 356–360.

Norman, G.R, Grierson, L.E., Sherbino, J., Hamstra, S.J., Schmidt, H.K., Mamede, S. (2018). Expertise in Medicine and Surgery. In K.A. Ericsson, R.R. Hoffman, A. Kozbelt, & A.M. Williams (Eds.) *Cambridge Handbook of Expertise & Expert Performance*, 2nd Ed., (pp. 331-355). Cambridge University Press, Cambridge, UK.

Kaplan, R. & Froch, D. (2005). Decision Making in Medicine and Health Care. *Annual Review of Clinical Psychology*, 1, 525-556.

Week 10: Judicial Decision Making

Bartels, B.L. (2010). Top-Down and Bottom-Up Models of Judicial Reasoning. In Klein, D.E. & Mitchell, G. (Eds.) *The Psychology of Judicial Decision Making* (pp 1-22). Oxford

University Press, Oxford.

Spellman, B. (2010). Judges, Expertise, and Analogy. In Klein, D.E. & Mitchell, G. (Eds.) *The Psychology of Judicial Decision Making* (pp 1-22). Oxford University Press, Oxford.

Shanteau, J. & Dalglish, L. (2010). Expertise of Court Judges. In Klein, D.E. & Mitchell, G. (Eds.) *The Psychology of Judicial Decision Making* (pp 1-15). Oxford University Press, Oxford.

Lawrence, J. (1988). Expertise on the Bench: Modeling Magistrates' Judicial Decision-Making. In Chi, M., Glaser, R., & Farr, M. (Eds) *The Nature of Expertise*. Hillsdale, NJ: Lawrence Erlbaum.

Business Decision Making

Reuber, R. (1997). Management experience and management expertise. *Decision Support Systems*, 21, 51-60.

Muradoglu, Y., Altay-Salih, A., & Mercan, M. (2005). A behavioral approach to efficient portfolio formation. *Journal of Behavioral Finance*, 6, 202-212.

Salas, E., Rosen, M., & Diaz Granados, D. (2010). Expertise-Based Intuition and Decision Making in Organizations. *Journal of Management*, 36, 941-973

Decision Making Background

Mellers, B., Schwartz, A., & Cooke, A. (1998). Judgment and Decision Making. *Annual Review of Psychology*, 49, 447-477.

Markman, A. & Gentner, D. (2001). Thinking. *Annual Review of Psychology*, 52, 223-247.

Edwards, W. & Fasolo, B. (2001). Decision Technology. *Annual Review of Psychology*, 52, 581-606.

Hastie, R. (2001). Problems for Judgment and Decision Making. *Annual Review of Psychology*, 52, 653-683.

Evans, J. (2008). Dual-Processing Accounts of Reasoning, Judgment, and Social Cognition. *Annual Review of Psychology*, 59, 255-278.

Weber, E. & Johnson, E. (2009). Mindful Judgment and Decision Making. *Annual Review of Psychology*, 60, 53-85.

Forgas, J. P. (1992). Affect in social judgments and decisions: A multiprocess model. In Zanna, M. P. (Ed), *Advances in experimental social psychology*, 25, 227-275. San Diego, CA: Academic Press.

Lerner, J.S., Li, Y., Valdesolo, P., & Kassam, K.S. (2015). Emotion & Decision Making. *Annual Review of Psychology*, 66, 799–823.