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# **Oklahoma Kansas Judgment Decision Making Conference (OKJDM)**

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**Saturday, April 28, 2012  
Kansas State University, Alumni Center**

- 9:00 Welcome**  
Gary Brase (KSU) & Janis Crow (KSU)
- 9:15 What I've Learned (So Far) about Doing JDM Research**  
Gary McClelland (CU)
- 9:45 Robust Predictions in a Non-Linear World**  
Rick Thomas (OU) & Mike Dougherty (U Maryland)
- 10:15 Clear Risks and Tainted Benefits: Numerical Contents of Educational Materials**  
Katrina M. Ellis (KSU)
- 10:45 Break**
- 11:00 An Application of Brunswikian Methods for Studying Clinical Judgment: The Prediction of Sleep Apnea Improvement Given CPAP Treatment.**  
Robert M. Hamm (OUHSC), Rory Ramsey (Boise, ID), & Neal V. Dawson (Case Western Reserve University)
- 11:30 A Signal Detection Theory Analysis of Racial and Ethnic Disproportionality in the Referral and Substantiation Components of the Child Welfare Services System**  
Jeryl L. Mumpower (Texas A&M)  
Gary H. McClelland (CU)
- 12:00 An Educational Intervention for Technical Operations Fatigue Awareness**  
Darendia McCauley (FAA)
- 12:30 Lunch**
- 1:15 Perspectives on Hyperbolic Discounting and Addiction from Economic Modeling**  
Fritz L. Laux (NE State U, OK)
- 1:45 Previous Outcome Effects on Sequential Probabilistic Choice Behavior**  
Andrew Marshall (KSU)
- 2:15 A Rat Model of Impulsive Choice Behavior: Reward-Related Correlates of Performance**  
Tiffany Galtress (KSU)
- 2:45 Break**
- 3:00 So, What Do You Think? Deliberation Styles in Decision Making**  
Jan Crow (KSU) and Hal Arkes (OSU)
- 3:30 Is Decision Making Really about Making Choices?**  
James Shanteau (KSU)
- 4:00 A Celebration of Jim Shanteau's Contributions to the Field of Judgments and Decision Making**  
Gary L. Brase (KSU)
- 4:20 Plans for Future Meetings**  
Janis Crow (KSU) & Gary Brase (KSU)
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- 6:00 Dinner to honor Jim Shanteau**  
della Voce, a bistro italliano  
405 Poyntz Ave, Manhattan, KS 66502

## ABSTRACTS

### What I've Learned (So Far) about Doing JDM Research

Gary McClelland

In 1990, Jacob Cohen published a paper titled "What I've Learned (So Far)" in *American Psychologist*. Using that article as a base, I consider what we've learned since Cohen's paper and how it pertains to research in the field of judgment and decision making. Issues include statistical power, research design, variable coding, and graphing of data. The presentation is graphical and should be accessible to all.

### Robust Predictions in a Non-Linear World

Rick Thomas

Mike Dougherty

The talk will introduce a general modeling framework called the general monotone model (GeMM), which allows one to model psychological phenomena that manifest as nonlinear relations in behavior data without the need for making (overly) precise assumptions about functional form. Using both simulated and real data, the talk illustrates that GeMM performs as well as or better than standard statistical approaches (including ordinary least squares, robust, and Bayesian regression) in terms of power and predictive accuracy when the functional relations are strictly linear but outperforms these approaches under conditions in which the functional relations are monotone but nonlinear. Finally, GeMM will be used to highlight several important issues within the judgment and decision-making literature and data intervention.

### Clear risks and tainted benefits: Numerical contents of educational materials

Katrina M. Ellis

Clear communication of statistical risks is important for informed medical decision-making. Educational materials such as brochures are tools used by doctors to aid in the decision process. Consistent with evolutionary ideas, research on numerical literacy has found that most individuals have an accurate perception of low numbers, but that perception of larger numbers is less accurate. The aim of the present study was to investigate the numerical formats in educational materials. First, we found that the majority of numerical statements contained percentages or normalized probabilities. Second, there was no difference in the use of percentages or simple frequencies in their intent to inform or persuade, but absolute frequencies were used more to inform than persuade. Finally, the intent of risk statements was more often to inform than persuade, whereas the intent of benefit statements was more often to persuade than inform. This would suggest that educational materials present risks transparently, but

present benefits persuasively in order to increase adherence and screenings. Future research should investigate the effectiveness of these formats in informed decision-making.

### An Application of Brunswikian Methods for Studying Clinical Judgment: The Prediction of Sleep Apnea Improvement Given CPAP Treatment.

Robert M. Hamm

Rory Ramsey

Neil Dawson.

Brunswik argued that psychology should give as much attention to the properties of the organism's environment as it does to the organism itself. The Lens Model equations express this by using parallel concepts to describe both the judgment and the processes at work in the task environment. Taking this approach, we describe physicians' judgment accuracy when they predict how much patients with sleep apnea will improve when they use the conventional CPAP treatment (continuous positive air pressure). Using data from Whitelaw, Brant, and Flemons (2005), we describe physicians' prognostic judgments for the same patients a) based on data from a clinical interview, and b) based on additional data from an overnight sleep study. How does the additional data improve the accuracy of their judgments? Judgment achievement  $r_a$  actually decreased (from .361 to .337) when the results of the overnight sleep study were made available. The environmental criterion is in fact difficult to predict from just the clinical data ( $R_e = .352$ ,  $R_e^2 = .124$ ), and the sleep study added only .024 to the proportion of variance explained, (to  $R_e = .385$ ,  $R_e^2 = .148$ ). Not recognizing this, the physicians' judgments became much more predictable ( $R_s^2$  increasing .320, from .275 to .594), as reflected in a very large reliance on the new information from the overnight sleep study. Its relative weight in the judgment model was over 60%, compared to its objective contribution of 16% of what was predictable in the criterion (.024 out of .148). The Brunswikian approach continues to offer insight into expert judgment, insight which has implications for how physicians ought to utilize the information from diagnostic procedures.

### **A Signal Detection Theory Analysis of Racial and Ethnic Disproportionality in the Referral and Substantiation Components of the Child Welfare Services System**

Jeryl L. Mumpower  
Gary H. McClelland

We use Signal Detection Theory to analyze the ability of the child welfare services system in terms of its ability to detect child maltreatment. The analyses show that Blacks are treated differently from Hispanics and Whites. Blacks have higher rates of referral, false positives, and false negatives within the referral and substantiation parts of the system. Values of  $d'$  are roughly the same but there are pronounced differences in  $C$  across racial and ethnic groups.

### **An Educational Intervention for Technical Operations Fatigue Awareness**

Darendia McCauley

This is a power point presentation of the development of a fatigue awareness e-learning program for a group of FAA employees providing technical and engineering services. The presentation will highlight the process used and tools developed while capitalizing on existing resources, expertise, and products. There will also be a brief description of available freeware and resources for any other group interested in fatigue awareness and mitigation.

### **Perspectives on hyperbolic discounting and addiction from economic modeling.**

Fritz L. Laux

In modeling the problem of inter-temporal decision making, it's standard to assume exponential discounting --- it's time-consistent and analytically tractable. Extensive lab work by psychologists and some economists provides evidence that decision makers often actually behave as if they were using hyperbolic discounting. I will briefly discuss the historical development of exponential discounting and the contexts in which the historical defense of this approach is not applicable. I will then discuss a relatively tractable model of hyperbolic discounting that some economists are using, discuss its application to addiction, and main questions about how to interpret the social welfare consequences of decisions made with hyperbolic discounting.

### **Previous outcome effects on sequential probabilistic choice behavior**

Andrew Marshall

The goal of the present experiment was to determine how choice behavior was affected by reward probability and the previous outcome of

a choice. Twenty-four rats were given the choice between an outcome that certainly delivered reward and an outcome that probabilistically delivered a larger reward. The rats were more likely to choose the uncertain outcome as the probability of reward receipt increase. Additionally, regardless of the probability of reward, the animals were inclined to make the uncertain (risky) choice again following an uncertain reward delivery, suggesting a tendency to continue "gambling" after winning a gamble. Two models of choice behavior were subsequently simulated to explore the possible cognitive mechanisms underlying such choice behavior. The simulation results suggested that the animals' choices were based on both trial and time-based factors, and that subsequent analysis of choice behavior should consider both as determinants of choice behavior.

### **A rat model of impulsive choice behavior: Reward-related correlates of performance**

Tiffany Galtress

Rats, like humans, show large individual differences in impulsive choice behavior, specifically the degree to which they are willing to wait for larger reward when a smaller one is available sooner. We measured choice behavior in rats in conjunction with other reward-related behaviors such as impulsive action, incentive motivation and sensitivity to reward size. We found that performance on reward-related tasks correlated with the likelihood that an individual rat produced momentary or molar maximizing of reward acquisition within the impulsive choice paradigm.

### **So, What Do You Think? Deliberation Styles in Decision Making**

Jan Crow

Hal Arkes

By definition, when deliberating, an individual thinks carefully and weighs or considers options...or so one would assume. Many studies ask participants to think about or give reasons for their choice prior to making a decision. This talk reveals the different deliberating strategies individuals take and the subsequent effect on decisions.

### **Is Decision Making Really about Making Choices?**

James Shanteau

In this talk, I will summarize some troubling insights gained late in my career. Specifically, I will argue that the study of decision making should focus more on the implementation of action, rather than on the selection between actions. To support my arguments, I will cite examples from research on organ donation, medical diagnosis, consumer behavior, fire fighting, etc. I will also discuss insights from historical biographies ranging from Alexander-the-Great to Steve Jobs.