Welcome to SQAB 2021

All times are Eastern Daylight Time (UTC –4)

Day 1

10:00 - 10:15 am **President's Introduction**
Christopher A. Podlesnik
Auburn University, Auburn AL, USA

10:15- 10:55 am **Effort Discounting: Recent Advances and Remaining Challenges**
Wojciech Bialaszek
SWPS University of Social Sciences and Humanities (Poland)

Discounting refers to a decrease in the subjective value of an outcome with increasing intensity of the discounting factor. Most research focused on delay, probability and social distance as factors that affect human choice. When observing human behavior, undeniably, one of the factors that determines choice is effort. Effort discounting refers to the decrease in the subjective value of a reward as the effort (cognitive or physical) required to obtain the outcome increases. Describing the reward devaluation by increasing effort intensity is substantial to understanding human preferences, because every action, including choice, is in itself effortful. Is the effort discounting function convex or concave? Is there magnitude and sign effect in effort discounting? Can effort paradoxically increase subjective value of rewards? In my presentation I will consider evidence from already published research as well as recent studies from my laboratory in an attempt to answer these questions.

10:55-11:35 am **Choosing What to Do: Observations from a Psycho-motor Laboratory, Including the Discovery of Pre-crastination**
David A. Rosenbaum
UC Riverside, Riverside (USA)

Touch your nose. Yes really! Elementary physical acts like this can be carried out in infinitely many ways, yet the methods used are generally "natural" or "efficient." Quote marks are needed here because it's not really known how to quantify these values; minimizing energy doesn't always work, for example. A way to gain ground on this problem is to observe behavior and characterize regularities in it, and also to determine what properties distinguish behaviors that are chosen from

those that are not. My lab has pursued this approach and have discovered five phenomena which suggest one overarching principle. The five phenomena are the parameter remapping effect, the handpath priming effect, the grasp height effect, the end-state comfort effect, and pre-crastination (the tendency to hasten completion of goals even at the expense of extra energy). The overarching principle is Change Minimization.

11:35 -12:15 pm **Poster spotlights/Nevin awards**

12:15-1:30 pm **First Poster Session**

1:30-2:10 pm **Much Ado about Zeros: Recent Thoughts on Demand Analyses**

Mikhail N. Koffarnus[1], Brent A. Kaplan[1], Christopher T. Franck[2]

University of Kentucky[1] (USA), Virginia Tech [2] (USA)

Behavioral economic demand has increasingly recognized utility in understanding how commodities, including drugs, are valued. These methods have many benefits, including direct translation of effects between human and nonhuman animal contexts and the characterization of value across multiple clinically relevant metrics. Despite these advantages, analysis of demand data is often complex, has a relatively high barrier to entry, and can be difficult to conduct without violating accepted best practices of descriptive and inferential statistical analyses. Additionally, divergent analysis choices across labs can lead to inconsistencies in parameter interpretation and limit replicability of research. In this presentation, we will discuss some common demand analysis and interpretation challenges, along with proposed solutions and refinements proposed by us and others. The standardization and streamlining of demand analyses will help reduce the barrier to entry, improve the replicability of research findings, and allow more researchers to use these informative procedures and metrics in their own studies.

2:10-2:50 pm **Regulation of Cost/Benefit Decision Making in Male and Female Rats**

Caitlin A. Orsini

University of Texas at Austin (USA)

Many psychiatric diseases characterized by altered risk taking are differentially represented in males and females. Progress towards understanding the relationship between psychiatric disorders and risk taking is constrained, however, by our limited knowledge regarding sex differences in risk taking. As a first step toward addressing this issue, we showed previously that females are more risk averse than males in a rat model of risky decision making. We hypothesized that these sex differences are due to differences in hormonal modulation of risk taking. To test this hypothesis, males and females were trained in a risky decision-making task involving risk of explicit footshock. Subsequently, rats were gonadectomized or underwent sham surgery and were then re-tested. Ovariectomies increased choice of the large, risky reward (increased risk taking) whereas orchiectomies decreased risk taking. Exogenous estradiol administration attenuated the impact of ovariectomies on risk taking, but

testosterone was without an effect in males. Surprisingly, estradiol did reduce risk taking in males, irrespective of gonadal status. Collectively, these data demonstrate a robust modulatory role for gonadal hormones in risk-based decision making and, in particular, reveal a role for estradiol in suppression of risk taking in both males and females.

2:50- 3:05 pm Break

3:05-3:45 pm **Maker Movement in the Operant Laboratory: Recording a Wide Range of Response Variation**

Rogelio Escobar

National Autonomous University of Mexico (Mexico)

Recent developments in 3D printing and "do-it-yourself" electronics are starting to shape operant laboratories around the world. These technologies are ideal to build custom-made equipment required to answer questions involving complex settings. I will describe four experiments exemplifying how we have used these technologies in my lab. In one experiment, we determined if response renewal occurs when three responses are reinforced sequentially in different contexts in one operant chamber. In another experiment, we studied operant variability in a chamber with five levers to record a wider range of variation than traditional procedures. In a third experiment, we studied spontaneous variability in a resurgence procedure using a chamber with 16 response holes divided in two panels. In the last experiment, we studied simultaneously response variability and induction on a fixed-interval schedule using a chamber with 28 levers. These examples are expected to stimulate researchers to ask questions breaking the barriers often imposed by commercial chambers.

3:45- 4:25 pm **Discrete Choice Experiments: Modeling Choice of Aggregated Groups**

Jonathan E. Friedel[1], Anne M. Foreman[2] & Oliver Wirth[2]

Georgia Southern University[1] (USA), National Institute for Occupational Safety and Health[2] (USA)

Understanding decision making is central to addressing many public health issues, such as promoting safe work practices in high-risk occupational settings. Discrete choice experiments (DCEs) are a research tool designed to assess population-level factors that affect the choices that people make. Discrete choice experiments are particularly useful when researchers are interested in choices that involve multiple choice alternatives, multiple features per choice alternative, categorical differences across choice alternatives, and features of the alternatives that are independent and potentially orthogonal. For example, a DCE is well suited for determining how a cancer patient's choice of a preferred treatment is affected by treatment costs, potential side effects, perceived effectiveness, routes of administration, and length of treatment. To illustrate the benefits and potential applications of DCEs, several example studies (completed and in progress) will be highlighted. Additionally, the general methods and basic analytical techniques associated with the

DCEs will be introduced. We will also describe how DCEs can be used as another useful tool in the application of behavioral principles to explain human decision making in various domains.

4:25- 4:40 pm Break

4:40-5:20 pm **Sleep, Unpredictability and Behavioral Choice: You are not the Only One with Problems**

Divya Sitaraman

California State University-East Bay (USA)

Sleep is a fundamental behavioral state important for survival and is universal in animals with sufficiently complex nervous systems. An essential aspect of sleep-wake behavior is the ability to rapidly transition from one state to another and persist in that state to carry out biologically important functions (for example- wake-up and escape upon receipt of sensory stimuli signaling danger, forage or stay awake while engaging in social behaviors). Although, goal-directed motivational processes and sleep-expression have to be balanced and co-regulated for survival and reproduction the circuit mechanisms by which mutual exclusivity is enforced remains unknown. In this talk I will discuss the behavioral tests, genetic manipulations and circuit breaking approaches we are using to identify mechanisms underlying behavioral coordination of sleep and social behaviors in the fly, Drosophila melanogaster. By focusing on shared genetic and neural circuit mechanisms underlying sleep and courtship we hope to identify organizing principles of how organisms simultaneously process and integrate multiple streams of information to enact the pertinent behavior.

5:20- 6:00pm **Choosing a Future from a Murky Past**

Sarah Cowie

University of Auckland (New Zealand)

Behavior is sensitive to the organization of events across time and space, even in the absence of clocks and rulers. When the same contingencies operate consistently across an extended period of time, the past mirrors the future, allowing organisms to choose in accordance with likely future reinforcers. When past experience includes environments with different structures, the past becomes murkier, and the future potentially less clear. We explore how perception, memory, and generalization impacts control by the environment when organisms must choose which past to use to predict the likely future, both when the present conditions mirror those experienced in the past, and when present conditions differ slightly from past ones.

End of Day 6:00 pm

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Day 2

10:30- 11:10 am **Sometimes Shallow and Unsystematic: Examining the Qualitative Differences in Individual Delay Discounting**

Elise Furrebøe

University Agder (Norway)

The discounting paradigm has been challenged by an increasing number of studies presenting qualitative variations in the individual discount function. Particularly, the subjective value of a negative outcome does not necessarily *systematically decrease* with delay to the outcome. The qualitative differences refer to differences in shape rather than steepness of the discount function, such as zero discounting, unsystematic discounting, or negative discounting. This brief review summarizes four experiments aiming at detecting the reinforcing contingencies that contribute to the different patterns observed in delay discounting on an individual level. We found support for the sign-effect and the qualitative differences between discounting of gains and losses. Further, by verbal reports and by examining the reinforcing contingencies in single choice instances, we identified some of the otherwise undetected competing contingencies involved in delay discounting. I will evaluate the data analysis methods used, and discuss the results and alternative explanations of qualitative differences.

11:10- 11:50 am **Using Quantitative Models to Promote Rapid, Generalized, and Durable Decreases in Destructive Behavior in Children with Autism**

Wayne W. Fisher

Rutgers University/Rutgers Biomedical and Health Sciences (USA)

The most important advancement in the treatment of destructive behavior has been the development of functional analysis (FA), which is used to prescribe effective treatments, such

as functional communication training (FCT). With FCT, the consequence that historically reinforced destructive behavior is delivered contingent on an appropriate communication response and problem behavior is correlated with extinction. Although this approach can be highly effective, many pitfalls and practical challenges arise when this treatment is implemented by caregivers in natural community settings. In this presentation, we will present data and describe a line of research routed in behavioral momentum theory aimed at increasing the effectiveness, efficiency, and practicality of FCT for individuals with ASD who display destructive behavior in typical community settings. Specifically, I focus on: (a) recent research on establishing-operation manipulations that can be used to prevent extinction bursts when treatment is initiated; (b) stimulus-control procedures that can be used to promote the rapid transfer of treatment effects to novel therapists, contexts, and caregivers without reemergence of destructive behavior; and (c) stimulus- and consequence-control procedures that can be used as "behavioral inoculation" to prevent resurgence of problem when caregivers do not implement treatment procedures with pristine procedural integrity.

11:50 - 12:30 pm **Poster spotlights/Nevin awards**

12:30- 1:45 pm **Second Poster Session**

1:45-2:25 pm **Applying Behavioral Economics to Public Health Crises: Historical Precedence and Translational Promise**

Derek D. Reed

University of Kansas (USA)

Behavioral economics is a subfield of behavior analysis that integrates operant psychology with microeconomic concepts. The behavioral economic approach specifically provides novel insights into understanding the exchange of behavior for reinforcers under constraint. These novel insights have substantially advanced areas such as behavioral pharmacology and risky health behavior. Decades of refined research in these areas has yielded efficient yet psychometrically sound assays to rapidly measure operant demand and delay discounting. This presentation will propose that these methods ought to be adopted when cultural-level crises arise —such as epidemics or pandemics—warranting swift large-scale intervention. This presentation will highlight several examples from the recent COVID-19 pandemic that illustrate the power of behavioral economics in providing rapid information with potential to directly inform policy. Examples provided specifically underscore the direct evolution of decades of EAB work, while translating to policy-level issues and generating socially valid behavioral insights.

2:25- 3:05 pm **The Dynamics of Economic Behavior**

Ian Krajbich

Ohio State University (USA)

Most decisions that people encounter involve options that belong to different mental categories, and people often have prior experience with these categories. For instance, decisions may involve comparing alternatives that are selfish vs. fair, healthy vs. tasty, or patient vs. impulsive, and the decision-maker may know that in general they prefer one category to the other. A choice made in a particular instance may depend on how the decision-maker evaluates the options at hand but may also be impacted by their category predispositions. Here, we argue that these category predispositions are adaptive in that they can speed up decisions. However, they can also lead to substantial choice biases. We experimentally demonstrate that category predispositions arise based on contextual information and peoples' experience in the choice environment. More generally, this research provides a framework for thinking about the dynamical processes that determine preferences.

3:05- 3:20 pm Break

3:20- 4:00 pm **The "i" in Time: A Subjective Conceptualization and Measurement of Time Perspective**

Zena R. Mello

San Francisco State University (USA)

Mello offers a new conceptualization and measurement tool for time perspective. Time perspective is conceptualized as an individually varying and subjective psychological construct. Mello's model builds on prior conceptualizations (Nurmi, 1991; Steinberg et al., 2009; Zimbardo & Boyd, 1999) by including multiple dimensions (thoughts and feelings) and time periods (past, present, and future). The presentation will include a description of measures that assess time-related thoughts (orientation towards and perceived relationships among the time periods) and feelings (positive and negative attitudes towards the time periods). The reliability and validity of these measures will be discussed. Further, extant research using these measures will be reviewed including studies with adolescents and adults and studies conducted cross-culturally. Research on time perspective offers ways to understand how individuals' subjective time perspectives may underlie their behaviors. For illustration, a project on time perspective and tobacco use among adolescents will be described.

4:00-4:40 pm **Crowdsourcing Research on Reinforcement, Extinction, and Relapse**

Christopher A. Podlesnik, Carolyn M. Ritchey, and Toshikazu Kuroda

Auburn University (USA)

Examining the effects of reinforcement and extinction contingencies provides insight into fundamental behavioral processes involved in behavioral flexibility and conditions related to relapse. Crowdsourcing websites like Amazon Mechanical Turk make data collection with human participants relatively fast and convenient but at the expense of the levels of environmental control typical of laboratory research. The present research systematically replicated and extended previous crowdsourcing and laboratory research examining the extinction and relapse of free-operant behavior. Our research extends the use of crowdsourcing in the study of extinction and relapse beyond the previous demonstrations, with our aim to develop a platform suitable for examining novel theoretical questions about behavioral processes and potential relapse interventions. First, we will discuss methodological refinements affecting the reliability of extinction's effects, including the introduction of response cost. Next, we examine the influence of reinforcer and contextual control in models of relapse with resurgence and renewal, respectively. Finally, we examine predictions and fits of the Resurgence as Choice model to target and alternative behavior with manipulations of alternative reinforcer rate and magnitude.

4:40- 5:30 pm **Business meeting and award presentations**

End of Meeting 5:30