Project Summaries

The purpose of these summaries is to provide WMU undergraduate behavioral science and psychology majors with an understanding of the research that is conducted by the Behavioral Economics Research Collaborative (BERC) at WMU. Any undergraduate who is interested in serving as a BERC research assistant should contact Dr. Anthony DeFulio at anthony.defulio@wmich.edu. If you plan on inquiring about research assistantships, then please feel free to specify which projects or types of studies you are interested in. However, you should know that availability of assistantships depends on scheduling logistics and the level of overall need for assistance with any given project. Thus, being flexible in terms of which projects you are willing to work on increases the chance that we will be able to find a place for you in the BERC.

Clinical & Community Research

Overview – The clinical and community research that is conducted by BERC usually involves the development and evaluation of contingency management interventions. Contingency management is a family of interventions in which contingencies of reinforcement are arranged to promote health behavior. The use of financial incentives is common. For example, we conducted a study that showed that a smartphone-based contingency management intervention increased adherence to antiretroviral medications in people living with HIV who had a history of drug use.

1) The Bridge study – This is an NIH-funded Phase 1 STTR grant project (DeFulio, PI) conducted in collaboration with Dr. David Gastfriend, M.D. (DynamiCare Inc.), and Dr. Philip Pazderka, M.D (WMU Homer Stryker M.D. School of Medicine). Despite the best efforts of care providers in emergency departments, the overwhelming majority of people who experience an opioid overdose fail to enter treatment. Our goal is to assess the feasibility and usability of a smartphone-based contingency management intervention designed to promote entry into medication-assisted treatment in out-of-treatment opioid users who have recently experienced an overdose and received care in an emergency department.

2) The Smoking study – This is a small pilot intervention development project being conducted in collaboration with Dr. Stephen Magura (The Evaluation Center at Western Michigan University). Smoking is incredibly common among people living with schizophrenia, especially those living in group homes. The goal of this project is to use a combination of functional analysis and contingency management to promote smoking cessation in this population.

3) The PEARL study – This is a correlational, interview-based study conducted in collaboration with W. Graham Ward, J.D. (formerly of Cooley Law). Early resolution of court cases typically saves time and money for those who are involved and can improve well-being. The goal of this research is to do formative data collection in advance of designing an intervention for promoting early resolution of court cases among litigants of all kinds. In particular, we seek to
understand the correlates of satisfaction with the early resolution process in people who have received legal services at community legal centers.

4) The Medication Recovery study – This study is in the planning stage. We are hoping to begin this study in late 2019. This study is being conducted in collaboration with Jeff Wahl, co-founder of MIDAS Healthcare Solutions, Inc. This study will involve surveying people who have been prescribed medications that might not need to be completely finished such as a prescribed opioid for post-operative pain. The goal will be to understand the kinds of incentives that will be acceptable and attractive to use as part of a larger program designed to promote recovery of unused medications.

5) The Hep-C study – This study is in the planning stage. We are hoping to begin this study in early 2020. This study is being conducted in collaboration with Dr. Brook Pope, Ph.D., of the Battle Creek VA. The plan is to conduct a small pilot intervention development project in which a contingency management intervention is delivered to Veterans using existing technology at the VA. The goal will be to increase completion of treatment for hepatitis-C in Veterans who have previously been offered this treatment but who have failed to attend critical medical appointments.

Human Decision-Making Research

Overview – The human decision-making research conducted by the BERC is at the crossroads of behavioral economics and the experimental analysis of behavior. The goal is to investigate complex human decision as parsimoniously as possible. Thus, the focus is on behavior-environment interaction rather than hypothetical cognitive constructs.

1) Risky choice studies – This is a series of studies in which people play a “wheel of fortune” game and decide whether to keep spinning and risk “bankruptcy” or collect the earnings from the spins that they have already done. The goal is to systematically manipulate factors that are potentially relevant to the decision to make a risky choice in order to better understand everyday choices in risky situations.

2) Token studies – This is a series of studies in which people earn tokens by completing simple computer tasks. In some studies people are given choices as to what they can exchange their tokens for. Other studies are designed to explore how willingness to work is affected by the range of things that can be exchanged for the tokens. Still other studies are designed to explore the factors that relate to patterns of saving and spending.

3) Sunk cost studies – This is a series of studies in which we investigate the factors that affect the propensity to engage in the “sunk cost fallacy.” A sunk cost is any investment made toward completing some goal (whether work or money, etc.) that is irrecoverable. It is non-optimal to consider sunk costs when making decisions in the present, and yet people will often do exactly that. The long-term goal for this project is to explain this phenomenon in terms of basic behavioral principles rather than as an isolated “predictable irrationality.”
Non-Human Animal Behavioral Research

Overview – BERC is not heavily focused on non-human animal research, but we appreciate its value and see it as a critical part of the bench-to-bedside endeavor taking place in behavioral research writ large. As such, whenever the opportunity, need, or simply the interest arises, we marshal our resources and conduct this kind of research. Because of resource and infrastructure constraints, it is simplest for us to conduct this work with rats, mice, and pigeons. However, if there were good reason to involve another kind of animal subject, then the door is open to consider it.

1) Behavioral contrast in conditioned reinforcement – We only have one active non-human animal research study. This study involves the concept of conditioned reinforcement. Conditioned reinforcers are stimuli that serve a reinforcing function because of the organism’s learning history. The concept has traditionally held a substantial amount of explanatory force in behavior analysis, but in recent decades has been increasingly criticized. The goal of this study is to investigate whether the concept of conditioned reinforcement is useful in explaining behavioral changes that occur in an unchanged setting that are happening because of behavioral suppression procedures used in another setting. Such changes in behavior are termed “behavioral contrast.” In non-human animal studies, the phenomenon of behavioral contrast has only been observed when the behavior that is suppressed functions to produce a primary reinforcer such as food. If the phenomenon also occurs when the behavior of interest only serves to produce stimuli correlated with the availability of food, then the conceptual utility of conditioned reinforcement is strengthened. If the phenomenon does not occur under such conditions, then the concept of conditioned reinforcement may be of limited value as suggested by recent critics.