

Lightning Talks and 3MT Competition...*At a glance!*

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LIGHTNING TALKS

Human Sciences

1. Examining The Link Between Sport-Related Brain Injuries and Dementia Among Retired Athletes: A Systemic Review and Meta-Analysis of Cohort Studies

Meungguk Park, Professor, School of Human Sciences

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The purpose of this meta-analysis is to examine the link between sport-related traumatic brain injuries (TBIs) and dementia among retired athletes. The systematic review identified a total of 937 potential articles, using three academic databases. After the initial search and screening processes, 12 studies met the inclusion criteria (Total participants: 53,227). The meta-analysis for the 12 studies yielded a pooled odds ratio of 2.22, indicating retired athletes who were exposed to TBIs were 2.2 times more likely to be diagnosed with dementia than the control groups. The subgroup analysis revealed the strongest link between brain injuries and dementia in soccer, followed by rugby and American football. Importantly, retired professional athletes had a higher prevalence of dementia diagnoses than amateur athletes. This meta-analytic review supports the growing evidence that athletes who were exposed to TBIs are at a higher risk of developing dementia relative to the general population.

2. Work Environment and Online Sports Gambling Behavior: Is There a Correlation?

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According to the 2024 Bureau of Labor Statistics, 60% of U.S. adults are employed, with an average weekly work engagement of approximately 34.3 hours. At the same time, over 80% of American workers find their job stressful and nearly 70% feel overwhelmed all or

some of the time (Pew Research Center, 2023). Gambling provides an avenue for excitement, escapism, and coping with negative emotions (e.g., Flack & Morris, 2016). As legalized online sports betting expands rapidly in the U.S., employees may increasingly view it as a new form of entertainment and stress recovery. The current study aims to examine work environment (i.e., job demand, job burnout, and workplace relationships) as a predictor of online sports gambling activities while looking at the moderating effect of gambling motivations. The findings contribute to the growing literature on online sports betting by exploring the connection between workplace dynamics and employees' online gambling behavior.

3. Prevention Of Underage Sales of Tobacco and E-Cigarettes: Use of Retailers' Perspectives For Geographically Targeting Programming

Wasantha Jayawardene, Assistant Professor, School of Human Sciences
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Recent studies revealed that most tobacco retailers violate regulations that prevent underage sales. This exploratory study examined tobacco retailers' perspectives and training needs regarding underage sales prevention. In an incentivized hybrid survey administered to owners/managers of 394 stores selling tobacco and e-cigarettes in southern Illinois, 118 participated. Mean age was 41.6; 53.4% from rural stores; 27.1% within 1 mile from a school. Despite awareness of the Tobacco-21 law, 56.8% doubted its effectiveness in reducing underage sales. Knowledge gaps emerged regarding e-cigarette enforcement laws, and many encountered older youths attempting purchases. Most supported additional training for clerks, particularly in ID verification and handling aggressive buyers. Rural/small-town retailers were less likely to sell e-cigarettes but showed less interest in tobacco control education compared to urban retailers. Retailers' perspectives were unrelated to proximity to schools. The study calls for targeted interventions for rural/small-town retailers and further research to link retailer attitudes with compliance.

4. A Model for Teaching Interprofessional Collaboration Utilizing Academic and Community Partnerships

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The goal of medical education is to graduate competent students who will be capable of providing comprehensive care to future patients as members of collaborative teams (Weinberger, et al). In 2015, Southern Illinois University School of Medicine (SIUSOM) Family Medicine Residency Program in Carbondale, along with the Physician Assistant Program, partnered with the SIU School of Social Work to develop an interprofessional educational model which embraced these disciplines' competencies. The model was also used to introduce concepts such as social determinants of health, population health and partnering with community agencies. This presentation will address the process and benefits of both IPE education and academic/community partnerships when conducting IPE training session. It also will identify a model and strategies which can be used to train professionals to work as a team across disciplines in health care settings.

5. Moral Injury and Its Correlation Among Military Veterans

Justin T. McDaniel, Associate Professor, School of Human Sciences
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Moral injury, which is becoming an increasingly recognized invisible wound of war, may be described as perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations. Although moral injury is not a formal diagnosis in the DSM or a component of the formula in the US Department of Veterans Affairs disability rating, research has shown that over one-third of military veterans' report experiencing moral injury symptoms (i.e., guilt, shame, anger). This presentation will cover work that I've conducted in the last year concerning moral injury and its correlates. Specifically, I'll characterize the relationship between moral injury and three primary outcomes: overall quality of life, suicidal behavior, and substance use. Implications for policy and practice are discussed in light of the strong association between moral injury severity and adverse outcomes.

6. The Virtual Reality and Dementia Care Education

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VR technology has been explored for its potential to deepen the understanding of individuals living with dementia, allowing students and caregivers to immerse themselves in the lives of those affected by this condition. To date, research evidence regarding the implementation and effectiveness of VR interventions in this domain have not been evaluated and synthesized. Literature published from 2000 onwards was searched from six databases: Academic Search Complete, APA PsycINFO, CINAHL, MEDLINE, Web of Science, and PubMed. Both qualitative and quantitative literature were considered. 22 articles were selected for the review. The review encompassed 17 experimental studies and five qualitative studies, involving healthcare professionals, informal caregivers, and university students. We used descriptive analysis and content coding for synthesizing study types, design, approaches, and outcomes. Overall, the incorporation of VR in dementia care education emerges as a novel and underexplored research avenue. VR interventions demonstrated enhancements in caregivers' and students' empathy, knowledge, attitude, and understanding of people with dementia.

7. Interprofessional Education: Collaborative Activities with Nursing and Therapy Programs

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Many errors that have occurred in healthcare have been attributed to communication breakdown among team members. Interprofessional Education (IPE) aims to not only address these risks to patient safety but also meet the IPEC Core Competencies for Interprofessional Collaborative Practice: Version 3 2023 endorsed by the American Association of Colleges of Nursing (2024). These competencies propose that IPE addresses four domains: values/ethics, understanding of roles/responsibilities, interprofessional communication, and a sense of teamwork across professions. Nursing students, as well as physical therapy, occupational therapy, and speech therapy students

participated in an interprofessional education activity in 2022 and 2023 utilizing simulation to measure these core competencies. This presentation will demonstrate the results of this collaborative activity in relation to IPEC's core competencies.

8. Exploring Innovative Strategies to Enhance Electronic Health Record Interoperability in the U.S. Healthcare Settings

Craig McPherson, Assistant Professor, School of Health Sciences
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Improving electronic health record (EHR) interoperability is essential for enhancing care coordination and treatment outcomes in the U.S. healthcare system. This systematic literature review examines strategies to improve EHR communication and data exchange efficiency. Using Public Medline and other databases, over 30 relevant articles were analyzed based on specific criteria. Five key themes emerged: the use of blockchain for EHR systems, the impact of the Cures Act on interoperability, the potential of artificial intelligence, the role of the Internet of Things in enhancing systems, and the value of interoperability for improved outcomes. The findings highlight that both technical solutions and policy initiatives are critical for enhancing communication between health information systems. By leveraging these resources and innovative strategies, healthcare leaders can achieve long-term EHR interoperability.

9. Is your Voice Being Heard in Augmentative and Alternative Communication Assessment?

Valerie Boyer, Associate Professor, School of Health Sciences
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Communication is a human right. Faculty at the Center for Autism Spectrum Disorders are researching augmentative and alternative communication assessment practices to ensure young children have access to robust communication. This project focuses on the voices of those young children and their caregivers in AAC assessment.

School of Justice & Public Safety

10. Evaluating the Predictive Validity of the Classification and Risk Assessment Tool of the Philippine Parole and Probation Administration

Raymund Narag, Associate Professor, School of Justice and Public Safety
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This study evaluates the effectiveness of the Classification and Risk Assessment Tool (CARAT) following its pilot implementation across eight sites under the Philippine Parole and Probation Administration. CARAT, which assesses risk based on the Big 8 criminogenic risk factors, was administered to 2,712 probationers and parolees to determine their risk levels. The primary outcome was whether clients experienced negative events, such as rearrest, positive drug tests, or revocation recommendations while under supervision. A binomial logistic regression analysis revealed that the overall risk score significantly predicted negative outcomes. For every one-unit increase in the Total Risk Score, the odds of experiencing a negative event increased by 4.2%. While most individual items within CARAT significantly predicted negative outcomes, some items exhibited weak or non-significant predictive validity. Recommendations are made to enhance the tool's validity, particularly by refining weaker predictive items. Improving these areas is expected to increase CARAT's effectiveness in accurately assessing risk, thereby supporting better decision-making and outcomes within the Philippine Parole and Probation Administration.

11. Testing Intent to Cooperate: Whether Perceptions of Police and Willingness to Cooperate Translate into Crime Reporting by Victims

Tammy Kochel, Associate Dean for Research and Personnel & Professor, School of Justice and Public Safety
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Legitimacy theory specifies that residents will cooperate with police when they believe that police authority is legitimate. That police authority is legitimate, valid, and deserving respect is motivated primarily by public perceptions that police are fair and to a lesser extent, in some cases, effective. Current research testing the theoretical basis of public cooperation with police examines what predicts individuals' reported willingness to cooperate with police, not actual behavior. Our study remedies this deficit by examining whether residents' willingness to cooperate and report crime translates into actual

reporting behaviors once they become victims of crime. Our findings show that 72% of residents' who stated that they were willing to report crime did report it to police after being victimized. The strongest predictor of reporting hinges on perceived police fairness.

12. The Leviathan: The Role of the State in Atrocity Violence

Christopher Mullins, Associate Dean for Academic and Student Affairs, Professor, School of Justice and Public Safety

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Atrocity events (genocide, crimes against humanity, war crimes) don't just happen; in fact, due to their scale, much planning and coordination of resources is required. States, due to the resources they control, are both necessary and sufficient conditions for atrocity violence. This talk will discuss the direct and indirect role the state plays in episodes of atrocity violence. The state draws on numerous capitals (financial, political, social, cultural) to produce or catalyze atrocity crimes. States use those capitals to directly engage in violence via crimes of commission and use those capitals indirectly via crimes of commission and omission.

Psychological & Behavioral Sciences

13. Adolescent and Young Adult Competence in Health Care and Transitions

Amy Lang, Assistant Professor, School of Psychological and Behavioral Sciences

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Adolescents and young adults with chronic health conditions face many challenges and changes as they transition to adulthood. Specifically, they are tasked with gaining the knowledge and skills necessary to independently manage their chronic health conditions and navigate the adult health care system. Research suggests that interventions aimed to promote the physical, mental, and emotional well-being and functioning of adolescents and young adults with chronic health conditions will need to be multifaceted and address individual- and family-level (i.e., motivation; health competence; self-management skills;

disease knowledge), as well as systems-level (i.e., healthcare access; legislation and healthcare reform; addressing adherence barriers), barriers and facilitators.

14. The Behavioral Fallout of Early-Life Adversity: Effects of Combined Maternal Separation and Resource Scarcity on Impulsive Behavior of Rats

Hernan Camilo Hurtado Parrado, Assistant Professor, School of Psychological and Behavioral Sciences

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Extensive research with rodent models has shown detrimental effects of early-life adversity (ELA) on behavioral (e.g., impulsive behavior, anxiety, and depression) and neurobiological processes (e.g., alterations of neuroendocrine processes and maturation of brain areas). However, heterogeneous methodologies, including types and variations of ELA manipulations, seem responsible for inconsistent findings. Maternal separation (MS) and limited bedding/nesting (LBN) are widely implemented rodent ELA protocols. Orso et al. (2020) concluded that combined MS+LBN produce consistent and robust effects due to the joint increase of the challenging conditions imposed to both the dam and the offspring. We have tested the effects of MS+LBN on processes linked to both ELA and behavioral disorders in later stages of life: Incentive salience of reward cues and impulsive choice, action, and persistence/perseverance. To that aim, we have used AutoShaping and delay discounting tasks, and training and extinction of schedules of reinforcement with long and short Variable Intervals.

Aviation

15. An Exploratory Review of Transfer Policies for Certified Private Pilots in Collegiate Flight Programs

Gail Avendano, Assistant Professor, School of Aviation

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There is no standardized way by which university flight programs accept, evaluate, and integrate students into their programs if they have obtained a Private Pilot certificate outside the collegiate environment. This Flash Talk will highlight key research findings

that have informed the production of two journal articles: one that focuses on the educator's perspective, and one that focuses on the student's perspective.

16. An Exploration of Collegiate Women's Experiences in Aviation Programs

Amy Rutledge, Assistant Professor, School of Aviation
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Currently, women account for just over 5% of airline transport pilots. Although the SIU School of Aviation is well above this number, with over 16% of our professional pilot students identifying as women, there is still a significant lack of diversity. The existing data led to the hypothesis that the lack of gender diversity uniquely impacts the experiences of our women students. As a result, this qualitative phenomenological study aims to understand better the experiences of SIU School of Aviation women students to identify ways to support them better and foster resilience.

17. Making Diagrams Real – A Practical Report

Donald Morris, Associate Professor, School of Aviation
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Technical diagrams are useful for teaching how complicated systems work, but they often leave much to be desired. Cutaway models are much more technically accurate but are usually arranged in such a way to maximize function and not understanding. In this presentation, the author will show how he has used a laser cutter to create actual, functional models of engines that are halfway in between paper diagrams and cutaway models. He will also share how he has used these in a classroom environment. The author will conclude with selected student responses to these models.

Student 3-MT Presentations

1. An Evaluation of the Skills Required to Inform Social Preference Assessments

Lynn Schumacher, Graduate Student, School of Psychological and Behavioral Sciences
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Autism Spectrum Disorder (ASD) is defined by repetitive sensory-motor behaviors and a deficit in social communication. A putative reinforcer for behavior change is social interactions. Currently there is limited research on the skills and assessments required to inform the modality presented (pictures or videos) and the form of preference assessment used (MSWO and PSPA) for social stimuli. This study evaluates the skills for selecting and discriminating a single stimulus to determine the form of preference assessment to use. Also included was an evaluation of derived relations which evaluated if teaching A-B (pictures to videos) resulted in the derivation of B-A relations which informed the modality. Children ages 2-6 with ASD participated in the study. Following the skill assessment informed preference assessment, a reinforcer test was conducted for the social stimuli's reinforcing efficacy. The results will provide implications for a systematic skill assessment to inform social stimulus preference and reinforcer assessments.

2. “Get Out There and Choose...Less Impulsively”: Exposure to Actual Natural Environments, Not Images, Reduces Delay Discounting

Pablo A. Castro, Graduate Student, School of Psychological and Behavioral Sciences
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Exposure to images of nature reduced participants' impulsive choice of smaller-sooner monetary rewards over larger-later monetary rewards in a hypothetical delay-discounting task (e.g., Berry et al., 2014). Failed reproduction attempts of this effect across labs and attention being proposed as one explaining mechanism led us to test if increasing participants' attention to the images would make the effect more robust. A matching-to-sample procedure (Hurtado-Parrado et al., 2023) was used to increase participants' interaction with images of natural and built environments. There was no differential effect of image type (natural or built environments) or matching-to-sample. However, the impulsive choice was lower in participants who reported spending six

hours or more in actual natural environments during the week before the study; this effect depended on time spent working indoors and exposure to build environments. This finding aligns with research showing that nonvisual elements of nature benefit health (Browning et al., 2024). Apps tracking time and quality of exposure to nature (e.g., Nature Dose™; Browning et al., 2024) show promise in improving nature exposure measurement, allowing us to understand the relationship between nature and decision-making further.

3. “Time Matters”: Temporal Distribution of Reward-Related Responses

Julian Cifuentes, Graduate Student, School of Psychological and Behavioral Sciences

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Cues that signal rewards (e.g., food) elicit approach, increase reward-seeking and consumption, and are rewarding themselves. Mounting evidence indicates that high incentive salience of reward cues is an underlying mechanism in substance use. It has been studied in rodents using AutoShaping procedures in which a distinct stimulus (Conditioned Stimulus) is paired with a reward (Unconditioned Stimulus). Rats develop distinctively located conditioned responses: sign-tracking (ST, pressing the lever) and goal-tracking (GT, nose poking the food receptacle). Spatiotemporal analyses have shown promise to the understanding of ST-GT patterning, but the specific temporal distribution of these responses within-trials and across sessions has not been studied. Eighteen rats were exposed to 10 AutoShaping sessions of 15-trials each. Sign-trackers shifted the temporal distribution of lever pressing near the food delivery across sessions. Goal-trackers maintained the same temporal distribution of nose poking within trials and across sessions. Some rats alternated between lever pressing and nose poking within trials.

4. VENT: Testing the Usability of Mixed-Reality Naloxone Training

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One American dies of drug overdose nearly every five minutes around the clock, highlighting the urgent need for improved naloxone training for laypersons. This collaborative study aims to develop Virtual Reality Embedded Naloxone Training (VENT) that enhances self-efficacy in overdose reversal and test its usability for broader community implementation.

We developed a mixed-reality application using a spatial computing headset that enables interactive training, such as administering naloxone to a virtual patient. Trainees watched an introductory video that discussed overdose management and then received a step-by-step tutorial on naloxone administration. Pre- and post-surveys evaluated knowledge, skills, self-efficacy, and prototype usability, while qualitative feedback was gathered through semi-structured interviews. Participants included subject matter experts and laypersons. VENT prototype increased confidence in administering naloxone and rescue breathing by 34% and 26% respectively. Participants also reported improved realism and engagement. VENT offers a scalable, cost-effective, engaging, and accessible form of naloxone training.