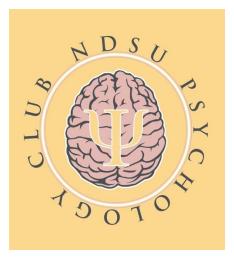
The NDSU Psychology Club presents the

36th Annual Red River Psychology Conference

April 22, 2022



Keynote Speaker Dr. Suparna Rajaram SUNY Distinguished Professor of Psychology Stony Brook University

Conference Schedule

Friday, April 22, 2022 in the NDSU Memorial Union

8:30-11:30am	Registration & Coffee	Prairie Rose
9:30-11:30am	Poster Session Group A	Nueta
9:30-11:30am	Poster Session Group B	Sahnish
10:30-11:45am	Paper Session	Badlands
12:00-12:30pm	Luncheon (reservation required)	Prairie Rose
12:30-1:30pm	Keynote: Dr. Suparna Rajaram*	Prairie Rose

*The speaker will be delivering the keynote address remotely via Zoom:

- Meeting ID: 996 1396 2350
- Meeting password: 042222
- https://ndsu.zoom.us/j/99613962350?pwd=Q0RWL0dOaGVtQ1JDZExVUUNBYV1Ydz09

Keynote Speaker



Dr. Suparna Rajaram SUNY Distinguished Professor of Psychology Stony Brook University

Dr. Rajaram's laboratory conducts research on human learning and memory, with an emphasis on the social aspects of memory. In particular, the focus of her research is on the transmission of memory in groups and social networks to understand how social influences shape memory and learning, how people develop shared memories, how accurate and erroneous information propagates among group members, and how collaborative learning and remembering influence memory in the adult lifespan and in educational contexts. In her keynote address, Dr. Rajaram will review data and theory from her lab to elucidate cognitive mechanisms that underlie memory enhancement as well as forgetting in shared remembering and the cascading effects of these changes on the emergence of collective memory.

Poster Session Group A – 9:30-11:30am – Nueta

1. Blood Sugar Metabolization and Stress Reactivity Predict Depressive Symptoms during Pregnancy

Anna G. Bartels, Mandi J. Hansmeyer, Garrett S. Byron, & Clayton J. Hilmert *North Dakota State University*

There is an established link between diabetes, characterized by poor blood sugar metabolization (BSM), and depression. It is less clear whether there is a similar link between gestational diabetes mellitus and depression. The present study tests the hypothesis that during pregnancy, stress reactivity may interact with BSM to predict depressive symptoms. METHOD: In this study 101 pregnant women completed measures of depressive symptoms three times over the course of pregnancy. In addition, at 28 weeks gestation BSM was assessed and participants completed a Virtual Trier Social Stress Test to assess psychophysiological stress reactivity. RESULTS: Results indicated that for women with less effective BSM, there was a positive association between cortisol stress reactivity and depression. This was not the case for women with better BSM. CONCLUSION: The combination of BSM and stress reactivity may help us identify women at risk of antenatal depression.

2. Do You Know How You Feel? Ability Emotional Intelligence and the Structure of Affect

Allison N. Roiger, Roberta L. Irvin, & Michael D. Robinson

North Dakota State University

The topic of emotional intelligence (EI) has garnered considerable interest. As the result of such interest, we now know something about whether ability-related EI matters for important life outcomes, but we know very little about how EI actually operates. The present study (N = 148) pursues such process-oriented questions. Participants completed an ability EI test as well as measures related to attitudes and emotional reactions. Individuals who obtained higher EI scores exhibited greater congruence in attitude structure, as well as greater bipolarity in the extent to which their positive evaluations predicted their negative evaluations. Such individuals also displayed greater bipolarity in their emotional reactions to evocative images, and the attitudes and emotions of high EI individuals better corresponded with "wisdom of the crowd" measurements concerning the same affective responses. The research identifies several key properties – including congruence, bipolarity, and consensus – that shed light on how EI operates.

3. Cognitive Dissonance in Dating Relationships: How Not Exhibiting Appreciation and Breaking Commitments Can Lead to Behavioral Justifications and Psychological Discomfort

Carmen Krueger, Micah Christiansen, & Anna Semanko *Concordia College*

Exhibiting appreciation and following through on commitments are important aspects of romantic relationships. What happens in relationships when appreciation is not exhibited or commitments are not kept? In this research, we use the theory of cognitive dissonance to help us understand the psychological discomfort that may arise from these instances. To examine the

magnitude of dissonance, we qualitatively coded participant essays(N=134) describing instances in which they did not exhibit appreciation or follow through with commitments to a dating partner. We noted the number of consonant and dissonant cognitions, as well as justifications that participants provided for their actions. These codings, along with importance ratings of relevant consonant and dissonant cognitions, were used to calculate the overall magnitude of dissonance participants experienced. The resulting magnitude of dissonance and levels of psychological discomfort will be presented, providing future implications for dissonance research and insights into how undergraduates think about their romantic relationships.

4. Test-Retest Reliability of Rhythmic Attentional Sampling

Evelyn Thrippleton, Sage L. Bendickson, Anna Rudie, Samuel Birkholz, & Jeffrey Johnson North Dakota State University

Recent studies suggest that, rather than being fixed in place like a spotlight, spatial attention samples the environment rhythmically, shifting between objects at a rate of ~200 ms per item (Fiebelkorn & Kastner, 2019). This attentional rhythm (AR) can be tracked using reaction time tasks where observers search for visual targets appearing at random times during the task; the AR appears as a periodic pattern of faster and slower responses to targets over time. However, it remains unknown whether AR rate for a given participant is stable across repeated testing. In the present study, we assessed the test-retest reliability of AR rate in an online sample over a one-week interval. If AR rate is trait-like, we expect to observe high test-retest reliability between sessions. Results from this study can inform further research examining individual differences in the AR and factors that might influence it, such as emotional valence and stimulus complexity.

5. Nordic Trust in Science: Insights from the Wellcome Global Monitor

Bryce Van Vleet & Heather Fuller

North Dakota State University

A person's trust in science predicts their health behaviors during COVID-19. Nordic countries boast high levels of social and institutional trust. A sample of 4,500 participants from all five Nordic countries completed an interview soliciting attitudes on science as part of the Wellcome Global Monitor. A multiple regression was conducted to examine associations between demographic characteristics (urbanicity, education, age, sex, subjective income, and employment) and trust in science as measured by the five-item trust in science index. Results indicated individuals who lived rurally, were not college educated, were older, were women, and had lower subjective income had significantly lower levels of trust in science. The overall model significantly predicted 5% of the variation in trust. These findings suggest groups who may be at greater risk for mistrust in scientific recommendations. Future research should investigate how to target at-risk populations for interventions to bolster trust in science globally.

6. "I Don't Know": Indirect Indications of How Older Adults Perceive Their Own Advice

Bryce Van Vleet, Heather Fuller, & Andrea Huseth-Zosel

North Dakota State University

Older adults may be perceived as wise sources of advice, yet little is known about their own perceptions of giving advice. A Midwestern sample of older adults were asked what advice they

would provide to others at two timepoints (June 2020 and Spring 2021). Using a grounded theory approach, a thematic content analysis revealed a subset of participants (n = 39) that indicated perspectives on their approach to advice provision. Transcripts were then value-coded. The first value, *ability to give advice*, indicated an overall belief that *advice-provision is difficult*. The second value, *audience characteristics*, suggested that *audience context matters*. Older adults thought about the circumstances of their audience and whether they could give sufficient advice for a general audience. The last value, *reception of advice*, indicated an overall belief that *advice may not be received well*. Future research should investigate possible challenges to advice-provision such as ageism or social dynamics.

7. Lower Heart Rate Variability During Pregnancy Buffers the Impact of Depressive Symptoms on Fetal Growth

Cadyn Hunter, Olivia Wagendorf, Garrett S. Byron, & Clayton J. Hilmert North Dakota State University

High frequency heart rate variability (HRV) has been related to an individual's sensitivity to psychosocial challenges. According to this HRV flexibility model lower HRV may buffer the impact of psychosocial factors, such as depression, on pregnancy outcomes. The present study considers this possibility with 83 pregnant women who completed a measure of depressive symptoms three times over the course of pregnancy and had HRV measured at 28 weeks gestation. Fetal growth was determined using birth weight and length of gestation data gathered from medical charts. Results revealed that for women with higher HRV, depressive symptoms were negatively related to fetal growth. This association was not evident for women with lower HRV. Assessment of HRV during pregnancy may help us better identify women at risk of having lower birth weight neonates, especially those experiencing depressive symptoms.

8. Cholinergic Receptor Blockade Impairs Spatial Memory Retrieval and Minimizes Retrieval-Induced Alterations in Matrix Metalloproteinase-9

Mikel Olson, Bretton Badenoch, & Megan Blatti

Concordia College

Alzheimer's Disease (AD) is associated with a loss of cholinergic function, and the basal forebrain cholinergic system remains the most common target of pharmaceutical treatments for AD. Recently, some have argued that AD may be best characterized as a deficit of memory retrieval. We show that the central administration of the cholinergic antagonist scopolamine reliably impairs the retrieval of previously consolidated spatial memories. Matrix metalloproteinase-9 (MMP-9) is an endopeptidase that regulates the extracellular matrix and several other substrates implicated in memory. Using immunoblotting and gelatin zymography, we show that modifications in hippocampal MMP-9 expression are associated with spatial memory retrieval. Further, we provide evidence that the cholinergic system is an important regulator of some of these retrieval-induced changes in MMP-9. These results further elucidate the role of MMP-9 in learning and memory and indicate a possible connection between the cholinergic dysfunction and MMP-9 dysregulation that is commonly seen in AD.

9. Unattended Task-Irrelevant Visual Features are Stored in a 'Silent' Working Memory State

Sage L. Bendickson, Anna Rudie, Samuel Birkholz, Andrea Bocincova*, & Jeffrey Johnson North Dakota State University, University of Oxford*

Previous studies have shown that only task-relevant object features leave a decodable neural trace while held in working memory (WM). This has been taken as evidence for a lack of storage of task-irrelevant features. However, the absence of decodable signals could also mean that irrelevant features are maintained via sub-threshold neural activity (Wolff et al., 2015). Prior evidence suggests that latent neural representations of remembered features can be revealed in the evoked response to other stimuli presented during the memory delay (Wolff et al., 2017). In the present study, we adapted this method to track the neural representation of task-relevant and irrelevant features of memory items over time. If task-irrelevant features are stored in WM in a hidden state, we expect to be able to decode their identity from the evoked response elicited by the presentation of other items.

10. Leveraging Space to Understand Personality: Open-Closed Preferences and Psychological Well-Being

Sage L. Bendickson, Roberta L. Irvin, Todd A. Pringle, & Michael D. Robinson North Dakota State University

The present research pursued the premise that whether people prefer the spatial concept of "open" or the spatial concept of "closed" could reveal a great deal about their orientations to the physical and social environment and about their capacities to live fulfilling lives. Participants in two studies (N = 722) indicated their relative preferences for the words/concepts "open" versus "closed" and the same participants completed measures of psychological well-being. Consistent with views of human potential that encourage greater openness, participants who evaluated the concept of open more favorably experienced lives marked by greater flourishing. In addition, Study 2 found that open preferences were linked to similar experiences within a daily diary protocol. Furthermore, within-subject variations in preferences along the open-closed dimension were systematically predictive of within-subject variations in well-being. The findings illustrate the utility of conceptual metaphor theory in understanding basic processes related to personality and self-regulation.

Poster Session Group B – 9:30-11:30am – Sahnish

11. Love Languages Associated with Appreciation and Commitments in Undergraduate Romantic Relationships

Micah Christiansen, Carmen Krueger, & Anna Semanko *Concordia College*

Prior research has noted that individuals in romantic relationships prefer to exhibit and receive love in different "languages" (i.e., through words of affirmation, physical touch, receiving gifts, quality time, or acts of service; Chapman, 2009). We wanted to examine prominent love languages associated with appreciation and commitments in undergraduate relationships. To do so, we coded and categorized the love languages of participant responses(N=134) to essay prompts asking undergraduate students about past instances in which they failed to exhibit appreciation or follow through on commitments to a romantic partner. In addition to coding the love languages associated with these responses, we also looked for overarching themes related to types of appreciation and commitments. The primary love languages and themes associated with this data will be presented. As a result of knowing more about how undergraduate students classify affection, we can better understand and improve undergraduate romantic relationships.

12. Goal Disengagement and Reengagement During COVID-19: Implications for Well-Being

Jaron Tan, Jeremy Hamm, Rachel Delaney, Meaghan Barlow*, & Katherine Duggan North Dakota State University, University of California Berkeley*

Increased constraints and lost opportunities inherent in the COVID-19 pandemic can undermine important life goals and elicit distress. Our nationally-representative study of American adults (n=284) examined the influence of goal disengagement and goal reengagement on longitudinal well-being during the first wave of the pandemic. Multilevel models tested whether individual differences in goal disengagement and goal reengagement interacted to predict levels and change in perceived stress, depressive symptoms, meaning in life, and life satisfaction. We observed interactions for levels of stress (b=-.13, p=.046) and meaning (b=.20, p=.007) and a marginal interaction for depressive symptoms (b=-.08, p=.070). Results showed those with high disengagement and high reengagement reported the highest well-being across indicators, but those with high disengagement and low reengagement reported the lowest well-being. Findings suggest simultaneously disengaging from unattainable goals and reengaging in new goals may be most adaptive, while goal disengagement without reengagement may undermine well-being during the pandemic.

13. Learning and Study Strategies Effectiveness Among Underrepresented Students

Annika Maser, Mona Ibrahim, & Mark Jensen

Concordia College

Given the relatively low retention and success rates of college students in STEM fields (President's Council of Advisors on Science and Technology, 2012), incorporating explicit instruction on effective study strategies in the college curriculum may be helpful for STEM students, especially those from underrepresented groups. Most research surrounding the

effectiveness of metacognitive strategies has been conducted on individuals in the medical field (e.g., Khalil, Williams & Hawkins, 2020). In this study, pre and post Learning and Study Strategies Inventory (LASSI) data was gathered from two cohorts of undergraduate participants who declared STEM majors as incoming students. Both cohorts were enrolled in a course focused on teaching Metacognitive Learning Strategies (MCLS) during their first semester at college. The first cohort consisted of 12 students, the second included 14 students. Each contained roughly an equal number of males and females. Using a within-subjects design, the first cohort took their pre-LASSI in fall of 2017 and post LASSI in the fall of 2018. The second cohort took their pre-LASSI in the fall of 2018 and the post LASSI in 2019. This presentation summarizes findings obtained from quantitative analyses conducted on participants' LASSI pre and post scores. Data indicated that there was a statistically significant increase in LASSI scores after completing the course on MCLS. In addition, learning effective MCLS appears to have contributed to narrowing the gender and income gap among STEM students in our sample. This study can be applied to supporting the success of underrepresented students in the STEM field.

14. The Role of Grouping via Spatial Regularities Between Objects in Visual Working Memory

Anh Pham, Kaiah Sotebeer, Liliana Cannella, & Dwight Peterson *Concordia College*

Visual working memory (VWM) supports brief storage of information (~3-4 items at a given time). Given capacity constraints, researchers have examined whether perceptual organization can be leveraged to improve VWM performance. Notably, similarity, proximity, and illusory contours are several lower-level grouping cues that have been shown to improve VWM performance (Peterson & Berryhill, 2013; Woodman et al., 2003; Gao et al., 2016). Recent work has found that "real-world" grouping cues, such as spatial regularity between objects (e.g., mirror above sink), also improve VWM performance (Kaiser et al., 2015). Attempting to replicate and extend these findings, in the current study participants performed a change detection task during which either spatially regular or irregular object pairs were presented. After a brief delay, an object pair appeared, and participants decided whether it had been presented earlier. Performance was higher for object pairs grouped via spatial regularity cues relative to spatially irregular object pairs.

15. Zooming in on the Mind: A New Paradigm to Study the Stream of Consciousness

Abigail E. Hart, Todd A. Pringle, & Michael D. Robinson

North Dakota State University

The present study (N = 161) developed a new laboratory-based technique to investigate what William James referred to as the "stream of consciousness". Participants were encouraged to mind-wander for periods of time that averaged approximately 60 seconds, following which they reported on thought content as well as their feelings during the previous interval. Consistent with a problem-solving theory of consciousness, participants often thought about ongoing problems in their lives and this was particularly true at higher levels of the personality trait of neuroticism. This tendency was buffered by a countervailing tendency to think about good features of one's life, particularly at higher levels of extraversion. Further analyses linked mind-wandering to problem-dwelling, but such relationships were stronger at lower levels of extraversion and higher levels of neuroticism. The findings highlight multiple manners in which both personality factors and thoughts of a given type influence the contents of consciousness.

16. Transactional Leadership as a Source of "Hope": Investigating the Moderated Effect of Psychological Well-Being on Employees Turnover Intentions during the Peak of COVID-19 Pandemic in Ghana

Beckham Arthur, Sean E. Brotherson & Tricia Adomako*

North Dakota State University, University of Ghana Medical School*

The purpose of this research was to investigate the relationship between transactional leadership style and employees' turnover intentions testing the moderation effect of psychological wellbeing. Data was collected from sampled 269 public servant employees in a selected public organization in Ghana during the peak of the COVID-19 Pandemic in 2021. The purposive and stratified sampling techniques, Pearson correlation (Pearson-*r*) and Regression analysis were used to collect data and conduct the analyses. We found that, transactional leadership style and psychological well-being each negatively affected employees' turnover intentions. However, the effect between transaction leadership style and turnover intentions was moderated by psychological well-being. These findings were discussed in the light of existing literature and theories; and in accordance with prevailing contextual and economic factors in the research setting.

17. Well-Being and Positive Youth Sports Development

Beckham Arthur, Brad Strand, & Sean E. Brotherson

North Dakota State University

The purpose of this work was to explore the concepts of wellbeing and both benefits and challenges of positive youth sports development for wellbeing. Identifying and elevating human strengths and capabilities is a state and function of wellbeing. In 2017, the GYW Index found that youth wellbeing is hampered due to dearth of resources and opportunities. Using a systematic literature review, we sought to unravel the degree to which evidence-based youth sports promote Positive Youth Development thereby fostering youth wellbeing. We found that, across the world, youth sports provide one of the most consistent and available contexts for engaging youth with resources and opportunities for development. The benefits of sport were linked with the elements of Positive Youth Development which are designed to promote youth wellbeing. However, the role of youth sports in the promotion of wellbeing is not without challenges- details of which are found in our work.

18. Associations Between Self-Referential Processing and Depression Risk in Late Childhood: An ERP Study in a Community Youth Sample

Pan Liu & Jaron Tan

North Dakota State University

Late childhood or pre-adolescence is marked by heightened risks of depression. Depressogenic self-referential processing or self-schemas (i.e., deeper processing of negative and/or shallower processing of positive self-descriptors) appear causally linked to depression, as indicated by

prospective studies. Clinically depressed youths were found to show altered ERP activity during self-referential processing compared to healthy controls. However, it is unclear whether there are dimensional associations between ERP correlates of self-referential processing and depressive symptoms, especially in non-clinical samples of youths. Identifying associations as such may inform early identification of risk. We recruited an unselected community sample of 26 typically developing children (16 girls; mean age=11.09 years, SD=0.91). Children completed a Self-Referent Encoding Task that tapped self-referential processing while EEG signals were recorded. We found that negative, but not positive, self-schemas were associated with children's depressive symptoms. Both negative self-schemas and depressive symptoms were associated with increased amplitude of P2 component, indicating greater early deployment of attentional resources toward negative stimuli. Depressive symptoms were also associated with smaller amplitude of early late positive potentials during positive self-referential processing, indicating decreased engagement with positive information in children with greater depressive symptoms. Our study provides novel evidence on the dimensional association between electrophysiological correlates of self-referential processing and sub-clinical depressive symptoms in late childhood.

19. The Effects of Hostile Sexism on Romantic Relational Quality

Aiyana Jollie-Trottier, Hanna Walica, and Darcie Sell

Concordia College

This study investigated stigma consciousness as a moderator of the effect of ambivalent sexism on romantic relational quality. Ambivalent sexism theory states that hostile and benevolent sexism function to maintain power differences between genders. We hypothesized that men's HS would negatively affect relational quality for men and women, and that men's BS will positively affect relational quality for women. Women's stigma consciousness, the awareness of the probability of being stereotyped, can influence behavior in gender-salient situations. In heterosexual relationships, we hypothesized that women with high SC would report lower relationship quality when their partner promotes ambivalent sexism. Data was collected through an online survey and analyzed using the Actor-Partner Interdependence Model (APIM). The results showed no significant effects of BS on relational quality. For men and women who endorse HS, we found significant actor and partner effects on relational quality overall; stigma consciousness moderated the effects on relational conflict.

Paper Session - 10:30-11:45am - Badlands

1. Human versus Computer: How Relative Status Changes Impact Decision Making

Colin Delisi & Kathryn T. Wissman

North Dakota State University

People are required to make decisions every day, many in interpersonal situations. Research has investigated decision-making behaviors to understand interpersonal decision-making processes and what characteristics support riskier decisions. Recent research has started examining decision-making processes between humans and computers, often using the prisoner's dilemma models to examine decision-making tendencies. One unanswered question concerns how perceived position status between two parties influences the decision-making processes. In this study, participants were assigned to interact with either a human or a computer (opponent group) and experienced either a relative gain or loss in points (position group) within a prisoner's dilemma model. In actuality, all participants interacted with a computer program. The experiment consisted of binary decision-making trials; halfway through the trials, all participants experienced the status position change. Outcomes examined individuals made riskier decisions when playing a human versus a computer and following a change in position.

2. She's a Very Open Person! Conceptual Metaphor as a Basis of Interpersonal Affiliation

Jade A. Lindquist, Roberta L. Irvin, & Michael D. Robinson

North Dakota State University

Conceptual metaphor theory contends that human beings use spatial representations to conceptualize their personal and social experiences. As a way of studying basic processes of this type, participants in two studies (total N = 734) were asked to indicate their relative preferences for the spatial concepts of "open" versus "closed". Consistent with metaphors linking openness to affiliation (e.g., "opening up" to someone), Study 1 found a robust relationship between levels of open preference and the personality trait of agreeableness, which is marked by trust and intimacy. Building on these results, Study 2 revealed that people also differ from day to day in whether they prefer open or closed (as spatial concepts), and such variations predict their daily levels of prosocial feeling and behavior. Together, the results indicate that open-closed metaphor plays a role both in understanding affiliation-related differences between people (i.e., personality) and within people (i.e., personality states).

3. Efficacy of the Saccadic Eye Movement System in the Perception of Depth from Motion Parallax

Mark Delisi & Mark Nawrot

North Dakota State University

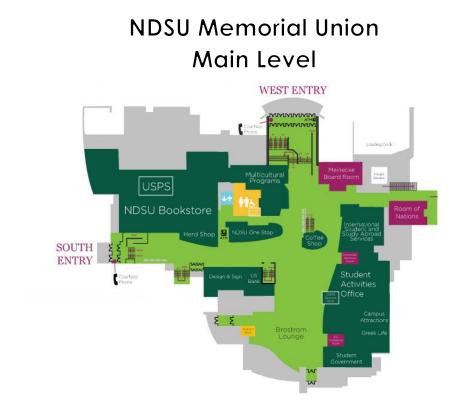
The visual perception of object position and depth in complex environments relies on the combination of motion-based cues and the observer's smooth slow-eye movements. We wondered whether the fast-eye movement system could serve the same role as the slow-eye movement system in this computation. To test this, laterally translating virtual stimuli were viewed with varying presentation durations. Depth should be perceived quickly if the visual system receives the proper information, but the depth judgment should take much longer if the

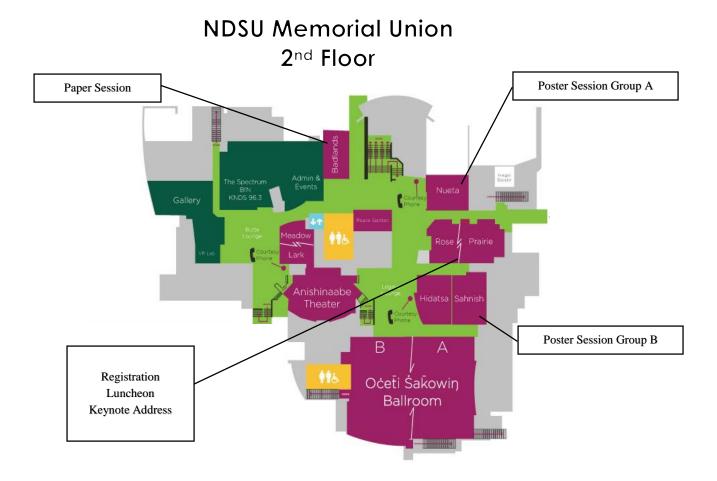
necessary information is absent. Results show that to accurately perceive depth fast-eye movement conditions required much longer presentations than slow-eye movement conditions. This suggests that fast-eye movements do not provide the necessary information for the perception of depth using motion parallax. It also helps provide clarity for studying the brain regions involved in motion parallax since the fast and slow eye movement regions abut in the human brain.

4. Replication of Sparkman and Walton's (2017) Dynamic Norms Impact on Sustainable Behavior

Rebekah Mork, Hannah Knudson, Jaden Link, & Zimy Le Concordia College

We are currently conducting research by replicating Sparkman and Walton's (2017) study. In this study, they found that participants presented with dynamic norm statements were more interested in reducing their meat consumption. Dynamic norms are statements that demonstrate a change over time as compared to static norms, which are statements that only illuminate a current fact. We are evaluating whether Sparkman's and Walton's results would be reproduced in our sample. We seek to recruit 180 adult participants in the U.S. who consume meat. We will use a between-subjects experimental design with participants randomly assigned to a dynamic or a static norm condition. The dependent variable would be their interest in reduced meat consumption. The results of this study are important because 15% of climate change can be attributed to meat production in the world. This could provide ideas towards interventions that would reduce meat consumption, therefore reducing climate change.





THANK YOU!

Psych Club Faculty Advisor & Psych Club President Dr. Katie Wissman and Sage Bendickson

<u>NDSU Psych Club and Graduate Student Volunteers</u> Sam Birkholz, Madelyn Buck, Garrett Byron, Avarie Carlson, Trinity Courtemanche, Rachel Delaney, Odalis Garcia, Garrett Hanson, Alex Knopps, Jade Lindquist, Josie Mohror, Brooke Narum, Ilya Nudnou, Sierra Preabt, and Abigail Sater

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