

ROYCE-HARDER RESEARCH CONFERENCE

2019 CONFERENCE PROGRAM

Thursday April 4, 2019 | Humanities Centre L1
Friday April 5, 2019 | Tory Lecture B1



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PROGRAM IN BRIEF

DAY 1 - Brian Harder Honours Day & Undergraduate Research Showcase Thursday April 4, 2019 | Humanities Centre, L1

12:00-12:45 PM	Poster Setup
1:00-2:00 PM	Keynote Address: Dr. Oury Monchi
2:00-4:00 PM	Third and Fourth-Year Honours Blitz Talks
4:00-5:00 PM	Undergraduate Research Showcase Poster Presentations (Tory-Business Atrium)

DAY 2 - Joseph R. Royce Psychology Conference Friday April 5, 2019 | Tory Lecture B1

8:00-8:45 AM	Poster Setup and Coffee
9:00-9:45 AM	Internal Invited Speaker: Dr. Roger A. Dixon
9:45-9:55 AM	Coffee Break
9:55-11:30 AM	Oral Presentation Session 1
11:30-1:00 PM	Poster Presentations and Lunch (Tory-Business Atrium)
1:00-2:20 PM	Oral Presentation Session 2
2:20-2:30 PM	Coffee Break
2:30-3:50 PM	Oral Presentation Session 3
3:50-4:00 PM	Coffee Break
4:00-5:00 PM	Keynote Address: Dr. Jennifer Vonk

PLENARY SPEAKER BIOS



DAY 1 KEYNOTE ADDRESS

Multi-modal neuroimaging and other markers of cognitive deficits and decline in Parkinson's disease

Oury Monchi

Professor

Hotchkiss Brain Institute

University of Calgary

Dr. Monchi obtained his Ph.D. in Computational Neuroscience at King's College London, University of London, UK. He then pursued a postdoctoral fellowship at the Montreal Neurological Institute and at the Centre de Recherche de l'Institut Universitaire de Gériatrie de Montréal in neuroimaging and cognitive neuroscience applied to Parkinson's disease. Until the summer of 2014 he was Associate Professor of Radiology at the Université de Montréal. Dr. Monchi is Professor and director for clinical research at the department of Clinical Neurosciences at the University of Calgary. He is also the Movement Disorders Brain and Mental Health leader at the Hotchkiss Brain Institute. He holds the Canadian Research Chair (Tier 1) in non-motor symptoms of Parkinson's disease and the Tourmaline Oil Chair in Parkinson's disease. In 2018, he became the director of the recently created Canadian-Open Parkinson Network, (C-OPN), a platform funded by Brain-Canada and Parkinson Canada. His lab has been a pioneer in using different neuroimaging techniques to study fronto-striatal function and the origins and evolution of cognitive deficits in Parkinson's disease with the ultimate goal of early

prediction of dementia in the disease. Interactions between neuropsychiatric symptoms and cognitive deficits and decline are also being studied. Methods used include functional and anatomical MRI, TMS, PET, neuropsychological evaluations, and genotyping.



DAY 2 KEYNOTE ADDRESS

Challenges and Insights from a Comparative Approach to Comparative Psychology

Dr. Jennifer Vonk

Professor

Oakland University

Jennifer Vonk is a comparative cognitive psychologist who has conducted research on a wide variety of species, including amphibians, birds, bats, domestic cats and dogs, bears, nonhuman primates, and human children and adults. She graduated with her PhD in comparative psychology from York University, Canada in 2002 and previously held a faculty position at the University of Southern Mississippi before joining Oakland University in 2011. She has published over 100 empirical papers, book chapters, commentaries, and edited volumes, and has several editorial positions including Co-Editor-in-Chief for *Animal Behavior and Cognition*. She is a fellow of the Society for Behavioral Neuroscience and Comparative Psychology/Division 6 of the American Psychological Association. Her primary research interest is in understanding the selective pressures responsible for higher order cognition, such as abstraction, causal reasoning, and theory of mind. She is also interested in research that contributes to improving the welfare of captive species.



INVITED INTERNAL ADDRESS

What do Trajectories of Brain and Cognitive Aging Reveal about Risk for (and Protection from) Alzheimer's Disease?

Dr. Roger A. Dixon

Professor

University of Alberta

Roger A. Dixon (University of Alberta) is Professor of Psychology (Science) and a member of the Neuroscience and Mental Health Institute. He has held previous appointments at Max Planck Institute (Berlin) and University of Victoria (Canada), as well as several international guest positions (eg. Karolinska Institutet, Stockholm; Stanford Centre for Advanced Studies, California). His recent recognitions include a Canada Research Chair (Tier 1, 2003-2010, 2010-2017), the 2013-14 Baltes Award for Distinguished Career Research in Aging (from the American Psychological Association), and two U.S. National Institutes of Health (NIH) MERIT Awards. His research is conducted primarily in the context of two large-scale national and international projects. First, he is the PI and Director of the Victoria Longitudinal Study, which has been funded continuously for over 25 years by NIH and other sources and partners. It is a large-scale, multi-cohort, epidemiological study of neurocognitive, biological, biomedical, genetic, environmental, lifestyle, and functional changes affecting neurocognitive aging. Second, he is a PI of the Canadian Consortium on Neurodegeneration in Aging, a multi-disciplinary nationwide investigation of multiple neurodegenerative diseases. The CCNA is funded by CIHR and partners and deploys cutting edge technologies in the domains of biomarkers, neuroimaging, genetic, neurocognitive, intervention, and clinical approaches to understanding Alzheimer's disease and related dementias. Current research emphases include examining (1) dynamic, interactive, and synergistic functions of risk, protective,

and resilience biomarkers representing multiple domains of brain aging and dementia, (2) how these biomarkers influence preclinical trajectories, transitions and clinical outcomes in healthy, normal, impaired, and neurodegenerative changes, and (3) omics-based biomarker discovery, validation, and translation in neurodegenerative disease.

DAY 1 KEYNOTE ADDRESS

1:00 - 2:00 PM | Humanities Centre L1

Multi-modal neuroimaging and other markers of cognitive deficits and decline in Parkinson's disease

Dr. Oury Monchi

Hotchkiss Brain Institute
University of Calgary

Many patients with Parkinson's disease (PD) will develop cognitive deficits early in the disease, and that a majority will develop dementia after 15 years of diagnosis. Persons who meet criteria for mild cognitive impairment (MCI) exhibit measurable cognitive deficits but those deficits are not severe enough to interfere significantly with daily life. While the presence of MCI in PD increases the chance of developing dementia, various studies suggest that PD-MCI might consist of distinct subtypes with different pathophysiologies and prognoses. In this talk, we will review different characteristics linked to neuropsychological and neuropsychiatric function that can affect cognition and its evolution in PD. We will first show how task-based functional MRI can inform us regarding the circuits affected, and then present studies using MRI anatomical and functional connectivity methods that attempt to characterize better the various cognitive profiles and patterns of evolution observed with PD. We will finish by presenting Mild Behavioural Impairment, a validated neurobehavioral syndrome, developed as a diagnostic construct to identify patients at increased risk of cognitive decline. Preliminary data using behavioural, neuroimaging, and machine learning approaches will be presented that provide evidence that it might be a useful tool for predicting cognitive decline in PD.

HONOURS BLITZ TALKS

Third-Year Blitz Talks, First Group | 2:00 - 2:46 PM

Third-year honours students have 2 minutes to present the key elements of their research.

- | | | |
|----------------|---|-------------------------------|
| Talk 1 | Language learning motivation in masculine and feminine cultures | <i>Rachel Kastendieck</i> |
| Talk 2 | Uncertainty-evoking leader rhetoric and support for non-prototypical leadership | <i>Anastassija Mimović</i> |
| Talk 3 | Subclinical and Clinical Hypothyroidism: Cognitive and Psychological Deficits | <i>Julia Wood</i> |
| Talk 4 | What Do Mean Memes Mean to Me? The Perception and Impact of Self-Critical Humour | <i>Paul Croome</i> |
| Talk 5 | Mental representations of complex tasks | <i>Radha Saikia</i> |
| Talk 6 | At face value: Do attentional mechanisms prioritize rewards or social content? | <i>Sara Sylvestre</i> |
| Talk 7 | Kind or Capable? Warmth and Competence in Occupations | <i>Kendra Fincaryk</i> |
| Talk 8 | Emotion regulation and psychosocial adjustment | <i>Meagan Eckel</i> |
| Talk 9 | Early childhood co-occurrence of peer aggression and victimization | <i>Kristyn Gannon</i> |
| Talk 10 | The impact of reflected appraisals on perceived discrimination and substance/alcohol abuse | <i>Gurjeet Gill</i> |
| Talk 11 | Cognitive reserve and resilience in Parkinson's | <i>Sarah Tipples</i> |
| Talk 12 | Effects of JUMP Math and MathLinks on students' math skills: An intervention study 2018-2019 | <i>Raeann Del Colle</i> |
| Talk 13 | All in your head: property activation in noun-noun compounds depends on head noun abstractness | <i>Katherine J. Archibald</i> |

- Talk 14 Daily association between parental psychological control and adolescent depressive symptoms using daily diary**
Lorraine Lu
- Talk 15 The Co-Occurrence of Subtypes of Peer Aggression and Internalizing Problems in Adolescence**
Mataea Lastiwka
- Talk 16 Frequency matching of syntactically altered song in black-capped chickadees (*Poecile atricapillus*)**
Thomas Benowicz
- Talk 17 Investigating bicultural competence: An exploration of black men's responses to interracial relationships in a multicultural society**
Deborah Nyarko
- Talk 18 Bilingualism and its effect on moral decision making.**
Shantel Mills
- Talk 19 Images and creativity: The effect of image presentation on idea generation**
Yasmine Abdel Razek
- Talk 20 Can eye trust you? Perceived trustworthiness modulates attention capture and shift**
Kaitlynn Braulio
- Talk 21 Neural Correlates of Trait Aggression as a Moderator in Mortality Salience Manipulation**
Amanda Chao
- Talk 22 Life narratives of micro-dosers: how micro amounts of psychedelics fit into individual life-narratives**
Carlyn Moore
- Talk 23 Mind-wandering in a social context**
Faizan Waseem

Fourth-Year Blitz Talks | 3:00 - 3:33 PM

Fourth-year honours students have 3 minutes to present the key elements of their research.

- Talk 24 Does music make marvellous minds? The cognitive architecture of working memory**
Rielle Gagnon
- Talk 25 Similar to Me, Different to You: Differences in Similarity Perception of Objects Between Monolingual and Bilingual English and/or Chinese Speakers**
Karis Koh
- Talk 26 Implications of screen time on the neural correlates of inhibitory control in early childhood**
Devon S. Heath
- Talk 27 When drastic change is bad: Strategies for prospective leaders**
Amanda K. McIvor
- Talk 28 Language Attitudes Towards Arabic Variants**
Wajed Nadine El-Halabi

Talk 29 What do you see in a face?

Alexa Byrd

Talk 30 Yellow vs. Blue: neuroendocrinological differences between alternative male morphs in *Pelvicachromis pulcher*

Zoe Kruschke

Talk 31 Who showed it best? A comparison of three primary antibodies for the immediate early gene ZENK tested in zebra finches (*Taeniopygia guttata*)

Juliana Montoya Sanchez

Talk 32 A rose by any other name would not smell as sweet: Differences in the emotional depths of first and second languages in bilinguals

Kai Huang

Talk 33 Visual processing of emotional face expressions in alexithymia

Annie Porthukaran

Third-Year Blitz Talks, Second Group | 3:34 - 3:54 PM

Third-year honours students have 2 minutes to present the key elements of their research.

Talk 34 Serial recall: Temporal grouping and subjective chunking

Briana Kroeker

Talk 35 Mind wandering through proactive interference

*Kishnudaran Krishna
Moorthy*

Talk 36 Subtypes of Victimization in Adolescence: Covariation with Anxiety and Depression

Daniel Cho

Talk 37 Learning by Overhearing Multiple Perspectives

Ava Funkhouser

Talk 38 Spanning the Boundaries of Groups

Parand Mohandesi

Talk 39 Implications of dissociative grief on expressive enactment

Kelsey Saxby-MacKay

Talk 40 Chew on this! The relationship between disordered eating, social attention and social networks

Nimrit Jhinjar

Talk 41 ERP analysis of interactions between visual working memory and auditory attention

Zoé Saulnier

Talk 42 Using VR and EEG to study the brain's response to depth stimuli

Abdel Tayem

Talk 43 Bicultural stress coping for interpersonal and non-interpersonal stress

Jing Han

UNDERGRADUATE RESEARCH SHOWCASE: POSTER PRESENTATIONS

P1 All in your head: property activation in noun-noun compounds depends on head noun abstractness

Katherine J. Archibald, Christina L. Gagne, Thomas L. Spalding (Department of Psychology, University of Alberta)

The human conceptual system is able to combine concepts in order to form a single concept. A direct example of this feature in action is the processing of noun-noun compounds. Noun-noun compounds are words that are comprised of two constituent nouns - the head noun (e.g., "ball" in "snowball") and the modifier (e.g., "snow" in "snowball"). In order to process noun-noun compounds, we must first process the concepts of the constituents, and reasonably combine them in a way that seems plausible. A mental event in this process is the activation of properties. A particular issue with property activation in noun-noun compounds is the fact that the constituents do not necessarily yield equal activation - for example, when we read "snowball", we tend to think of snow-related properties (cold, winter, white) before we think of ball-related properties (round, can be thrown, can be rolled). We propose to examine this with a generation task in which participants will read 50 noun-noun compounds from five differing head noun abstractness levels and list the first five properties that come to mind for each one. Properties will be coded as belonging to the head noun, modifier, or both. We hypothesize that noun-noun compounds with more abstract head nouns will yield more activation of modifier properties than head noun properties, and that concrete head nouns will yield more activation of head noun properties than modifier properties.

P2 Who showed it best? A comparison of three primary antibodies for the immediate early gene ZENK tested in zebra finches (*Taeniopygia guttata*).

Juliana Montoya Sanchez, Erin N. Scully, Christopher B. Sturdy (Department of Psychology, Neuroscience and Mental Health Institute, University of Alberta)

Zebra finches (*Taeniopygia guttata*) are a well-studied model species, in part due to their complex vocalizations and neural structures involved in vocal control and perception. The immediate early gene ZENK, (acronym *zif268*, *EGR-1*, *NGFI-A*, *krox24*) has been prevalent in the songbird research community to measure neural expression. Previous zebra finch research has found that neurons in the auditory nuclei caudomedial nidopallium (NCM; dorsal and ventral) and caudomedial mesopallium (CMM) produce high levels of ZENK in response to biologically relevant auditory stimuli. Due to its clear visualization of ZENK, Santa Cruz Egr-1 has been widely accepted as the standard primary antibody in songbird research. However, Santa Cruz Biotechnology has discontinued production of Egr-1. Thus, the current study is focused on analyzing the effectiveness of alternative primary antibodies: Abcam c-Fos, Abcam monoclonal Egr-1, and Proteintech polyclonal Egr-1. We predicted that Abcam c-Fos will be the most effective at replicating expression in CMM, NCMd, and NCMv, with Proteintech polyclonal Egr-1 also having similar expression to the Santa Cruz antibody. We also predicted that Abcam monoclonal Egr-1 will be ineffective at visualizing ZENK protein. Our preliminary results showed that Abcam c-Fos is not as effective as Santa Cruz Egr-1, showing less neural expression in CMM, NCMd, and NCMv. Abcam monoclonal Egr-1 at a concentration of 1:1,000, resulted in excessively dark staining making visualizations of ZENK difficult. Future directions include decreasing the concentration of the Abcam monoclonal Egr-1.

P3 When drastic change is bad: Strategies for prospective leaders

Amanda K. McIvor, Lily Syfers, David E. Rast III (University of Alberta) & Amber M. Gaffney (Humboldt University)

Leaders are agents of change, and it is critical that leaders understand how to gain the support of their followers to effectively mobilize the group. Group identity is a fundamental feature of group life and groups tend to prefer leaders that are prototypical of the group over those that are non-prototypical. However, under high levels of self-conceptual uncertainty this preference decreases (Rast et al., 2012; Hogg, 2001). Building upon this research, we propose social identity continuity as a central construct underlying leader trust and support. Social identity continuity is the perception that the core essence of the group identity will persist over time

and throughout change endeavors, such as organizational mergers. Organizational research demonstrates that during times of change, prototypical leaders benefit from being viewed as continuing the group's core identity (van Knippenberg, van Knippenberg, & Bobbio, 2008). However, social identity continuity is yet to be experimentally manipulated. An experiment (N = 200) will manipulate social identity continuity (high vs. low), uncertainty (high vs. low) and leader prototypicality (prototypical vs. non-prototypical). We predict that only when both perceptions of social identity continuity and self-uncertainty are high will support for the non-prototypical leader increase. Support for a non-prototypical leader indicates a group's willingness to accept new values and attitudes and is an important first step in group change. Given the current tumultuous political context in North America, many groups face uncertainties about their future. Thus, it is particularly important to understand group-based identity and leadership processes that engender unexpected leaders with support.

P4 The Co-Occurrence of Subtypes of Peer Aggression and Internalizing Problems in Adolescence

Mataea Lastiwka, Brenna Zatto, & Wendy L. G. Hoglund

Peer aggression is when a youth intentionally inflicts harm on a peer who is typically of lesser physical or social ranking (Card et al., 2008; Noorden et al., 2016). Peer aggression is commonly associated with maladaptive functioning, such as depression and anxiety (Cicchetti & Rogosch, 2002). However, these associations may differ by form of peer aggression, including relational aggression (e.g. alienating, gossiping, and excluding) and physical aggression (e.g. intentional physical or verbal assaults; Card et al., 2008; Murray-Close et al., 2007). The current study examines patterns of change in peer relational and physical aggression and their covariation with depression and anxiety in adolescence. Gender differences are also examined in these patterns of change and covariation. Participants were assessed over two consecutive years and included 1434 adolescents in grades 7 to 9 (54.5% girls, Mage = 13.49 years, SD = 0.89 years). Adolescents self-reported on peer aggression (Crick & Grotpeter, 1995) and symptoms of depression and anxiety (Bevans et al., 2012). Across the two school years, peer physical aggression is expected to decrease in frequency while peer relational aggression is expected to increase. It is also expected that adolescents who engage in more frequent peer aggression will also experience more concurrent symptoms of depression and anxiety. Results from this study will add to the knowledge-base on how peer aggression covaries with symptoms of depression and anxiety in adolescence.

P5 Yellow vs. Blue: neuroendocrinological differences between alternative male morphs in *Pelvicachromis pulcher*

Authors: Zoe Kruschke (Department of Psychology, University of Alberta), Brittany Hope (Neuroscience and Mental Health Institute, University of Alberta), Peter Hurd (Department of Psychology, University of Alberta)

Animals use a wide range of reproductive tactics. In cichlid fish, territorial males typically attract females to their spawning sites, while some males may attempt to hold a harem of females. Non-territorial males may use other strategies such as mimicry and satellite spawning. Colour polymorphisms within male kribensis cichlids (*Pelvicachromis pulcher*) seem to be associated with alternative reproductive tactics. Four different morphs, defined by the colour of the opercula -- "red", "yellow", "blue", and "green" -- have been identified in this species. No empirical work has investigated blue and green morphs, and their identification is limited to observational and preliminary studies. The current study sets out to investigate the blue morph by comparing neural mechanisms underlying behavioural differences between it and the more common yellow morph. In addition to performing behavioural tests, we assay neurons within the preoptic area of the hypothalamus for expression of aromatase and tyrosine hydroxylase. We hypothesize that there will be consistent differences in how yellow and blue kribensis explore new territory and defend their territory and that these differences will be reflected in the prevalence of these enzymes in the brains' social behaviour network. By studying neuroendocrinological differences between blue and yellow male morphs and their associated behavioural phenotypes, we will expose the behavioural basis for this personality variation. This research will contribute to existing work on intraspecific polymorphic differences by providing evidence of additional colour polymorphisms and further develop an understanding of the neural mechanisms that underlie social behaviour.

P6 Implications of screen time on the neural correlates of inhibitory control in early childhood

Devon S. Heath (Psychology Department, University of Alberta), Aishah Abdul Rahman (Neuroscience Department, University of Alberta), Lesley Xu (Psychology Department, University of Alberta), Valerie Carson (Faculty of Kinesiology, Sport, and Recreation, University of Alberta), Sandra A. Wiebe (Psychology and Neuroscience Department, University of Alberta)

Increased use of technology in classrooms and at home means that children are spending more of their days interacting with screens. Not enough is known about how screen time could affect neural development and executive functioning in early childhood. The purpose of this study was to examine how the neural correlates of inhibitory control, a component of executive function, relate to screen time, using data from the Physical Activity and Cognition in Early Childhood (PACE) cohort, a sample of 100 children between ages 2.5 and six years who were assessed up to three times over a one-year period. Children completed a Go/No-Go task while their brain activity was recorded using EEG. Inhibitory control was measured using the N2 and P3 event-related potentials (ERPs), common markers for inhibitory control at frontal and parietal regions of the scalp, respectively. For N2 amplitude, smaller (less negative) N2 amplitude was correlated with higher maternal education ($p < .03$) and was also marginally correlated with time spent using apps ($p < .07$), which was qualified by a marginal interaction with age ($p < .09$). For P3 amplitude there, both amplitude and latency were significantly related to age ($ps < .004$), which was qualified by a marginal interaction with time spent watching TV ($ps < .009$). P3 amplitude also differed by sex ($p < .03$). In conclusion, watching TV and playing games on apps have a marginal impact on the neural correlates of inhibitory control, measured by the N2 and P3 ERP components.

P7 Mental representations of complex tasks

R. Saikia & P. Dixon (Psychology Department, University of Alberta)

A task that involves multiple actions (e.g. building a Lego structure) can be mentally represented as a set of sub-tasks (e.g. picking up a block, attaching it to another block), implying a hierarchical representation of the task. Studies conducted on complex tasks show a hierarchical mental representation of the actions (Bagget & Ehrenfeucht, 1988; Botvinick & Plaut, 2004; Cooper & Shallice, 2000). However, little is known about how this hierarchical structure comes about. This research will therefore explore the development and use of such mental representations. This will be done by examining the organization of the steps that participants use and how that organization is determined by the information provided about the target task. Participants will be asked to perform a series of multi-step manual tasks based on models. The participant will have to retain the model information in memory while performing the task, and I will measure the number of "looks" needed to complete the task. The similarity of the task to previous tasks will be varied across trials. The findings will be interpreted in terms of the role of visual information, memory, and strategy on the development of mental representations of complex tasks.

P8 Mind wandering through proactive interference

Kishnudaran Krishna Moorthy & Dr. Peter Dixon (Psychology Department, University of Alberta)

Prior research has demonstrated that working memory is affected by proactive interference in which previously presented information is confused with currently to-be-attended information. However, these findings have not yet been studied within the context of mind wandering, which can occur when participants are not paying attention to the task at hand. To investigate proactive interference, a directed-forgetting task will be used in which four stimuli will be shown simultaneously followed by an arrow indicating a subset to be retained in memory. Participants then decide whether a target was in that subset. Proactive interference is demonstrated by slower responses to reject lures that were in the to-be-forgotten subset. Periodically, participants will be interrupted, and presented with a probe, to report the extent to which they are on task. We will test both letter stimuli as well as visual images without obvious verbal labels (so that participants will not be able to rehearse them). We will also manipulate retention interval to see if there will be an effect of temporal discriminability on proactive interference. Temporal discriminability has been shown to affect working memory capacity, and in this study we will check to see if this effect occurs.

P9 Language Attitudes Towards Arabic Variants

W.N. El-Halabi & K. Noels (Psychology Department, University of Alberta)

Communication accommodation and code switching have been previously studied in various Arabic speaking populations, and often refers to a phenomenon in which individuals either adapt to the communication styles of others in order to reduce social differences or accentuate the communication differences between themselves and others to maintain their own identities (Giles, 2016). This phenomena may be explained by the language attitudes towards the different languages or variants that exist within a community. Attitudes towards variants of a particular language can be assessed by two main variables: competence and warmth. Many different varieties of Arabic exist between Arabic speaking nations and within those nations as well. Based on the existence of the multiple variants of Arabic, it was expected that one's own dialect would be rated higher on the dimension of warmth while the Levantine dialect would be rated higher on the dimensions of competence. Using online platforms and snowball sampling, an online survey was distributed where Arabic speaking participants (N = 75) were asked to listen to multiple people speaking in five of the major Arabic dialects (Egyptian, Gulf, Iraqi, Levantine and North African). They were then asked to answer questions pertaining to each speaker and rated them along the dimensions of warmth and competence. It is expected that one's own dialect will be rated higher along the dimension of warmth and that the Levantine dialect (Lebanon, Syria, Palestine, Jordan) will be rated higher along the dimension of competence due to it's wide spread use in the arts and the media.

P10 Spanning the Boundaries of Groups

P. Mohandesi (Psychology Department, University of Alberta), C. Kershaw (Psychology Department, University of Alberta), D. E. Rast III (Psychology Department, University of Alberta)

When it comes to effective leadership, researchers tend to focus on the impact of what a leader says and are less focused on how the leader can put these words into action. This study will explore boundary spanning as a potential technique that leaders can use to match their actions to what they say. Boundary spanning refers to the idea of interacting frequently and developing relationships with relevant outgroup members. Past research has viewed boundary spanning as a task for group members, however in this study we focus on boundary spanning as a task for leaders. Undergraduate students (N = 180) will read about an undergraduate leader who promotes either a collective or intergroup relational identity and whether the leader builds relationships with graduate students. Participants will then evaluate the leader and report their attitude toward both undergraduate and graduate students. We expect that a leader who combines boundary spanning with an intergroup relational identity will be more positively evaluated and improve intergroup relations. With the world becoming more diverse, leaders today will have to work with people from different backgrounds and groups. Though some leaders aim to create connections and facilitate group interactions, they may not have the techniques to do so. Therefore, it is important to understand how a leader's behavior can impact not only how the leader is viewed, but also how the different groups can become more collaborative due to the leader's actions.

P11 Neural Correlates of Trait Aggression as a Moderator in Mortality Salience Manipulation

A. Chao & K.Nash (Psychology Department, University of Alberta)

Mortality salience (MS) is the understanding of one's own inevitable death - an awareness that generates an anxious response. The experience of anxiety is generally associated with greater activation of the behavioural inhibition system (BIS), a system implicative of greater attention orientation and vigilance in response to anticipated threat or punishment. Thus, if MS induces anxiety, then the active awareness of our death should engage the BIS. While there is an abundance of previous investigation on the effect that MS has on psychological processes, there continues to be a lack of study on how personality differences can moderate the degree to which the individual is affected. For example, past research has shown that individuals that display higher levels of aggression are more approach motivated, and therefore are less sensitive to behavioural inhibition. In the present study, we explore the effects of mortality awareness in individuals with varying levels of trait aggression (measured via the Buss-Perry Aggression Questionnaire - Short Form). Mortality salience will be manipulated by asking participants to think about their death. As increased attention orientation is a function of the BIS, we will use the P3a neural marker (a wave associated with attention) to measure BIS engagement via a standard auditory oddball task. We hypothesize that those with higher levels of trait aggression will experience smaller increases in the P3a wave, implicative of lower activation of the BIS, and therefore are less sensitive to the psychological disturbances caused by mortality salience.

P12 Where are you really from?'- Identity denial and discrimination as implications of reflected appraisals for second-generation Canadians

P. Phiri & K. A. Noels (Psychology Department, University of Alberta)

An individual's self-concept develops out of reconciling one's self-appraisal with reflected appraisals from others. If these appraisals are not aligned, feelings of discrimination arise as one feels like there is a limitation to their identity claim. Through an examination of Black Canadians, we investigated why second-generation (G2) Canadians are more vulnerable to identity gaps than first-generation (G1) Canadians, utilizing the theory of identity denial. We hypothesized that G2 (compared to G1) Canadians expect to be treated equally because they are likely to have self-stereotyped themselves as prototypically 'Canadian' since they were born in Canada. As well, they are also more likely to be invested in the Canadian identity to a greater extent than are G1 Canadians. Through an online questionnaire, we assessed the actual and reflected ethnic identities of 100 G1 and G2 Black Canadians across 4 situational domains, (family, friends, university, community), their feelings of discrimination, and the self-definition and investment in a Canadian identity. The results indicate... I am currently working on analyzing the data so the results of the study are not included in the above abstract but I will submit a revised once the results are completed.

P13 Subclinical and Clinical Hypothyroidism: Cognitive and Psychological Deficits

J. Wood & A. Singhal (Psychology Department, University of Alberta)

Hypothyroidism (HT) and Subclinical Hypothyroidism (SCH) are disorders of the endocrine system that affect physical health, mood, and cognition. The current research supports HT as a damaging disorder that should be treated, but the research on SCH is unclear at best and contradictory at worst. SCH, and its worsened condition, HT, are characterized by abnormal Thyroid Stimulating Hormone (TSH) levels, leading to fatigue, depression, and memory and executive function impairment. Compared to SCH, HT has worse TSH levels along with abnormal T3 and T4 levels. Through a systematic review of the literature, and perhaps a future meta-analysis, our research is analyzing the level of impairment in SCH. Data collection on SCH and HT patients' mood and cognition impairment is planned as a final step in the study. For inclusion in the systematic review, studies are analyzed if they discuss SCH, neuroimaging and cognitive neuroscience in relation to SCH and HT, clinical symptoms of SCH and HT, or a neural basis behind SCH and HT. Studies are excluded if they focus solely on congenital thyroid dysfunction, old-age thyroid dysfunction, or fail to discuss any cognitive or psychological symptoms of SCH or HT. In this stage of the research, the results are showing that SCH is not, as previously thought, an asymptomatic precursor to HT, but that it has many significant cognitive and psychological deficits. In the next stage of the research, we plan to test this hypothesis with data collection of SCH and HT patients from the University of Alberta Hospital.

P14 What do you see in a face?

Alexa Byrd, Mursal Mohamud, Christopher Westbury (Dept. Psychology), Esther Fujiwara (Dept. Psychiatry)

Alexithymia is a personality trait characterized by a reduced ability to experience and express emotions. Although not a disorder, people with mental health problems like depression, anxiety, and addictions often have high alexithymia. When an emotional expression is ambiguous or otherwise obscured, emotion recognition can be compromised in individuals with alexithymia. How does alexithymia influence the ability to understand emotions in others? People with high alexithymia may engage less with others and they may also have less knowledge about emotions. To test how these two deficits relate to each other we will analyze data from an eye-tracking experiment in which about 80 people with either high or low alexithymia looked at emotional face photographs and verbally described the emotions. Participants' gaze patterns (e.g., fixations on facial eye- and mouth regions) and their verbal descriptions of the emotions (e.g., the specificity and emotionality of the descriptions) will be examined. By doing so, we will advance our understanding of how early processing of emotional information (and later production of emotion labels) differs between individuals with high or low levels of alexithymia. Since alexithymia is a well-known risk factor for mental illnesses, understanding how this trait changes social-emotional attention and emotional interpretation could advance knowledge in psychiatry.

P15 Bicultural stress coping for interpersonal and non-interpersonal stress

J. Y. Han, H. Lee, & T. Masuda (Psychology Department, University of Alberta)

The present study will investigate cultural differences in how European Canadians and East Asians cope with interpersonal and non-interpersonal stress. Interpersonal stress are stressful situations involving interactions with others whereas non-interpersonal stress are stressful situations that are based only on personal experiences. By targeting 50 European Canadians, 50 East Asian Canadians, and 50 East Asian international students, we specifically examined cultural differences in the use of primary control coping (how likely people take direct action to change stressful situations) and secondary control coping (how likely people accommodate themselves to the situational demands) depending on the type of situations. The results will indicate that while there are no cultural differences in the use of primary control coping for non-interpersonal stress, people's use of coping for interpersonal stress differ between European Canadian and East Asian participants due to their different levels of independent and interdependent cultural values. European Canadian participants who place greater value on being independent will use primary control coping for interpersonal stress while East Asian participants who place greater value on maintaining social harmony will use secondary control coping. Additionally, we will examine how independent and interdependent cultural values influence ideal and actual coping choice across different situations. The results will show that the pattern for each cultural group's ideal coping choice to be the same but more salient than their actual coping choice. The theoretical contributions and practical implications of these findings for cultural influences in coping are discussed.

P16 Cognitive reserve and resilience in Parkinson's

S. Tipples, R. Camicioli (Department of Medicine, Neurology, University of Alberta), & R. Dixon (Psychology Department, University of Alberta)

Parkinson's disease (PD) can serve as an accelerated model of ageing. PD patients are variable in their clinical course with some remaining cognitively intact PD, and others developing mild cognitive impairment (PDMCI), or dementia. Studies in aging suggest that cognitive reserve (CR) can confer resistance to pathological insults. CR can be defined by increased functioning ability of the brain in the presence of disease and other stressors. We hypothesize that CR will be associated with better cognition and resilience to cognitive and physical decline in PD. Our project objectives are as follows: 1. We will operationalize factors associated with reserve and resilience in PD; 2. We will examine the impact of protective and risk factors on cognitive status in PD. The major factors contributing to cognitive reserve include education, job attainment and complexity, involvement in social activities, physical activity levels, and age. The present study will examine the cross sectional COMPASS and Biocog PD studies which have established cohorts of PD patients with and without cognitive impairment. Patients have undergone standardized assessments that include demographics, measures of cognitive reserve, general health assessments, clinical assessments of disease activity and neuropsychological assessments. Logistic regression will be used to determine if PD with normal cognition or PDMCI is associated with measures of cognitive reserve independent of other factors. Identification of risk and protective factors will allow for personalized management of patients at risk for cognitive decline, as well as identify public health approaches for interventions.

P17 Visual processing of emotional face expressions in alexithymia

Annie Porthukaran, Dr. Esther Fujiwara, Mursal Mohamud, Winta Ghebremicael

Alexithymia is a personality construct characterized by deficits in identifying and expressing emotions. Alexithymic individuals often have more difficulties in objective emotion processing tasks such as understanding facial expressions. Very few studies have examined the attentional patterns underlying problems with understanding facial emotions. We recently found that although alexithymic individuals were able to accurately judge emotional face expression, attention to eye area was reduced in alexithymics. While attention to eye areas is normally a useful strategy in understanding facial emotions, alexithymics' eye-attention did not help but instead decreased their understanding of facial emotions. The clarity of the emotional expression played no role in this behaviour. The current study again compared participants with high or low alexithymia (assessed with the TAS-20 questionnaire) in their accuracy judging facial emotions by estimating the mixture-ratio of two emotional expressions. One emotion in the mixture was always anger, blended with either disgust, fear, happiness, neutral, sadness. The focus on anger (a clear social-emotional threat) intended to probe eye avoidance more effectively than the previous study. Eye-tracking recordings were recorded to determine

whether the attentional eye-avoidance patterns persist. Data have been collected for 205 participants of whom 162 could be included, pending analysis. Based on the previous study, we hypothesize that the presence and amount of anger may more effectively decrease judgement accuracy in high alexithymics. We also expect to replicate eye-avoidance. Visual search behaviors will additionally be explored and may be compensatory in high alexithymics.

P18 Images and creativity: The effect of image presentation on idea generation

Y. Abdel Razek (Gesture and Language Development lab, Psychology Department, University of Alberta), E. Nicoladis (Gesture and Language Development lab, Psychology Department, University of Alberta)

Creativity may not be a fixed trait: one study showed some evidence that presenting participants with images composed of related objects like a pencil, eraser, and pen led to greater flexibility in thinking. According to the dual pathway to creativity model, flexibility is one pathway to creativity and the other is persistence. The purpose of the current study is to replicate and extend the previous study to see if creativity can be increased through the pathways. Participants will be presented with images consisting of related or unrelated objects and will then be asked to generate uses for an object such as a shoe or a brick. Images composed of related objects like a pencil, eraser and a pen will induce the persistence pathway and original ideas will be reached because of deeper exploration of a category and the generation of a greater number of ideas from a category. Images composed of unrelated objects like a ball, a pencil, and a toaster will induce the flexibility pathway, and original ideas will be reached because of the consideration of categories that are not frequently considered. These results would support the claim that creativity can be improved, at least over a short term.

P19 Similar to Me, Different to You: Differences in Similarity Perception of Objects Between Monolingual and Bilingual English and/or Chinese Speakers

K. Koh & T. Masuda (Psychology Department, University of Alberta)

The linguistic relativity hypothesis posits that language influences thought and perception. In the proposed study, we assumed that perceived similarity between two objects that are referred to by the same word in one language, but by two words in another, will be used to prove to what extent linguistic categories influence people's perceptions. Monolingual English speakers and bilingual English-Chinese speakers were recruited from the undergraduate psychology pool at the University of Alberta. Participants viewed 45 pairs of object images and rated how similar they perceived each pair to be. Monolingual participants did the study in English, while bilingual participants were randomly assigned to do the study in English or Mandarin Chinese. The stimuli consisted of two types of pairs: in the first half, the two object images use the same word in English, but different words in Mandarin Chinese, to describe them. For these pairs, we expected that perceived similarity between the objects is higher in monolingual English speakers and bilingual speakers primed with English, than bilingual speakers primed with Mandarin Chinese. In the remaining half, the two object images use the same words in Mandarin Chinese, but different words in English, to describe them. For these pairs, we expected that perceived similarity between the objects is higher in bilingual speakers primed with Mandarin Chinese, than monolingual English speakers and bilingual speakers primed with English. We expect that this research is the first report to elucidate to what extent bilingual speakers switch their perceptions of objects according to the language they use in a given context. This study has both academic and societal implications. Academically, we expect that the study addresses the importance of the re-examination of the linguistic relativity hypothesis and the effect of language on our perception, which has been criticised by universal theorists for the past 30 years. Societally, since there are side effects of a language bias on our daily interactions, educational systems, workforces, mental health workers and organisations should be aware of such a bias, thus altering the way they interact with people who are bilingual or multilingual.

Keywords: Linguistic Relativity Hypothesis, Similarity Perception, Bilingualism, Culture.

P20 Frequency matching of syntactically altered song in black-capped chickadees (*Poecile atricapillus*)

T. J. Benowicz (Psychology Department, University of Alberta), W. D. Service (Psychology Department, University of Alberta), & C. B. Sturdy (Psychology Department, Neuroscience and Mental Health Institute, University of Alberta)

Male black-capped chickadees (*Poecile atricapillus*) produce their two note fee-bee song to attract mates and repel territorial competitors. While this song is generally known to be syntactically invariant across populations, chickadees do produce songs with additional notes in select geographical regions (Kroodsma et al., 1999), findings which we have also observed in our laboratory. Our study aims to determine whether chickadees respond similarly to normal and altered fee-bee songs. Chickadees were exposed to normal fee-bee songs and two altered forms, one with each note repeated (fee-fee-bee-bee), and one with the entire song repeated (fee-bee-fee-bee). In addition, each song type was played at two different starting frequencies (~4400 and ~4800 Hz) to allow birds to engage in frequency matching, a behaviour involving meeting the frequency of a competitor's song in an effort to escalate conflict. The presence of frequency matching would suggest that males perceive normal and altered song similarly. We predict chickadees will perceive the altered vocalizations similarly to normal ones, since they contain both note types (fee and bee) arranged in the correct temporal order, factors which are predictive of response speed and frequency (Ratcliffe & Weisman, 1986). Significant results would indicate that chickadees can understand altered songs with repeated sections. Possessing this capability could prove advantageous, since such repetitions may allow the communication and reception of the song over greater distances or in noisy environments.

P21 At face value: Do attentional mechanisms prioritize rewards or social content?

Sara Sylvestre (Psychology Department, University of Alberta) and Dr. Dana A. Hayward (Psychology Department, University of Alberta)

Recent research has demonstrated that attention can be modulated by rewards, in that a previously rewarded visual stimulus can capture attention, slowing performance. Typically, however, the to-be-attended information is a simple non-social feature, which raises the question of whether attention can be modulated by reward even in the context of a more engaging, social task. Furthermore, little is known about how foreknowledge of the value reward will affect attention capture as a means to index the influence of reward salience. Thus, we asked participants to discriminate the age of a particular face (young vs elderly) in a visual search array and manipulated whether participants knew they would win a monetary reward prior to the task. All the while performance was implicitly rewarded based on arbitrary colour frames paired with target faces. On Day 1, participants completed a Training phase where they received a high reward amount for one colour frame and a low reward amount for another colour frame. Two days later participants returned for the Test phase, where reward was no longer administered, and the previously-rewarded colour frames acted as irrelevant distractors. Preliminary data show that during Training, participant accuracy improved across blocks, indicating implicit learning occurred. During Test, there was some evidence that attention capture depended on foreknowledge of the reward. Taken together, our results demonstrate evidence of reward learning and that value-driven attention capture may depend on the type of reward.

P22 Subtypes of Victimization in Adolescence: Covariation with Anxiety and Depression*Daniel Cho, Brenna Zatto, & Wendy L. G. Hoglund (Department of Psychology, University of Alberta)*

Peer victimization is a common concern in adolescence that includes both relational (e.g., exclusion, rumor spreading) and physical (e.g., hitting, threatening) forms (Turner et al., 2011). Relational and physical victimization have shown to differentially associate with depression and anxiety, with relational victimization showing a stronger association than physical victimization (Casper & Card, 2017). Yet it is uncertain how change in relational and physical victimization covary with symptoms of depression and anxiety and whether these patterns and covariations differ by gender in adolescence. The current study examines patterns of change in relational and physical victimization and how they covary with depression and anxiety in adolescence, as well as gender differences in this covariation. Participants include 1434 adolescents in grades 7 to 9 (53.5% girls; Mage = 13.5 years, SD = 0.9) who were assessed over two school years. Adolescents reported the frequency of their experiences of relational and physical victimization (Crick & Grotpeter, 1996) and depression and anxiety (Bevans et al., 2012) in the fall and spring of each school year. It is expected that relational victimization will increase while physical victimization will decrease over time (Casper & Card, 2010; Casper & Card, 2017; Pepler et al., 2008). Both relational and physical victimization are expected to covary with depression and anxiety, with stronger associations for girls than boys (Marsh et al., 2016). This study will inform knowledge on how forms of peer victimization covary with symptoms of depression and anxiety in adolescence.

P23 Does music make marvellous minds? The cognitive architecture of working memory*R. L. Q. Gagnon & E. Nicoladis (Psychology Department, University of Alberta)*

There are several intellectual experiences thought to influence working memory (WM) structure. One such experience is music training, which may influence the way the central executive coordinates information in WM. As such, musicians may have a unique cognitive architecture compared to those without such training. The present study compared individuals with instrumental music training (n = 91) to those without musical training (n = 99) using motor and WM tasks. The tasks used to examine visuospatial, auditory/verbal, and motor memory included the Corsi block tapping test, the digit span test, and the movement span task. Four tasks were used to examine each memory component in conjunction with WM: the backward Corsi block tapping test, backward digit span test, the TAMI (Test of Ability in Movement Imagery), and the TAHMI (Test of Ability in Hand Movement Imagery). Independent samples t-tests showed that musicians performed significantly better than non-musicians on the forward Corsi block (visuospatial memory) and TAHMI (motor WM), but capacity differences between groups on all other tasks were non-significant. A principle component analysis revealed that memory components in non-musicians and musicians loaded onto different components. In non-musicians, the two extracted components could not be labelled to clearly explain memory organization, but in non-musicians, memory scores loaded onto three extracted components that clearly represent motor/visuospatial memory, verbal memory, and kinesthetic (bodily) memory. These results could indicate that there is less variability amongst the way musicians utilize memory components, which could be a result of their shared experience of learning an instrument.

P24 Life narratives of micro-dosers: how micro amounts of psychedelics fit into individual life-narratives*C. Moore (Psychology Department, University of Alberta)*

While current research into the potential therapeutic benefits of psychedelics is being conducted, studies into micro dosing substances such as LSD and psilocybin mushrooms are simultaneously being carried out. There are, however, few studies that have been conducted into micro dosing, which is the practice of ingesting a sub-perceptual dose of a psychedelic substance, reportedly for the purpose of increasing productivity and creativity. Research investigating the narratives of individuals who practice micro-dosing -- and how they fit this practice into their lives -- have not been performed, leaving room for new studies to be conducted. This qualitative study aims to explore the narratives of individuals who currently micro-dose -- or have done in the past-- substances classified as psychedelics (primarily LSD and magic mushrooms) and how they intend to use these substances to resolve or enhance their experiences. Using a mixed method approach, data will be collected from 5-6 participants recruited from the University of Alberta and surrounding area. Participants will be interviewed using a semi-structured format. Participants will be asked to share their life narratives, focusing around their practice of micro-dosing. These interviews will be coded, and linkages will be established between categories found in each interview. The collection of coded interviews will be used to discover a theory more specific than the original research question.

P25 Language learning motivation in masculine and feminine cultures*R. K. Kastendieck & K. Noels (Psychology Department, University of Alberta)*

The dimension of masculinity/femininity orientation, as described by Hofstede, is crucial in describing the values and motivations of a culture. Highly masculine countries have distinct gender roles; men are aggressive, achievement driven and will steer away from pursuits and traits regarded as feminine. Highly feminine societies experience greater equality and have greater concern for quality of life. This dimension affects the decisions of men and women in school, professional and family life. Using self-determination theory, this study compares language learning motivation of university students in three countries varying in masculinity/femininity scores. The three countries include Japan (highly masculine), Canada (moderately masculine), and Finland (low masculinity). Foreign language learning has many cognitive, social and economic benefits however, it is often seen as a feminine pursuit and may be avoided by more masculine cultures. This effect is observed in Canada, where there is currently a gender disparity in language learners, with fewer men enrolled in language classes at a university level. This study aims to establish a consistent correlation between the masculinity/femininity orientation and language learning motivations. More specifically, it hypothesizes that intrinsic motivation and male student enrollment in language courses are negatively correlated with highly masculine countries viewing language learning as feminine. By examining the connection between masculinity/femininity and language learning motivation we can gain insight into how to engage more men in the language learning process to create a more balanced society.

P26 Bilingualism and its effect on moral decision making.*Shantel Mills & Elena Nicoladis*

My study will examine the effects of bilingualism on moral decision making. The types of decisions which will be examined are utilitarian judgments where decisions are based upon causing the least amount of harm and deontological reasoning which means focusing on the rightness and wrongness of actions. Research has demonstrated that people are more inclined to deontological reasoning when using their first language and utilitarian decision making in their second. One proposed explanation for this is Kahneman and Tversky's frame work process. This process has two systems. The first system is relatively quick and effortless; this system would be used with a person's first language. System two involves slow and deliberate processes; this system is most frequently used with a person's second language and leads to utilitarian judgements.

The question is with improved proficiency in a second language will people switch to using system one

P27 Daily association between parental psychological control and adolescent depressive symptoms using daily diary*L. Lu (Psychology Department, University of Alberta)*

Depression is one of the most common mental health problems in children and adolescents with long-term adverse psychosocial developmental impacts. Its prevalence increases substantially in adolescence and is higher in girls. Previous studies have consistently found a strong and positive association between parental psychological control and children's depressive symptoms. However, previous studies primarily examined their associations in young children either cross-sectionally or over multiple years. Because both adolescent depressive symptoms and parenting practices happen on a day-to-day basis, it remains an open question of how these findings can generalize to adolescents and Canadian families in their daily lives. The proposed study includes both parents and adolescents from the same family and uses daily diary method to examine the daily associations between parental psychological control and adolescent's depressive symptoms. Specifically, we want to know 1) how does parental psychological control affect adolescent depressive symptoms, and 2) whether adolescent depressive symptoms reciprocally affect parental psychological control, on a daily basis. Furthermore, gender might moderate their daily associations, given the higher prevalence of depression in girls. We hypothesized that these associations will be more salient among girls than boys. Participants will be recruited from 250 families, with a 12-to 17- year-old adolescent and a parent. Data will be collected through online surveys completed on mobile devices daily and consecutively for a month. This study enables us to further understand the associations between parental psychological control and adolescent depressive symptoms in their daily contexts.

P28 Chew on this! The relationship between disordered eating, social attention and social networks*N. Jhinjar & D.A. Hayward (Psychology Department, University of Alberta)*

Recent research indicates that individuals with disordered eating, like those with Anorexia Nervosa may show difficulty in attending to social cues in their environment, such as eye gaze. In spite of this, the diagnostic criteria for eating disorders (ED) focus exclusively on physical factors such as weight and behaviour, rather than cognitive factors, like social attention. Thus, in this study, we aimed to investigate the effects of a past or present ED diagnosis on social attention and preferred social distance. Two sub-questions we aimed to address in our preliminary data were whether a present versus past diagnosis of an ED affects social attention, and whether or not ED duration relates to social functioning. To operationalize social attention, 22 participants completed two tasks with the eye tracker: a social cueing task and video-watching task. Individuals completed various questionnaires regarding their ED, comfort in social situations, and their social network. Preliminary data indicate no social attention effect, regardless of present or past diagnosis, suggesting that social difficulties may persist even when participants no longer meet diagnostic criteria. To answer question two, we ran a correlational analysis and found that ED duration was negatively correlated with social network size, suggesting a decline in social skills related to ED persistence. Taken together, our data suggest that perhaps physicians should also take into account an individuals' social-cognitive functioning during diagnosis and treatment.

P29 Using VR and EEG to study the brain's response to depth stimuli*Abdel R. Tayem (Department of Psychology, University of Alberta; Neuroscience and Mental Health Institute, Faculty of Medicine and Dentistry, University of Alberta), Eden X. Redman (Department of Psychology, University of Alberta), Jonathan W.P. Kuziek (Department of Psychology, University of Alberta), Kyle E. Mathewson (Department of Psychology, University of Alberta; Neuroscience and Mental Health Institute, Faculty of Medicine and Dentistry, University of Alberta)*

In order to better understand the brain, we need to move outside of traditional lab settings into more realistic situations. While it is fantastic to increase ecological validity by moving physically outside of the lab, another way this can happen is by using virtual reality to create highly controlled but flexible environments. The proposed research will combine the use of portable EEG with cutting edge Virtual Reality (VR) in order to study the effects of realistic 3D brain stimuli on markers of brain activity. Distinct stimuli will be programmed into the VR experience, as well as individual trials in which individuals will have to respond to these stimuli. Timing information about the VR stimuli will be recorded in the ongoing EEG stream based on methods we have previously developed and tested. For instance, an oddball task in which participants respond to near stimuli and ignore far away stimuli. Pilot research has shown unique brain activity evoked by stimuli of different depths (different levels of ocular disparity), and this will be further investigated in the present proposed research. Brain activity will be analyzed by averaging EEG following the various types of stimuli, and comparing the magnitude of the evoked event-related brain potentials (ERPs), as well as other measures of spectra during the time period of each stimuli.

P30 Learning by Overhearing Multiple Perspectives*A.C. Funkhouser & E. Nicoladis (Psychology Department, University of Alberta)***Learning by Overhearing Multiple Unimodal Perspectives**

Previous literature supports the claim that compared to overhearing a monologue (one speaker), listening to a dialogue (two speakers) provides listeners with superior comprehension. Despite this repeatedly-shown dialogic superiority, little research exists on the mechanisms behind these results. A prominent hypothesis states that the overhearing of dialogues lends itself to increased comprehension because dialogues have more perspectives than monologues. A monologue likely focuses on the explanation of a single perspective, whereas, in a dialogue, speakers must come to a common agreement about a topic, and during this exchange the two participants tend to verbalize fundamentally identical information in different ways. This dissonance allows for the overhearer to have more opportunities to identify a perspective that they understand best. Additionally, exposure to multiple perspectives may allow the listener to develop a more robust understanding of the topic, therefore increasing comprehension. The proposed study seeks to investigate whether listening to multiple perspectives is superior for comprehension, and to make inferences about the possible mechanism behind this occurrence. Participants will be randomly assigned to listen once to three of five unique, randomized metaphors, or to listen to the same metaphor three times, and will subsequently complete a comprehension assessment. If multiple perspectives are superior, the three-metaphor condition should yield superior comprehension scores.

The results of this study have implications for educational positions; if offering more perspectives enables listeners to achieve superior comprehension, then incorporating more perspectives into lessons will provide learners with the better comprehension opportunities.

P31 Implications of dissociative grief on expressive enactment

D. Kuiken & K. Saxby-MacKay (Psychology Department, University of Alberta)

Recent studies suggest that, in literary reading, meanings are able to emerge from the structure of metaphors present in texts and passages. Additionally, it has been found that dissociative absorption is positively related to deeply engaged literary reading such as expressive enactment. The understanding of bidirectional metaphors, as a form of expressive enactment, will be a key component of this study as the intended research goal is to gain insight as to why certain individuals are able to generate bidirectional mappings more effectively than others, in relation to dissociative capabilities. One possible explanation is how individual experiences of grief-related dissociation may facilitate a deeper engagement with the meanings of the text. Loss related traumas and dissociation have been found to incite movement toward novel conceptions of text and of the self, suggesting grief-related dissociation may also predict such novel conceptions. This study will determine whether grief-related dissociation impacts expressive enactment. This information is pertinent to understand why certain individuals possess the ability to generate bidirectional mappings of metaphors more fluently than others. Participants for this study will be selected based on their experiences with grief and then asked to read a metaphoric text. Following this exercise, they will be asked to describe their experience of engaging with this text, participate in a bidirectional mapping exercise, and answer questionnaires regarding grief, expressive enactment, and self-perceptual depth. Based on previous research, it is predicted that a relationship between experiences of grief-related dissociation and the ability to generate bidirectional mappings will be found.

P32 Uncertainty-evoking leader rhetoric and support for non-prototypical leadership

A. Mimović, K. Kincaid & D. E. Rast III (Psychology Department, University of Alberta)

The social identity theory of leadership shows that group members tend to prefer leaders who are prototypical of their group, especially when group membership is a salient aspect of their identity. These group prototypical leaders are perceived as more effective and receive more support and trust than non-prototypical leaders. However, feelings of uncertainty can weaken this prototypicality advantage and increase support for non-prototypical leaders (Rast, Gaffney, Hogg & Crisp, 2012). Previous research has also shown that leaders may use their rhetoric to evoke feelings of uncertainty in their followers (Hohman, Hogg & Bligh, 2010). This research study is comprised of a pilot study and a full study. The pilot study tests the effectiveness of a new manipulation of uncertainty-evoking leader rhetoric. It is currently examining whether a leader statement with high uncertainty leader rhetoric will produce more self-uncertainty compared to a leader statement with low uncertainty leader rhetoric. The full study will implement the manipulation in examining uncertainty-evoking leader rhetoric and the effects of this rhetoric on leader support and preference. The interaction between leader prototypicality and leader rhetoric will be explored, specifically examining whether non-prototypical leaders can use uncertainty-evoking rhetoric to lessen the leader prototypicality advantage and elevate support for themselves. It is hypothesized that prospective non-prototypical leaders can elevate support for themselves when they use uncertainty-evoking leader rhetoric.

P33 Emotion regulation and psychosocial adjustment

M. Eckel. Co-supervised by J. Reddon & N. Brown (Psychology, Department, University of Alberta)

The purpose of this study is to investigate the relationship between emotion regulation (ER) and psychosocial adjustment. ER is when a person exerts effort to control or modify the expression of their emotions. The ability to control emotion is rooted in one's biology and childhood experiences (Greenberg, Kolasi, Hegsted, Berkowitz, & Jurist, 2017). We will compare 5 measures of ER and relate these measures to psychosocial adjustment as measured with the Basic Personality Inventory (BPI; Jackson, 1977). ER measures consist of the 32 item Perth Emotion Regulation Competency Inventory (PERCI; Preece, Becerra, Robinson, Dandy, & Allan, 2018), the 27 item Emotion Regulation Skills Questionnaire (ERSQ; Grant, Salsman, & Berking, 2018), the 10 item Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), the 60 item Mentalized Affectivity Scale (MAS; Greenberg et al., 2017), and the 36 item Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001). As these five measures assess different

components of ER it is not easy to compare the scales directly. Hence, a dimension reduction approach will be used to explore relationships amongst these five ER measures. We will also compare each of these measures by evaluating the yield of the measures in relation to the criterion variable, psychosocial adjustment. It is hypothesized, people who score lower on the ER measures will score higher on the BPI. The pattern and magnitude of the relations among the ER scales and the correlation between the ER scales and dimensions and the BPI scales and dimensions will be evaluated with Pearson product moment correlations. Where appropriate a z-test for dependent sample correlations will be utilized (Meng, Rosenthal, & Rubin, 1992).

P34 Kind or Capable? Warmth and Competence in Occupations

Kendra B. Fincaryk & Kimberly A. Noels (Psychology Department, University of Alberta)

A great deal of research has gone into determining the reason for gender discrepancies and what can be done to alleviate them. Most of the research has focused on addressing the issue of a lack of women in Science, Technology, Engineering, and Mathematics (STEM) related domains; however, there is growing interest in understanding the underrepresentation of men in female-dominated occupations (e.g., Nursing, Elementary Education). Our question is whether stereotypic traits of men and women are associated with occupations that are female-dominated, male-dominated or gender equal. To answer this question we use the Stereotype Content Model, which outlines two dimensions of stereotypes: warmth (e.g. friendliness) and competence (e.g. intelligence). It has been previously shown that males are rated more competent than females, and females are rated more warm than males. We hypothesize that occupations numerically dominated by males or females are similarly judged. Therefore, the present study will survey Canadians on their perceptions about the warmth and competence of people in different occupations. Depending on the result of this first study, we plan to conduct future studies looking at how job descriptions might be framed to appeal to underrepresented groups.

P35 Can eye trust you? Perceived trustworthiness modulates attention capture and shift

K. Braulio & D.A. Hayward (Psychology Department, University of Alberta)

Faces and eyes convey many important signals, and because of their social significance, they have been found to both shift and capture our attention. While overall one prioritizes attention to social content, the extent to which individual variability modulates this effect remains unclear. For example, does the perceived trustworthiness of an individual modulate social attention? The current study aims to investigate this question by experimentally manipulating the level of perceived trustworthiness of two female volunteer research assistants (RAs). Thirty female participants were first given trust information about each RA, then they completed two cueing tasks where the RAs would either look towards or away from a target most of the time to reinforce highly trustworthy or untrustworthy conditions. Response times for target detection measured shifts of attention. Finally, participants completed a visual search task where they searched for a target amongst distractor objects, which included the face of an RA on some trials, in order to investigate attention capture. Preliminary data analyses indicate that, for the cueing task, greater social attention was found for the trustworthy as compared to not trustworthy face, meaning participants learned the helpfulness of the face. When comparing magnitudes of social attention across the two tasks, we found some evidence that greater attention shifts in the cueing task related to greater attention capture in the visual search task. Taken together, this study offers some evidence that trustworthiness can affect attention, and that attention shifts and capture may be tapping into a common underlying mechanism.

P36 ERP analysis of interactions between visual working memory and auditory attention

Zoé Saulnier (Psychology Department, University of Alberta), Alice E. Atkin (Neuroscience and Mental Health Institute), Shannon Blanchet (Drama Department, University of Alberta), Michelle V. Tomczak (Psychology Department, University of Alberta), Reyhaneh Bakhtiari (Psychology Department, University of Alberta), Aaron Granley (DriveABLE), & Anthony Singhal (Psychology Department, University of Alberta; Neuroscience and Mental Health Institute)

Striving to understand the functional interaction between memory and attention is an active research area in cognitive neuroscience. While leading theories suggest that attention and memory use similar processes, the exact nature of these processes remains unclear. Further, it is undetermined if attention is a singular, cross-modal mechanism or an amalgamation of modality-specific mechanisms each with unique neural markers. We will focus on the interaction between auditory attention and visual working memory (WM). To unpack this relationship, we will use a dual task paradigm (a dichotic listening task in conjunction with a visual memory task) while collecting high-density EEG data. Furthermore, each task will be performed individually as baseline

reference. The dichotic listening task will require participants to respond to a target tone presented in one ear, while ignoring all other presented tones. The visual WM task will require participants to memorize a shape, remember it during a distractor period, and then manually recreate it. Additionally, there will be a second difficulty level that will require participants to remember 2 shapes rather than 1. We will analyze the EEG data by comparing specific attention-related event-related potentials (i.e. mismatch-negativity and P300), in the dual-task condition versus the single task conditions. While we are expecting to see changes, we do not have enough evidence at this stage to make specific brain-wave predictions. Behavioural performance will also be evaluated. We predict that if attentional resources are shared, converging behavioural evidence should be seen in the form of decreased performance in the dual-task condition.

P37 Mind-wandering in a social context

F. Waseem & P. Dixon (Psychology Department, University of Alberta)

Mind-wandering in a Social Context

Research on mind wandering emphasizes the importance of how being off task directly hinders performance on a task. However, virtually all mind-wandering research is conducted in a solitary context; what I am interested in is how mind-wandering works within a social context. The Sustained Attention to Response Task (SART) measures working memory and sustained attention, and has often been used in research on mind-wandering. People often use overt behaviours in order to infer their internal mind set, for example, fidgeting movements such as repetitive movements of limbs and playing with one's hair. As such, those experiencing mind-wandering would be more inclined to exhibit fidgeting behaviours. For this experiment, two groups of people will complete the SART. Researchers will inform one group that they are being videotaped – serving as a proxy for social context – and the other group will not be informed, providing a non-social context. Both groups will be filmed in order to measure fidgeting. During the SART, a question measuring self-reported mind-wandering will occasionally appear on the screen. Participants will report their level of attention at that time. I am interested in the potential interactions between mind-wandering, SART performance, fidgeting levels, and the presence of a social context. Ideally, this study will provide evidence on mind-wandering in a social context and its relationship to fidgeting.

P38 Reflected appraisals and alcohol/substance abuse in south asian citizens

G. K. Gill & K. A. Noels (Department of Psychology, University of Alberta)

Reflected appraisals are what we assume others think of us and is often internalized into our own identity. However the reflected appraisal can sometimes differ from our own self appraisal (our idea of who we think we are) and this incongruity in appraisals leaves room for the individual to perceive discrimination. Previous research has shown that a mismatch between self and reflected appraisals has correlations with perceived discrimination but has not studied how that gap could impact people of south asian descent living in Canada. The population being examined originates from countries where drinking is both culturally and religiously frowned upon but have immigrated and are acculturating to a country where alcohol is the norm and other substances are less harshly punished; this has been shown to have a strong effect on south asian people's attitudes towards drinking and other substances resulting in increased use. This study will examine the gap between self and reflected appraisals including their impact on perceived discrimination as well as alcohol and substance abuse in south asian immigrants and descendants. Using questionnaire responses from generations 1, 1.5, and 2 of people living in Canada who are of Indian subcontinental ethnicity, I hypothesise that the gaps in self and reflected appraisal, perceived discrimination, and this acculturation combined could result in more alcohol/substance use than if those gaps did not exist between their self and reflected appraisals.

P39 Emotion regulation and early childhood patterns of peer aggression and victimization

Kristyn Gannon, Brenna Zatto, Wendy Hoglund (Psychology Department, University of Alberta)

During childhood, many children may engage in forms of aggressive behaviour toward peers, which can result in increased risk for emotional problems (Hoglund & Hau, 2019). Children may also experience peer victimization which can have negative impacts on their emotional functioning (Hanish & Guerra, 2002). Research suggests that peer aggression and victimization may co-occur in middle childhood (Ostrov et al., 2018; Hoglund & Hau, 2019). Yet little is known regarding how peer aggression and victimization

co-occur during the early childhood period. Children's ability to regulate their emotion may influence their experiences of peer aggression and victimization in early childhood. For instance, children who show difficulty in regulating negative or exuberant emotions tend to experience more frequent peer aggression and victimization (O'Brennan et al., 2015). How emotion regulation and dysregulation may predict the co-occurrence of peer aggression and victimization during early childhood remains unclear. The aims of the current study are to identify different developmental patterns of the co-occurrence of peer aggression and victimization and how emotion regulation and dysregulation predict these patterns in early childhood. The study sample consisted of 443 children (47.9% girls; $M_{age} = 4.08$ years, $SD = 0.34$) assessed in the fall and spring of preschool and kindergarten. Teachers reported on the frequency of children's peer aggression and victimization and emotion regulation and dysregulation at each assessment. The results of this study will offer a better understanding of the co-occurrence of peer aggression and victimization and the influence of emotion regulation and dysregulation in early childhood.

P40 Effects of JUMP Math and MathLinks on students' math skills: An intervention study 2018-2019

Del Colle, R., Engstrom, A., Howard, K. Trafford, L., and Brown, H.

There are many approved resources in Alberta for math teachers to use. One approved program is JUMP Math which focuses on teaching with step-by-step instruction. Another program called MathLinks emphasizes self-discovery in learning math. Although both programs are approved resources, we cannot conclude that they are suitable for every classroom. There is a divide between educators for whether explicit, systematic instruction or collaborative problem-solving learning is more effective in teaching students the math curriculum. When considering teaching students with learning disabilities, programs like JUMP Math may be more beneficial to students as their disability may require more explicit instruction to acquire new math skills. In this study, we will investigate the effectiveness of the two math programs JUMP Math and MathLinks. We will determine which program is more effective in teaching grade eight students the Alberta math curriculum. Additionally, we will identify the strengths and weaknesses of each program in working with students with learning disabilities. We hypothesize that students taught with the JUMP Math program will succeed more with completing the curriculum as they are given the step-by-step instruction they need to acquire new math skills. The results of our research will help educators choose a more effective program to teach students with learning disabilities.

P41 Remembering a list of words: Does grouping increase accuracy?

B. Kroeker, Y. S. Liu & J. B. Caplan (Department of Psychology, University of Alberta)

When studying a list of items, such as digits or consonants, that must be recalled in the correct order, it has been shown that instructing participants to subjectively chunk the items into groups can improve accuracy. The first and last items presented in the list are recalled with higher accuracy overall, as well as within each subjective chunk. This creates a scalloping effect within the overall curve. The scalloping effects shown in subjective chunking are also seen when longer temporal pauses are used to break the list into chunks. Temporal grouping induces participants to chunk the items according to the temporal pauses, showing similar effects to subjective chunking. However, only one study has found these scalloping effects shown in temporal grouping when lists of more complex items are used, such as nouns (Spurgeon et al., 2015). A pilot study I conducted using lists of nine nouns showed that these effects may not fully generalize to more complex stimuli. The present study aims to investigate whether the scalloping effects seen in temporal grouping and subjective chunking of digits and consonants will replicate using more complex stimuli, using lists of either six or nine nouns. The six word condition was added to account for words being longer and harder to remember than consonants. We hypothesize that the scalloping effects seen in lists of simpler stimuli will not generalize to lists of nouns, as they are longer and more difficult to retain in memory.

P42 Investigating bicultural competence: An exploration of black men's responses to interracial relationships in a multicultural society

D. J. Nyarko (Psychology Department, University of Alberta)

C. Baerveldt (Psychology Department, University of Alberta)

This study will investigate bicultural competence in a multicultural society by studying Black-White romantic relationships in Canada. Bicultural competence describes how well an individual navigates in society while belonging to two (or more) cultural groups. Dorothy Holland (1992) showed that people display different levels of skill and competence while dating. Berry's (1991) acculturation

model and LaFramboise's (1993) alternation model claim that bicultural competent individuals alter their behaviour to match their social context. We pose the question of whether a black man dating in a multicultural society can truly perform alternation. Instead, does a new cultural style emerge that cannot simply be explained by culture A or culture B? We will investigate how undergraduate black men at the University of Alberta decide to participate in interracial relationships, their attitudes and motivations toward choosing dating partners, and how they navigate dating in a multicultural society. Interviews will be held in which they will be presented with a vignette: a hypothetical short story about an event. The vignette will encompass an encounter between a black man and two women, – one white, and one black – the participants will be asked questions about their views on the character's actions. A grounded theory approach will be used to systematically collect, transcribe, and code the responses based on common themes revealed. Through responding to the ambiguous cultural situation presented in the vignette, they will naturally talk about their own experiences, leading to a better understanding of bicultural competence in terms of interracial relationships in Canada.

P43 What Do Mean Memes Mean to Me? The Perception and Impact of Self-Critical Humour

P. J. Croome & J. K. Brinker (Department of Psychology, University of Alberta)

Self-defeating humour is a self-directed, self-disparaging style of humour that is correlated with various negative outcomes. Self-deprecating humour is similarly self-critical, but is correlated with positive outcomes. Whether one views self-critical humour as self-deprecating or self-defeating largely depends on one's perception of the joke-teller. Self-critical humour is prevalent in the memes that are liked and shared by social media users. Some of these use self-critical humour that explicitly disparages self-worth (value-referential memes, or VMs), while others do not explicitly disparage self-worth (non-value-referential memes, or NVMs). The proposed study uses VMs and NVMs to investigate whether (a) viewing self-critical memes affects one's affect, and (b) whether self-deprecating and self-defeating humour is distinguished by the perception that the joke-teller is genuinely disparaging their self-worth. Introductory psychology students will self-report baseline affect (PANAS) and will be randomly assigned to one of two conditions prior to testing sessions. During sessions, participants will complete initial measures of affect using visual analogue scales (VASs) before viewing memes depicting either VMs or NVMs, depending on condition. Afterward, participants will complete the same affective VASs, before categorizing the memes they viewed as self-deprecating or self-defeating based on provided definitions. We hypothesize that (a) NVMs will enhance affect more than VMs, (b) all memes will enhance affect less for participants with low positive and high negative baseline/initial affect than for participants with the opposite affective pattern, and (c) VMs will be categorized more consistently as self-defeating than NVMs, particularly by those with low positive and high negative baseline/initial affect.

P44 A rose by any other name would not smell as sweet: Differences in the emotional depths of first and second languages in bilinguals

K. Y. Huang & E. Nicoladis (Psychology Department, University of Alberta)

Bilingual speakers often experience greater depth of emotion in one language over the other. Studies have found that the first language is usually more emotional than the second. However, in many of these studies, participants were more proficient in their first language, suggesting possible confounding effects of proficiency and first language. We have hypothesized that proficiency might be a better predictor of emotionality, because proficiency reflects more experiences with emotions in that language. The goal of the present research is to determine whether first language or proficiency is more important in evoking the emotionality of a language. English-French and French-English bilinguals were presented with positive, negative, and taboo words in each language while their skin conductance was measured through the galvanic skin response (GSR). Half of the participants received the words visually, and half received the words aurally. Participants in the receptive task only saw or heard the words, while participants in the expressive task repeated the words out loud after seeing or hearing them. Afterwards, participants rated each word on a 1-7 scale indicating how emotional they found each word. We anticipate that proficiency will be a better predictor of increased skin conductance in response to emotionally arousing stimuli in a language. These results would suggest that recent experience or depth of experience plays a greater role than childhood experience in predicting how much emotion is elicited by words. Future studies can explore exactly how proficiency is related to greater emotional arousal.

P45 Chinese adolescents' drinking behaviors in the past three decades: A systematic review and meta-analysis*J (Jiayi), Li & Y (Yao), Zheng (Department of Psychology, University of Alberta)*

Underage drinking is a serious public health problem influencing youths' lives in various aspects. This issue is even severe in China where there are no strict regulations on underage drinking. This project conducted a systematic and comprehensive literature review and a planned meta-analysis of studies published in both Chinese and English that focused on Chinese adolescents' drinking behaviors regarding its overall prevalence, risk and protective factors, group differences (e.g. sex, age, ethnicity), and secular trend. We searched relevant peer-reviewed studies through various keyword combinations of Chinese adolescent/youth and drinking in one Chinese and five English databases, and identified 163 and 186 eligible studies in Chinese and English respectively. The majority of Chinese studies were published between 2006 and 2013, right after the Chinese government put forward the most recent regulation of underage drinking. Drinking behaviors assessed were coded into several categories, with nine measurements most frequently used (e.g. lifetime drinking, past month alcohol use, and first time drinking before age 13). English studies are currently in the progress of screening and coding. Meta-analysis will be done after the coding procedure to assess the prevalence of various drinking behaviors among Chinese youths by sex and age groups and its secular trend across all eligible studies. With an increasing number of Chinese immigrants coming to Canada and particularly Alberta, our findings could inform policy-making to tailor education and intervention for Chinese young immigrants to help them adapt to Canadian culture and to reduce the relevant risk for underage drinking.

P46 Spatial and Non-Spatial Interactions between Auditory and Visuospatial Attention during a Dual Task; an ERP Study Proposal

Naaz Hundal (Department of Psychology, University of Alberta), Alice E. Atkin (Neuroscience and Mental Health Institute, University of Alberta), Shannon Blanchet (Department of Drama, University of Alberta), Michelle Tomczak (Department of Psychology, University of Alberta), Reyhaneh Bakhtiari (Department of Psychology, University of Alberta), Aaron Granley (DriveABLE), & Anthony Singhal (Department of Psychology, Neuroscience and Mental Health Institute, University of Alberta)

The purpose of this study is to examine the nature of crossmodal links in spatial and non-spatial attention by combining auditory and visual attention tasks in a dual-task paradigm while collecting event-related potentials (ERP). The auditory task will involve both spatial and non-spatial discriminations, and the visual task will have spatial and non-spatial requirements at two levels of difficulty. In addition to reaction time (RT) and accuracy of performance, we will analyze the following attention-related ERP: N1-P2, P300, negative difference (Nd), and mismatch negativity (MMN). Our preliminary data from the auditory task performed alone shows a significantly larger P300 for targets in spatial locations under focus, as well as clear-cut Nd and MMN components elicited by both the spatial and non-spatial aspects of the task. The visual task performed alone shows that RT was quicker for congruent trials compared to incongruent trials, but only when attention was cued to the right side of space. It is predicted that the cognitive load imposed by the dual task will affect performance of the auditory task more than the visual attention task due to the prioritization of vision. Moreover, the increase in difficulty of the visual task will likely affect the P300 from the auditory task, due to an increase in crossmodal attentional demands in the non-spatial domain. However, the full effects of spatial and non-spatial interference between the two tasks remains to be determined. The results of this study will have implications for everyday situations that involve multitasking across the different senses.

P47 Eye preference in speeded emotion recognition: alexithymia and eating disorders

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Eating disorders (EDs) such as anorexia (AN) or bulimia (BN) are psychiatric conditions characterized by disordered eating, concerns over body weight and shape, and fear of weight gain. EDs are also often accompanied by social-emotional problems. Comorbid alexithymia has been suggested to explain objective emotion processing deficits in EDs, but we recently observed ED-specific problems with mixed facial emotions (anger and disgust) that were not explainable by high alexithymia. In order to allow alexithymia-related (and ED-unspecific) emotion recognition deficits to emerge we here probed performance with two speeded

tasks. A total of 33 patients (25 AN; 8 BN) from the University of Alberta Hospital Eating Disorder Program and 82 non-ED controls (40 high alexithymia HC-HA, 42 low alexithymia HC-LA) were recruited and eye-movements were recorded while participants judged facial expressions using either verbal labels or by identifying similarities between emotional expressions (odd-man out). Groups performed similarly in the verbal task, but in the 'odd-man-out' task, both the ED group and the HC-HA group were slower than the HC-LA group, implying alexithymic (i.e., non-ED-specific) performance detriments. However, the ED group showed a pronounced eye-avoidance for all faces in this task, unlike either of the control groups. Verbal labels may provide an opportunity to offset emotion recognition problems in both ED and HC-HA; the observation of an ED-specific eye-avoidance in the nonverbal task suggests a source other than alexithymia underlying some of the social-emotional issues observed in EDs. Understanding reasons for this eye-avoidance appears useful to develop treatment targets in EDs.

P48 Interacting with objects around us: Distinct roles of manipulation and function knowledge and measurement of individual differences

Sasha Heneghan-Smith (University of Alberta), Anthony Singhal (University of Alberta), and Christopher R.Madan (University of Nottingham)

The ability to use objects differs from knowledge about their physical purposes, however, there is an interaction between the motor action and semantic representations of objects. Object processing can be separated based on manipulation, how an object is used, and functions, what purpose an object is used for. Here we replicated and extended a prior study demonstrating a dissociation between object judgments using a task developed by Garcea & Mahon (2012). The original study demonstrated that manipulation and function knowledge are distinct, using a procedure that asks participants to choose which of two objects is similar to a target object, based either manipulation or function, with the objects being presented as either words or pictures. Consistent prior results, we observed a main effect of the judgment type, and a main effect of stimuli format; the interaction between the judgment and stimuli format was significant. Both manipulation and function judgements were slower for words than for pictures. Manipulation judgments were slower than function judgements for both words and pictures. Along with this computer task, we included two pencil-and-paper questionnaires designed to assess individual differences in movement imagery ability: the Florida Praxis Imagery Questionnaire (FPIQ) (Ochipa et al., 1997) and Test of Ability in Movement Imagery (TAMI) (Madan & Singhal, 2013). While the FPIQ is intended for use with apraxic patients, prior work in our lab has demonstrated that it is nonetheless sensitive to individual differences in movement imagery in healthy young adults as well.

P49 Impact of Status on Intergroup Relations: A Pilot Study

D. Linkiewicz, C. Kershaw, D.E. Rast III (Psychology Department, University of Alberta)

Understanding the influence of status differences can help leaders promote collaborative relationships between groups. A group's relative status depends on how typical they are in comparison to the larger group to which they belong (Wenzel & Mummendey, 2007). Status affects relations between groups because groups within a larger, overarching group compare relative standing (Tajfel & Turner, 1978). When groups are of unequal status, one group will be biased toward their own group versus the other group to which they are not a part of. When groups are of equal status, the groups may feel threatened by the change in status and groups members may react by increasing bias toward their own group due to the change in status. Participants (N = 50) will be randomly assigned to one of two status conditions, equal or unequal status. We hypothesize that when groups are of equal status, compared to unequal status, there will be more bias toward the participant's own group and this will drive the bias between groups. T-tests will be used to determine whether status differences between groups have an effect on intergroup relations. Results from this pilot study will have implications for a wide range of environments in which intergroup relations are present (e.g. faculty, staff and students) and inform future investigations for improving intergroup relations.

P51 Systemic lactate effects on brain activity and behaviour*O. Mouhammed & C. Dickson*

L- lactate, supplied by astrocytes, is the preferred energy source for neuronal oxidative metabolism. We have shown that systemic L- or D- lactate administration promotes slow wave states (SWS) in urethane-anesthetized animals, a stage similar to deep sleep which has been related to memory consolidation. It has been shown that inhibitory avoidance memory is enhanced by L- and D-lactate administration post learning, perhaps due to an influence on slow wave sleep. Here, we investigate whether the effect of L- or D- lactate on memory is modulated by an effect on brain activity and sleep. We hypothesize that the pro-mnemonic effects of L- and D- lactate may be due to promotion of slow wave states during sleep. Following step-through inhibitory avoidance training, rats were systemically injected with either L- or D- lactate, or saline for control. Brain activity was then measured for at least two hours following training with intracranial electroencephalographic (EEG) methods within the cortex and hippocampus. Neck electromyography (EMG), and video records of behaviour were also used to classify brain and behavioural states. Inhibitory avoidance memory was tested 48 hrs after initial training and recording. Results showed non-significant effects of treatments on memory scores. Future aims of study will be to investigate whether sleep behaviour or brain activity is correlated to inhibitory avoidance score. We currently are examining sleep wake behaviour and EEG readings in rats two hours after the inhibitory avoidance paradigm to assess the role of brain activity following learning.

P52 Seasonal song degradation in black-capped chickadees*Stephanie Thunberg, Kimberley A. Campbell, Christopher B. Sturdy (Psychology Department, University of Alberta)*

In black-capped chickadees (*Parus atricapillus*), male song has been extensively studied, revealing that song serves territorial and mate attraction functions; female song, however, is only recently described in this species and may be common across temperate species. Though the acoustic quality of male songs (e.g., the frequency ratio between song notes) is thought to decline outside of the breeding season, this seasonal decrease in song quality has yet to be quantified. We examined fee-bee songs from eight chickadees (five males and three females) recorded in spring and fall between the year 2012 and 2017. From each song we measured song duration, frequency parameters, and amplitude to compare the effects of sex and season on song quality using the R package warbleR. We hypothesize that: (a) song quality will be lower in the fall than the spring for both sexes; (b) male song quality will be overall higher than in females; and (c) males will have a greater cross seasonal difference in song quality than females. In males there is a greater biological importance for high quality songs during spring when mating occurs. In the spring males have previously been found to rely more heavily on their song for mate attraction and territory defence than females. Our preliminary results indicate that songs have less variation in spring than in fall, and females have more song variation than males. The form and function of female song requires further investigation. This research will fill gaps in the literature on female chickadee song.

P53 Cyber-Bullying and Cyber-Victimization in Adolescence: The Role of Sexual Orientation, Social Competencies, and Mental Health Problems*Muhammad Hassan Yar Nawab, Brenna Zatto, & Wendy L. G. Hoglund (Psychology Department, University of Alberta)*

Cyber-bullying is aggression committed via technological devices that is typically enacted by peers. Cyber-victimization refers to being the target of cyber-aggression. About, 20% to 40% of adolescents report having been cyber-victimized at some point. Cyber-victimization is associated with several negative outcomes, including higher scores on symptoms of depression, anxiety, phobic anxiety, and paranoia. Cyber-bullying and victimization are of concern during adolescence as adolescents are among the highest user groups of social media. Adolescents who identify as being part of a sexual minority group have been found to be at particular risk for cyber-victimization. Sexual minority adolescents may identify as lesbian, gay, bisexual, transgender, queer or two-spirited (LGBTQ2). It is unclear if rates of both cyber-bullying and victimization differ by adolescents' sexual orientation and whether the role of social competencies and mental health problems on cyber-bullying and victimization differ by adolescents' sexual orientation. The current study examines how rates of cyber-bullying and victimization change over two school years and relate to social competencies and mental health problems among adolescents who identify as a sexual minority or sexual majority.

The current study included 1434 adolescents in junior high school (54.5% girls; Mage = 13.49 years, SD = .89). Adolescents were in grades 7 (32.6%), 8 (31.2%), 9 (36.1%) and participated for two years. Adolescents self-reported on their sexual orientation

(8.4% identified as a sexual minority), cyber-victimization, cyber-aggression, social competencies, and mental health problems. This research will extend understanding of how experiences of cyber-bullying and cyber-victimization may differ among adolescents based on their sexual orientation.

P54 Context Situation is A Strong Predictor of English Use in Chinese Immigrants

Selina Ngu, Mia Pou, Shicheng Xu & Kimberly Noels (Psychology Department, University of Alberta)

Abstract

After arriving in Canada, Chinese immigrants begin communicating more in English; but despite living in Canada for many years, some Chinese immigrants believe they are not proficient English-speakers, while others believe they are very proficient. The current study uses data taken from 270 adult Chinese immigrants to examine if self-evaluated English proficiency is related to using English in different situations (community, work, school, friends and home) and frequency of contact with English-speakers. Preliminary results reveal strong positive interrelations between the three variables, contact being the strongest predictor of language use. Regression analysis further reveals that contact with English-speakers in the community, at work, at school and with friends is more strongly related to English self-evaluation than contact at home. Chinese immigrants that evaluate their English highly have more contact with English-speakers in public domains, perhaps because there are more opportunities to apply English skills in public domains than in private domains. These results highlight the contexts in which Chinese immigrants use their English skills. This information may be useful for English second-language programs and other immigration services that help Chinese immigrants adjust to Canadian living.

P55 When Female Leaders Gain Support: Leadership In Times of Uncertainty

Aiman Khan, Yunzhu Ouyang, and David E. Rast III (Psychology Department, University of Alberta)

Females are generally underrepresented in leadership roles due to the inconsistencies between the characteristics associated with their gender role and those associated with the leadership roles (Eagly & Karau, 2002). However, previous research suggested that during times of crisis, female leaders were more likely to attain the leadership role and gained more support from group members (Ryan & Haslam, 2007). Also, feelings of uncertainty weakened people's preference for leaders who looked more prototypical in the leadership role (Rast, Gaffney, Hogg & Crisp, 2012) and may facilitate the emergence of non-prototypical leaders, such as female leaders in this case. The present study examined how people's gender and their feelings of uncertainty influenced their support for male vs. female leaders. One hundred and twenty-three university students participated in this 2X2X2 between-subject study. After controlling for participants' identification with the university, the result revealed a significant three-way interaction of participants' gender, feelings of uncertainty, and leader's gender on support for the leader. When uncertainty was low, female participants supported the female leader more than the male leader, while male participants supported both leaders equally. But when uncertainty was high, males displayed more support for the female leader while females gave similar support for both leaders. Explanations for the result and research implications were discussed.

P56 Unknown cost: the psychological implications of animal rescue work

S. C. Belland (Honours Psychology student, MacEwan University) & Dr. E. Legge (Assistant Professor, Psychology Department, MacEwan University)

For the hundreds of thousands of animals abandoned throughout Canada each year (Canadian Federation of Humane Societies, 2017), animal rescue workers are literal life-savers. Rescuers dedicate considerable time and energy to ensure that animals are safe, healthy, and sheltered, often with minimal funding. While the positive implications of animal rescue work are often discussed, the personal costs are under-researched. Our study aims to investigate the relationship between animal rescue work and individual mental health. Workers and volunteers from animal rescue organizations throughout Western Canada will be invited to complete a self-report survey detailing their relevant roles, time spent with animals, approaches to coping and self-care, and perceived social support. The survey will also include various psychological measures of depression, anxiety, trauma, compassion fatigue, and compassion satisfaction. We predict: (1) some rescue-related tasks will have a stronger relationship with psychopathology than others, e.g. individuals who physically retrieve animals from unfavorable circumstances will experience more symptoms of trauma,

anxiety, and depression compared to those who are responsible for animal enrichment and training, (2) that individuals with lower levels of perceived support will score more highly on psychopathology measures, and (3) those who spend more time engaged in rescue work will have higher levels of both compassion satisfaction and compassion fatigue.

P57 My name, my identity: The associations between names and sociocultural adjustments among Canadian international students

Z. Y. Li, H. W. Zheng, & Y. S. D. Zhang & K. A. Noels (Psychology Department, University of Alberta)

As more international students (IS) enroll in Canadian universities, their cultural adjustment processes, including changes in identity and well-being, have gained increased attention. This study examines the names of Canadian IS (e.g. whether they decide to adopt an Anglo name and the importance of accurate heritage name pronunciation), and how names might be associated with perceived discrimination, well-being, and ethnic identifications (including the students' views toward their heritage groups) in Canada. Survey responses from 316 international university students were analyzed. Preliminary findings indicate perceived discrimination among IS is negatively correlated with their attitudes toward their ethnic groups. In turn, holding negative views toward one' ethnic group was associated with self-reported depressive symptoms. Interestingly, the results also revealed that reduced ethnic identification was related to increased heritage name use among IS in Canada. On the other hand, adoption of Anglo names is positively correlated with IS' Canadian identities. Regarding name pronunciations, some IS valued having their heritage names correctly pronounced by others, because this shows conveyance of respect and acknowledgement for personal meanings embedded in the names. The preliminary analyses imply a supportive role of names in forming cultural identities and easing sociocultural transitions among IS in Canada. Findings of this study also deepen our understanding of IS' various adjustment challenges in Canada, thereby facilitating the construction of a culturally embracing and friendly environment suited for IS.

P58 The relationship between language mindsets and communication in intercultural contexts

Danyang Li, Pengpeng Cai, Yue Tu, Nigel Mantou Lou & Kimberly A. Noels (Psychology Department, university of Alberta)

Language mindsets, the beliefs about whether language learning ability is changeable or not, are important for language development in intercultural contexts. The language mindsets differentiate two theories, including entity language theory (beliefs that language intelligence is fixed and unchangeable) and incremental language theory (beliefs that language intelligence is malleable and it can be improved if they make efforts to it). However, few studies have examined how language mindsets influence the learning and use of second language among immigrants. This study examined how language mindsets are associated with English use for immigrants in Canada whose mother language is Chinese. Chinese immigrants age over 18 (N=100) answered a questionnaire that includes language mindset scales, English anxiety and confidence, frequency, and quality of contact with English speakers. The results show that language mindsets are not significantly correlated with frequency and quality of communicating with native speakers nor the anxiety and confidence about using English. Although language mindsets are not linked to immigrants' daily communication with native speakers, it may affect their language learning motivation. Future studies should examine the relationship between language mindsets and motivation to learn second languages, which may have implications for educators to improve immigrants' long-term motivation.

P59 The Nature of Interactive Imagery as a Strategy for Association Memory

Jeremy Thomas & Jeremy B. Caplan (Neuroscience and Mental Health Institute, Department of Psychology, University of Alberta)

An effective way to remember pairings of words is to imagine both the words interacting, a technique known as interactive imagery. This technique involves an explicit instruction to form mental imagery, but what individuals actually are doing in their minds cannot be directly observed. To examine the extent that imagery is involved with the benefits of this memory technique, we measure individual imagery ability with two tests: The Vividness of Visual Imagery Questionnaire (VVIQ), which has been shown to predict ability to recall picture stimuli, and the Paper Folding Task (PFT), which involves solving complex visuospatial problems and can be scored objectively. We tested the hypothesis that imagery ability, as measured by these two tests, is involved in interactive imagery and will therefore predict greater resulting memory benefits.

Participants studied eight lists consisting of eight-word pairs each and were tested for association memory with cued recall. Half the participants were instructed to use interactive imagery partway through the memory task. Participants were subsequently

administered the VVIQ and then the PFT. Change in cued recall accuracy after the interactive imagery instruction was not correlated to VVIQ scores ($r(26) = -0.07, p = 0.72$) and mean PFT response time ($r(26) = -0.06, p = 0.74$) but was negatively correlated to PFT score ($r(26) = -0.43, p = 0.02$). These findings suggest that actual mental imagining may not underlie the advantages that interactive imagery brings. An alternative explanation may be that participants who have higher imagery ability are more likely to use imagery-based techniques with no instruction.

P60 Does mind-wandering relates to mood and stress ? A narrative review

Gladys Sina & Vickie Plourde

Objective: Mind wandering (MW) is ubiquitous and has been extensively studied in young adults. Studies have shown that MW, daydreaming, and also sluggish cognitive tempo symptoms (SCT; e.g., staring, mental foginess, confusion, hypoactivity, sluggishness, lethargy, and drowsiness) are interrelated constructs and all relate to mood and stress-related symptoms. The aims of the current review are to a) document the associations between MW (and related constructs) and mood/stress-related symptoms (e.g., anxiety and depression symptoms) in young adults and b) identify potential mechanisms underlying these relationships. **Method:** We conducted a narrative review of the literature on MW, SCT, and daydreaming, and their associations with anxiety and depression symptoms, emotion, and stress. We searched MEDLINE (Ovid) and PsycINFO® (Ovid) databases, and performed duplicate and independent screening. **Results:** A total of 559 unique records were identified, and 22 records (published between 1978 and 2017) were included. We confirmed existing evidence of the associations between MW, daydreaming, SCT and mood/stress-related symptoms in young adults (aged 18 - 30 years), although understanding of the mechanisms underlying these correlations remains incomplete. **Conclusion:** These findings are important and highlight the need for further research involving possible mechanisms of the relationship between the wandering mind and mood/stress-related symptoms.

P61 The Relation Between Parenting Styles and Working Memory in Early Childhood

Z. Hussain (Psychology Department, University of Alberta), A. A. Rahman (Neuroscience and Mental Health Institute), K. Cheema (Faculty of Rehabilitation Medicine), V. Carson (Faculty of Kinesiology, Sport and Recreation) & S. A. Wiebe (Psychology Department, University of Alberta)

There is previous research examining the association between parental influences and the development of children's EF; however, few studies have examined working memory. This study was conducted to examine the relationship between parenting styles and working memory in early childhood. This study used data from the Physical Activity and Cognition in Early Childhood (PACE) cohort, a sample of 100 children between ages 2.5 and six years who were assessed up to three times over a one-year period. Parenting styles were measured using the Parenting Styles and Dimensions Questionnaire, and working memory was assessed using the Nebraska Barnyard task. Data was analyzed using linear mixed effects regression. Working memory performance improved with age and SES (defined as household education) was a significant covariate. More permissive parenting was associated with poorer working memory, and this effect increased with age, becoming significant at age 4 years 7.8 months. Authoritarian and authoritative were unrelated to working memory. The results supported a correlation between permissive parenting working memory of children, but this relationship may only emerge with development.

P62 Implications of Mindset Manipulation on Attitudes Toward Non-Native English Speakers

Anna Gwozdz, Nigel Mantou Lou, Kimberly A. Noels (Psychology Department, University of Alberta)

This study examines how European-Canadians' attitudes towards non-native English speakers shift in response to the knowledge they have on language acquisition. In a preliminary study, a sample of university psychology students ($N = 264$) listened to an audio-recording of a non-native English speaker and responded to a series of questions measuring their attitudes toward the speaker. We found that those who were more likely to blame the speaker for their language ability were less willing to associate with the speaker. Based on these preliminary results, the present study aims to examine how priming an incremental language theory (i.e. that language intelligence can be improved) or an entity language theory (i.e. that language intelligence is fixed) may impact participants' attitudes toward non-native English speakers, in conjunction with a manipulation of the duration of time the speaker has spent living in Canada (3 months or 10 years). We predict that participants in the 10 year condition who were primed with an

incremental language theory will report more negative attitudes towards the non-native English speaker. We expect these attitudes to be reflected by higher ratings of blame and lower ratings of willingness to associate because a speaker who has had more time to improve their language intelligence, but has not done so, is presumably more blameworthy and a less desirable candidate for social interaction. The findings of this study may have implications for social acceptance of international students, teaching approaches of educators in all age groups and faculties, as well as immigration policies in Canada.

P63 Measuring the impact of negative feedback assigned to students on their electrodermal activity with Empatica E4
Tasbire Saiyera (Psychology Department, University of Alberta), Georg Schmölder (Pediatrics Department, University of Alberta), Maria Cutumisu (Educational Psychology Department, University of Alberta)

Stressful situations such as receiving critical feedback induce anxiety and can lead to increased electrodermal activity (EDA). This study aims to determine how negative feedback can impact students' arousal states. Participants (n = 10) were asked to play a poster-making game individually, designing three posters. After submitting each poster, the participants received three pieces of positive or negative feedback from game characters according to a yoked experimental study design. EDA was measured for the duration of the game using Empatica E4 wristband. Based on the amount of negative feedback they received, two groups were distinguished. Group A comprised the five people with the highest amount of negative feedback received. Group B comprised the five people with the lowest amount of negative feedback received. Skin conductance response (SCR) represents a spike on the EDA data indicating an arousal response and it was computed using Ledalab and EDA Explorer. The amplitudes of SCRs and the frequency per minute were averaged for each group. Findings showed that all amplitude averages for group A were higher than those for group B. Because higher amplitudes indicate a stronger arousal response, we can assume that the participants who were assigned negative feedback more often (Group A) experienced stronger arousal than those who received negative feedback less often. Also, results showed that higher average frequencies indicate that participants who were assigned negative feedback more often were more likely to experience higher arousal states than the rest of the participants.

P64 Living with hate: discrimination and rejection sensitivity in three immigrant generations.
F. Mohamed, L. Divine & K. A. Noels (Psychology Department, University of Alberta)

Many studies have been conducted on discrimination and their effects on people's well being, as well as their sense of belonging in a community. However, studies have not explored how discrimination based on specific parts of one's ethnicity would separately affect anxiety in social situations. This study examined how much first-generation (G1), generation 1.5 (G1.5), and second-generation (G2) immigrants are sensitive to race-based rejection based on personally experienced discrimination. We explore two types of discrimination: overt-based discrimination (OBD), i.e. racial characteristics, and covert-based discrimination (CBD), i.e. language skills. We asked university students (n=618) to rate on a scale of one to five how often they have experienced discrimination based on racial characteristics and language skills. We then asked them to complete a race-based rejection sensitivity scale. The results showed that a statistically significant relationship was present between race-based rejection sensitivity, OBD and CBD. However, OBD was a better predictor for race-based rejection sensitivity throughout all three generational categories compared to CBD. These results demonstrate that to increase immigrants' and future generations' sense of belonging in a community and reduce their anxiety in social situations, we must focus on fighting stigma associated with different racial characteristics.

P65 Oh the Humanity!: Metadehumanization and Death-Thought Accessibility
D. Lacy, M. Sharp, J. Schimel & A. Scott (Psychology Department, University of Alberta)

Previous research investigating attributions of humanness (e.g., dehumanization) suggests the human category carries a sense of value (e.g., Kteily et al., 2016). Although many researchers have investigated some of the causes and effects of humanness attribution, fewer have addressed the foundational question: Why is the human category one of value? Based on terror management theory (TMT), the current study argues the human category is valued because it separates humanity from its mortal animal nature, providing a buffer against existential anxiety and death-related thoughts. Thus, according to TMT's death-thought accessibility (DTA) hypothesis (Schimel et al., 2007), threatening one's sense of humanity should weaken its protective properties, leading to an increase in DTA. The current study investigates this hypothesis through metadehumanization, the perception one is a target of

dehumanization. Sixty-three European/European-North American participants reviewed surveys rating Westerners (e.g., Europeans, Americans, and Canadians) as less (vs. equally) human than other racial groups on the Ascent of Man scale (Kteily et al., 2015), a measure used to assess a group's perceived evolutionary status on a scale ranging from early non-human primate ancestor to modern day human. DTA was measured with a word completion task. Consistent with the hypothesis, participants who reviewed the surveys that dehumanized Westerners reported higher DTA than those who reviewed the surveys that did not dehumanize Westerners. This finding supports the claim the human category serves a death denial function.

P66 Neural correlates of intact and altered gargle calls in black-capped chickadees (*Poecile atricapillus*)

Kulatilake, K. S., Mischler, S. K., Scully, E. N., & Sturdy, C. B.

Songbirds are vocal learners that learn how to vocalize from a tutor and produce a variety of vocalizations. In particular, black-capped chickadees (*Poecile atricapillus*) use the gargle call in agonistic encounters to establish dominance within strict hierarchies. The production of these calls is mediated by a series of brain regions known as the vocal control system, and in particular, by a structure named HVC (proper name). It has previously been shown that damage to HVC leads to significant bioacoustic changes in the structure of this call in chickadees. In this study we measured immediate early gene (IEG) immunoreactivity to assess whether the auditory forebrain, specifically the caudomedial mesopallium (CMM) and caudomedial nidopallium (NCM), were similarly active when male chickadees heard either intact or HVC-lesioned male produced gargle calls. Subjects were either exposed to gargle calls produced from HVC-intact males ($n = 4$), gargle calls produced from HVC-lesioned male chickadees ($n = 4$), or pink noise within the same frequency ranges as these calls ($n = 4$). Following playback, brains were processed using immunohistochemistry to visualize IEG protein product in the auditory forebrain (CMM and NCM). We predict that birds hearing intact gargle calls will show more neural response compared to those hearing the HVC-lesioned gargle calls or the pink-noise. The main purpose of conducting this experiment is to determine the effects that the structure and complexity of gargle calls have on auditory brain regions of the male chickadee brain.

P67 Cognitive, Motivational, and Linguistic Predictors of Second Language Outcomes In Adult Learners

S.Ennest & S.Shigeoka (Psychology Department, University of Alberta)

Most people gain mastery over their first language with relative ease; however, success in second language learning during adulthood is highly varied due to pre-existing language experience. In order to further explore these individual differences, we examined: working memory, motivation, anxiety, and first language knowledge, as predictors of second language success in undergraduate students taking beginner Spanish or French language classes at the University of Alberta ($n=19$). Participants were assessed with the Peabody Picture Vocabulary Test, semantic fluency, and digit span tasks in English and their target language. The Strategy Inventory Language Learning survey (SILL) and LLAMA B&D language aptitude tests were administered in English. Overall, motivation and working memory lacked sufficient evidence to suggest that they could be used as predictors; rather they appear to contribute to language learning indirectly. Those who were extrinsically motivated to learn a second language had better learning outcomes, showing a moderate correlation with expressive second language vocabulary ($r=.302$, $p>0.05$). There was also insufficient evidence to conclude a directional relationship between anxiety and motivation. Only first language knowledge, indexed by first language semantic fluency, was correlated with target language receptive and expressive vocabulary ($r=.645^*$, $r=.644^*$; $p<0.10$). LLAMA D performance was also correlated with expressive vocabulary in second language ($r=.780^*$, $p<0.10$). Thus, the underlying ability to identify patterns and put them together to form linguistic representations (chunking) showed robust evidence of having a predictive role in language acquisition.

P68 Emotion regulation in early childhood: Trajectories and co-occurring depression and anxiety symptoms

Z. Collins, B. Zatto, & W. Hoglund (Psychology Department, University of Alberta)

Emotion regulation is an important milestone in children's emotional development. Increased wellbeing, positive peer relations and educational success are a few documented outcomes linked to emotion regulation. Conversely, there are empirically supported links between emotion dysregulation and internalizing symptoms. While research suggests there are meaningful outcomes associated with achieving emotion regulation, there is little longitudinal evidence demonstrating how emotion regulation and dysregulation emerge or change in early childhood. Fewer studies have explored how childhood depressive and anxious symptoms co-occur with

trajectories of emotion regulation and dysregulation. The current study has two aims: 1) establish trajectories of emotion regulation and dysregulation across early childhood, and 2) examine how anxious and depressive symptoms co-occur with these childhood trajectories. Participants include 443 children (47.9% girls; $M_{age} = 4.08$ years, $SD = .34$) who were assessed in the fall and spring of preschool and kindergarten. Teachers rated children's emotion regulation and dysregulation and depressive and anxious symptoms at each assessment. Confirmatory factor analysis identified constructs of emotion regulation and emotion dysregulation. Latent growth curve models will establish trajectories of emotion regulation and dysregulation, as well as explore their co-occurrence with anxious and depressive symptoms over time. The current study expects that emotion regulation will increase while emotion dysregulation will decrease across preschool and kindergarten. This study further anticipates that depressive and anxious symptoms will co-occur with poor emotion regulation. Established emotion regulation trajectories and their co-occurrence with internalizing symptoms can inform future preventive programs and best practices to support young children's healthy emotional development.

P69 Language and Ethnicity: A Thematic Analysis of the Association Between Language and Ethnicity Across Immigrant Generations

Ramanjot K. Kalher & Kimberly A. Noels (Psychology Department, University of Alberta)

People define ethnicity in diverse ways, including geographical location, religion, and cultural practices; this study examined the connection between ethnicity and language. This question, among many others, was addressed to Canadian university students who were recruited from the Psychology research participation pool. Participants were selected by virtue of their immigration status, including G1.25, G1.5, G1.75, G2, and G3 Canadians. Through a thematic analysis of responses to the question, In your opinion, is language related to ethnicity, and if so, what is the nature of that relation?, we investigated the differences in the perceived link between ethnicity and language across generations. For those who perceived a connection between ethnicity and language, four major themes were identified: connection (eg. sense of belonging and comfort), ease of communication, identity, and cultural/ethnic values. For those who viewed language and ethnicity as unrelated constructs, two themes were identified: multiculturalism (eg. multicultural societies blur the distinction between a single language and its corresponding ethnicity) and language as an acquired aspect of ethnicity. We hypothesized that earlier immigrant generations (e.g., G1.75 or less) will report the strongest connection between language to ethnicity, whereas individuals born in Canada (G2 or more) will report a weaker connection. This can be attributed to the acculturation of western values into one's identity, thereby widening the scope of language to more than one's prescribed ethnicity. This analysis will help us better understand how bicultural people define their ethnicity, and the role of language in ethnic identity.

DAY 2 INVITED INTERNAL ADDRESS

9:00 - 9:45 AM | Tory Lecture B1

What do Trajectories of Brain and Cognitive Aging Reveal about Risk for (and Protection from) Alzheimer's Disease?

Dr. Roger A. Dixon

University of Alberta

An intriguing consensus has consolidated in many quarters that “the etiology of Alzheimer’s disease (AD) has proven to be more complex than expected” (NIH, PAR-15-356). The implications of this observation have led to accelerated attention to multiple new directions in AD theory, research, intervention, prevention, and translation. Among these new approaches are five that inform the perspective and research presented in this talk.

First, recent attention has focused not only on the complexity of the outcome condition (AD and related brain disorders) but also on the pathways and predictors preceding such diagnoses. Second, there is, however, a paucity of foundational information about distributional and directional characteristics of preclinical brain and cognitive trajectories. Third, although a number of biomarker and risk factor predictors of AD have been identified, it is an open question whether these are also early (or the best) predictors of differential pre-impairment trajectories. Fourth, the etiological complexity of emerging and differentiating neurodegenerative diseases indicate that multiple modalities of early bio-signals may operate dynamically and interactively to produce differential trajectories of change. Fifth, it is conceivable that precise trajectory analyses would reveal a spectrum of trajectory phenotypes, including (a) impairment and disease-bound pathways, (b) normal brain and cognitive aging, and (c) elevated and sustained pathways of brain and cognitive resilience. In sum, by elucidating the nature and range of preclinical trajectories, as well as the bio-signal predictors determining individualized pathways, it may be possible to identify new potential prevention targets.

This work is conceived and conducted in the leveraged and coordinated context of the 25-year Victoria Longitudinal Study (NIH) and the Canadian Consortium on Neurodegeneration in Aging (CIHR).

ORAL PRESENTATIONS: SESSION 1

9:55 – 11:30 AM | Tory Lecture B1

T1 Uncertainty-evoking leader rhetoric: Current and future directions

K. Kincaid, A. Mimović, & D.E. Rast III (Psychology Department, University of Alberta)

Group members tend to prefer leaders who are prototypical of their group, and these group prototypical leaders are perceived as more effective and receive more support and trust than non-prototypical leaders. However, feelings of uncertainty can weaken this prototypicality advantage and increase support for non-prototypical leaders. The current study examines how leaders use rhetoric to evoke feelings of uncertainty in their followers, and the effects of this rhetoric on leader support and preference. Specifically, this study explores the interaction between leader prototypicality and leader rhetoric, questioning whether non-prototypical leaders can elevate support for themselves by evoking uncertainty. This talk will explore current data with a focus on future directions and proposed follow-up studies related to uncertainty-evoking rhetoric.

T2 A compensatory pressure mechanism: brain compression after intracerebral hemorrhage

Anna C.J. Kalisvaart, Cassandra M. Wilkinson, Fred Colbourne (Psychology Department, University of Alberta)

Intracerebral hemorrhage (ICH) is a devastating stroke with a 40% mortality rate. The cause of this stroke is a ruptured blood vessel leading to a rapidly expanding blood clot (hematoma). The volume taken up by the hematoma and the subsequent brain swelling (edema) increase intracranial pressure (ICP) to dangerous levels, often causing death. Our ability to predict outcome is incomplete, due to insufficient understanding of intrinsic compliance mechanisms that modulate ICP. Recently, we discovered and replicated a novel compliance mechanism whereby neurons are compressed and packed closer together for at least a week after ICH in rats, a striking finding that challenges long-held views on brain compliance. Thirty-six male Sprague-Dawley rats were given either an ICH via stereotaxic injection of collagenase (a commonly used stroke model) or a sham procedure, and euthanized humanely on either day 1, 3, or 7 after stroke. Following tissue processing, representative brain areas were analyzed via stereological analysis, an unbiased quantification method that avoids common confounds in histology to ensure the greatest accuracy. Our findings contradict the nearly two-hundred-year old Monro-Kellie Doctrine, which states that while blood and brain fluid can be redistributed to compensate for ICP, the neural cellular volume remains constant. The reduction in brain volume (~25% in places) due to cellular brain compression reaches its peak 24 hours post-ICH and begins to resolve in the week following stroke. This makes space for the hematoma and edematous fluid, thus abating ICP and vitally limiting further brain damage.

T3 Examining stress reactivity in hormonal contraceptive users

T. B. Irvine & P. L. Hurd (Psychology Department, University of Alberta)

Previous findings support the observation that hormonal contraceptive (HC) use may be linked to changes with stress reactivity and cortisol levels. There are known sex differences with regard to stress reactivity where men typically have increased salivary cortisol after stress tasks. We hypothesize that HC users will have increased stress response compared to women who do not use HC and that their cortisol levels will more closely resemble that of men. To test our hypothesis, we recruited 100 female participants using

an undergraduate research participant pool. Participants completed a questionnaire that determined their phase in their menstrual cycle and HC use. The questionnaire also assessed their daily stress as well as their stress after a mental arithmetic task. The mental arithmetic task consisted of mentally performing serial subtractions of 7 from a starting from 986, and participants gave the answers aloud. Subjects were told that both speed and accuracy were important, and that if they make a mistake, they must start over from 986. Lastly, saliva was collected and salivary cortisol levels were measured. We examined associations between HC use, stress, and cortisol levels. Increasing our knowledge of how HC usage may interact with an individual's behaviours and cognition is critical for informing women on potential effects of HC use as well as potentially developing more modernized forms of HC that do not alter female behaviour and cognition.

T4 Exploring factors that motivate students to choose science stream in ninth grade

SUSMITA SAHA (Department of Educational Psychology, University of Alberta); Past: (Department of Educational Psychology and Guidance, Institute of Education & Research, University of Dhaka, Bangladesh)

With recent attention to ensure quality science education and decrease the drop-out rate of science students, there has been a significant rise in effort to improve science text books, teacher training & teaching learning method to make science worthy of pursuing for students. This study attempts to explore the motivational factors in ninth grade science students (n=95) from 5 secondary schools in Bangladesh. The study uses 5-point likert scale to explore motivational factors through analyzing quantitative data. The study pointed out that students' intrinsic motivational factors work the most behind choosing science in ninth grade comparing with other extrinsic motivational factors (school, teacher, peer & family influence) which turned out to be responsible in consecutive order. More results indicate that, boys are more motivated by intrinsic motivation and peer influence than girls, whereas girls are more motivated by school and family than boys. Compared with private school students, public school students are more motivated by intrinsic motivational factors and school environment, while the private school students are more motivated by peer and family factor than public school students. On the other hand, teacher factor equally works for all regarding gender and school type influence.

T5 The relationship between code-switching experiences and executive functions in bilinguals

Jasmine Yao, Elena Nicoladis & Sandra Wiebe (Psychology Department, University of Alberta)

Some studies have shown that bilinguals can outperform monolinguals in cognitive tasks related to the control of attention. One possible reason for this bilingual advantage is language processing: bilinguals must constantly monitor for the appropriate language for the situation and reduce interference from the non-target language. If so, then bilingual children's attentional control should be related to their language use. Specifically, the better able they are to avoid the non-target language, the higher their attentional control should be. To test this hypothesis, we asked 55 French-English bilingual children between 4 and 6 years to tell a story in both of their languages. In the English sessions, all children used exclusively English. In the French sessions, however, some children switched into English. We therefore tested whether the degree of English use in the French session was related to their performance on a dimensional change card sort task. There was no such correlation. This result contributes to the growing literature that challenges the reasoning behind bilingual advantages on cognitive tasks. Several studies have now shown that language processing is unrelated to attentional control in bilinguals. To the extent that there are bilingual advantages on cognitive tasks, the source of those advantages may be something other than language processing.

T6 The Impact of Uncertainty on Leadership: When can Leaders Deviate from the Group?*Y. Ouyang, D. E. David III, A. M. Gaffney & M. A. Hogg*

Prototypical leaders are generally more supported and higher evaluated than non-prototypical leaders by group members. But some studies found that uncertainty can weaken group members' preference for a prototypical over a non-prototypical, prospective leader. However, other research on incumbent leaders suggested that uncertainty might increase followers' support for a prototypical leader. These contradictory findings might be due to differences in leader status, incumbent leader vs. prospective leader. The present study examined how leader status and feelings of self-uncertainty influenced people's preference for prototypical vs. non-prototypical leaders. We manipulated self-uncertainty in 210 undergraduate student participants and randomly presented them with an incumbent or a prospective leader who was either prototypical or non-prototypical of the group. The study result revealed a significant 3-way interaction of self-uncertainty, leader prototypicality, and leader status on perceived leader effectiveness and leader deviance. The prototypical, prospective leader was perceived as more effective and given more leeway to deviate from the group norms when self-uncertainty was low, but feelings of self-uncertainty weakened this prototypical leader advantage in this case. However, when presented with an incumbent leader, the prototypical leader advantage disappeared under low uncertainty but only reappeared under high uncertainty. Explanations on the result and implications of this research were discussed.

T7 The impact of infrasound on behaviour and physiology while exploring a haunted house*Tristan S Eckersley (Psychology Department, University of Alberta, Psychology Department MacEwan University), Rodney M. Schmaltz (Psychology Department MacEwan University), Nicole D. Anderson (Psychology Department MacEwan University)*

Infrasound is low frequency noise (i.e. less than 20Hz) which is inaudible to humans (*Homo sapiens*). Research investigating the effect of infrasound on humans has shown that it can produce motion sickness-like feelings. In turn, this motion-sickness could be one mechanism to explain the anomalous sensations commonly reported in locations believed to be "haunted". In the current set of two experiments, we tested whether exposure to infrasound affects behaviour while in a fearful environment. Experiment one examined whether exposure to infrasound prior to exploring a commercial haunted house affects behaviour and found that it did: participants exposed to infrasound spent a significantly shorter amount of time in the haunted house compared to those not exposed. Experiment two examined whether exposure to infrasound during the exploration of a commercial haunted house would lead to changes in physiological arousal and it did not: participants that experienced infrasound while in the haunted house did not have significantly different heart rates than participants that did not experience infrasound. These data suggest that while infrasound affects behavioural responses in a fearful environment (the amount of time spent in the haunted house) the timing of exposure is critical.

MAIN POSTER PRESENTATIONS

P70 Ethnic minorities' Heritage and Canadian identities and experiences of daily hassles*S. Suresh & K. A. Noels (Psychology Department, University of Alberta)*

This research assessed the relationship between degrees of Heritage- and Canadian- culture identification and the acculturation-related daily hassles of University students from ethnic minority backgrounds. Participants with at least one foreign-born grandparent completed an online questionnaire that measured three aspects of Heritage and Canadian cultural identification (i.e. the presence of strong relationships with group members, subjective centrality of cultural identity to self-image, and positive emotions as a result of group membership) and participants' hassles involving interactions with Heritage-group members and non-Heritage-group members. As predicted, results showed that Heritage and Canadian identification was related, respectively, to fewer Heritage group hassles and fewer non-Heritage group hassles; having strong relationships with group members was the most notable aspect of each identification type, and further strengthened these relationships. While positive emotions towards Heritage membership

was related to fewer hassles with both heritage and non-heritage members, having Heritage identity be central to self-image was associated with more hassles with Heritage and non-Heritage members. On the other hand, positive emotions towards Canadian membership was only related to fewer hassles with non-heritage members and having Canadian identity be central to self-image had no significant relationships with either type of hassles. Findings support the idea that cultural identity is multidimensional and that aspects of ethnic minorities' Heritage identity may be uniquely connected to their experiences of both struggles with Heritage-group members and discrimination from non-Heritage members. Based on these results, Heritage identity preservation may play an important role in acculturative stress and well-being management.

P71 Developing abstract representations of passives: Evidence from bilingual children's interpretation of passive constructions

Dr. Elena Nicoladis & Sera Sajeev (Department of Psychology, University of Alberta)

According to usage-based theories, children initially acquire surface-level constructions through usage before being able to abstract. Bilingual children use each of their languages less than monolinguals and might therefore show lags relative to monolingual children early in acquisition. However, when they can rely on abstract representations of constructions, they should be able to transfer the knowledge from one language to another. In this study, we test the prediction that younger bilingual children will show little signs of transfer while older bilingual children will be able to rely on transfer across languages. We focused on passive constructions. Full passives are formed in the same way in French and English. Therefore, one sign of French-English bilinguals' transfer from the other language is that they perform better than expected from the amount of exposure to each language. Previous studies have shown that abstract knowledge about passives starts to emerge around the age of three years and improves through middle childhood. In the present study, children between three and six years of age interpreted passive constructions. French-English bilingual children did so in both of their languages and English monolingual children in English. As predicted, younger bilingual children showed only weak signs of positive transfer across languages: they were less accurate than same-aged monolingual children. In contrast, the older bilingual children showed stronger signs of positive transfer, scoring just as many correct as same-aged monolinguals, despite less exposure to English. These results are consistent with the argument that children develop increasingly abstract representations of linguistic constructions over time. Once bilingual children have developed these abstract representations, they may not lag behind monolingual children, despite less input.

P72 Black-capped chickadee vocal response to varying degrees of perceived threat

Aghazadeh, S., Congdon, J. V. (Department of Psychology, University of Alberta), Skurdal, A. M. M. (Department of Biological Sciences, University of Alberta), Hahn, A. H. (Department of Psychology, St. Norbert College), Khandker, S. S., & Sturdy, C. B. (Department of Psychology, University of Alberta)

Black-capped chickadees (*Poecile atricapillus*) rely on a complex vocal communication system in order to survive. Many studies have focused on their namesake chick-a-dee call; however, non have examined the production of chick-a-dee calls in response to both avian and mammalian predators. Chick-a-dee calls contain four note types (A, B, C, and D). Previous research has demonstrated that chickadees produce more D notes per call in response to high-threat predators when compared to low-threat ones. In the current study, wild black-capped chickadees were exposed to varying degrees of threat (High/Low/Non-threat) in the form of avian and mammalian mounts in the field and their vocalizations were recorded. We predict that chickadees will produce more chick-a-dee vocalizations, with a higher frequency of D notes, to both avian and mammalian predators of high threat, in comparison to low threat and control conditions. Furthermore, we predict that D notes will be produced at a higher rate in response to avian predators than to mammalian predators as avian predators have easier access to chickadees in trees. Our findings will provide further insight into the antipredator response of black-capped chickadees to both avian and mammalian predators.

P73 When imagining them in their underwear doesn't work: digitally-delivered meditation and presentation anxiety

*Katherine J. Archibald, Thomas J. Benowicz, Paul J. Croome,
Ava C. Funkhouser, Jing Y. Han, Faizan Waseem**

Presentation anxiety is a state of nervousness that precedes or occurs throughout giving a presentation. It occurs in the majority of individuals, and is commonly endured by university students as class presentations are common components of formative assessment. Clinical treatments for presentation anxiety can be costly and inaccessible. Thus, with the increase in popularity of smartphones across university students, interest has shifted towards investigating mobile applications providing guided meditation. In our study, we used WellTrack, a mobile mental wellness application that has recently partnered with the University of Alberta. We briefly induced 40 undergraduate students with presentation anxiety by deceiving them with the belief that they were about to present to an audience. Participants in the treatment condition listened to guided meditation from WellTrack's Zen Room feature. Measurements of physiological arousal were taken from a galvanic skin response (GSR) device, and subjective ratings of anxiety were obtained using pre- and post-test self-report measures of anxiety. We hypothesized that participants who listened to the guided meditation would experience a lower overall increase in physiological arousal than controls, and that their self-reported anxiety would also exhibit a smaller increase than controls. Preliminary analyses have not shown support for either hypothesis. It is unclear whether these results suggest WellTrack is inefficient at reducing presentation anxiety, or are merely caused by a failure to induce a realistic amount of presentation anxiety in participants.

P74 Categorical processing of compound words: hyponymy as a predictor of semantic transparency

P. Spicer, D. Wong, B. Rubio, K. Perez Cruz, C. Gagné & T. Spalding (Psychology Department, University of Alberta)

Semantic transparency refers to the extent that the meaning of a compound word can be predicted by the meanings of its constituents, or that the meaning of the constituents is retained by the whole compound. Our research inquires about the relationship between semantic transparency and hyponymy, which is the extent that a word is a member of a more generic category (e.g. blueberry is a hyponym of berry; whereas, honeymoon is not a type of moon). We began by looking at how hyponymy ratings (the percentage of participants that said a compound word was a member of a category) are related to the semantic transparency ratings of the compound word as a whole (how predictable the meaning of blueberry is from blue and berry). Next, we looked at how hyponymy ratings are related to the semantic transparency ratings of the first constituent, C1, (how much blue retains its meaning in blueberry), and to the semantic transparency of the second constituent, C2, (how much berry retains its meaning in blueberry). Results show higher correlations between hyponymy ratings and semantic transparency of C2, and between hyponymy ratings and whole word transparency. Results also show that hyponymy predicts semantic transparency of both constituents and the whole compound word with the strongest predictive relationship on C2's transparency. Future analyses will examine how other variables (i.e. transparency of one of the constituents) affect the predictive relationship between hyponymy and semantic transparency of each of the constituents and of the whole compound word.

P75 The influence of anthropogenic noise and predator calls on feeding behavior in black-capped chickadees (*Poecile atricapillus*)

Ghasoub, M.A, Montenegro, C.A, Service, W. D., A, Bhardwaj, G.A, Yip, D. A.B, & Sturdy, C. BAC. (Department of PsychologyA, Department of BiologyB, Neuroscience and Mental Health InstituteC, University of Alberta)

Anthropogenic (i.e., man-made) noise has been shown to negatively affect animal communication and feeding. In the presence of predators, animals also alter their vocal and feeding behaviors. Previous studies have examined feeding behavior in response to anthropogenic noise and predator calls, but their combined impact on behavior has yet to be explored (Campbell et al., 2019). Black-capped chickadees (*Poecile atricapillus*) are known to display behavioral plasticity by adapting to ongoing changes in their environment, specifically their feeding behavior, vocalizations, and movement. The current study investigates the impact of anthropogenic noise and predator calls on behavior. Each subject was presented with peanuts (high-reward) and sunflower seeds (low-reward) during four conditions over four days: (a) noise only; (b) alternating high-threat (Northern saw-whet owl) and low-threat (Great horned owl) predator calls; (c) noise and alternating predator calls; and (d) silent control. High and low-reward foods were determined through a previous pilot study. Food consumption (by weight) was measured along with phonotaxis

(i.e., movement towards sound) and vocalizations. We predicted that the noise will mask the predator calls and consequently cause a reduction in feeding. Results show chickadees ate more peanuts (high) than sunflower seeds (low) during silence, however during all other conditions chickadees consumed more sunflower seeds. Chickadees also ate less food overall and the same amount of high and low food during noise and predator call conditions compared to noise only and predator call only conditions. Further data analyses are being conducted to determine significant differences between conditions incorporating movement and vocalizations.

P76 Why do bilinguals gesture?

Clara Lee & Elena Nicoladis (Psychology Department, University of Alberta)

When people speak, they sometimes also move their hands in meaningful ways, or gesture. Gestures have been shown to help speakers find the words they want to communicate. If this were true of bilinguals, then bilinguals might gesture more in their second (and weaker) language than in their first (and stronger) language. To test this prediction, we asked adults to do a story retell task and object arrangement task. Some of the participants were first language French speakers and second language English speakers (the French-English bilinguals) and some acquired the same languages in the reverse order (the English-French bilinguals). Surprisingly, we found that there were no significant differences between the gesture rates of French-English bilinguals and English-French bilinguals. However, there was high and positive correlation between the two tasks for all the participants. This result suggests that it is not so much proficiency but individual factors that predict how much someone will gesture.

P77 Sedentary behaviour, physical activity, and response inhibition in early childhood

L. Xu (Psychology, University of Alberta), A. A. Rahman (Neuroscience and Mental Health Institute, University of Alberta), V. Carson (Faculty of Kinesiology, Sport, and Recreation, University of Alberta), & S. A. Wiebe (Psychology, University of Alberta)

There is evidence that physical activity is related to better response inhibition while sedentary time is related to poorer performance. However, research in early childhood is limited. The objective of this study was to examine the relationships between physical activity, sedentary behaviour, and response inhibition in preschool children. This study used data from the Physical Activity and Cognition in Early Childhood (PACE) cohort, a sample of 100 children between the ages of 2.5 and 6 years who were assessed up to three times over a one-year period. Parents reported on their children's organized and non-organized physical activity and screen time. Children completed the Head Toes Knees Shoulders (HTKS) task, a child-friendly measure of response inhibition. Because this task was added for PACE follow-up waves only, data was only used from the first time children completed the HTKS task. More screen time was related to poorer response inhibition, controlling for child's age, but correlations with physical activity were non-significant. These results suggest that parents of preschool children should limit the amount of time spent in sedentary behaviour such as screen time.

P78 Exemplars who defined philosophical psychology: The public face of APA Division 24 at its first convention in 1963

Evan Li and Michael R.W. Dawson, Psychology, University of Alberta

In 1962, the American Psychological Association (APA) created Division 24 (Division of Philosophical Psychology). One of the Division's founders was the University of Alberta's Joseph R. Royce, who also organized the Division's first APA convention in 1963. We examine Royce's correspondence involving this convention, focusing on who Royce recruited for presentations. They had to be recruited because the Division did not at that time have members who could be approached with a call for papers. We discover that scholars who were approached show that Royce wanted the Division to promote European philosophical views to serve as alternatives to the positivist framework that dominated North American psychology. Division organizers also took great pains to define who was not an exemplar of philosophical psychology. One striking case concerns Henry L. Drake, who was heavily involved in the early phase of the Division's creation. However, Drake was also strongly associated with mystic Manly Palmer Hall's fringe organization the Philosophical Research Society. When this was discovered, Drake was shunned from the Division and expunged from its history. Royce did not want the new Division to be seen as a 'refuge for crack-pots' or to be 'guilty of quackery by association'. Our analyses provide insight into how Royce and other Division organizers used scholars-as-exemplars to define philosophical psychology.

P79 Behavioural responses of black-capped chickadees (*Poecile atricapillus*) to altered and intact gargle calls.*Osman-Abdallah, M., Mischler, S. K., Fox, K., & Sturdy, C. B.*

Black-capped chickadees (*Poecile atricapillus*) are songbirds whose vocal production and ecology have been widely studied. These birds produce a variety of vocalizations including the fee-bee song, chick-a-dee call, and the focus of this study, the gargle call. The gargle call produced by black-capped chickadees is used during agonistic encounters amongst individuals in order to determine dominance hierarchies. Vocalizing is controlled by a series of brain structures called the vocal control system, specifically a structure called HVC (proper name). Previous research has shown that damaging HVC has an impact on the bioacoustic properties of the gargle call. Although the notes composing the call remain relatively unchanged, they are acoustically simplified, losing a portion of frequency range. In addition it is unknown how black-capped chickadees will respond to these altered gargle calls. Therefore, for this study we investigated how chickadees respond behaviourally to the presentation of intact and altered gargle calls. We played altered and intact gargle calls to twelve chickadees (six females, six males) and measured phonotaxis, vocalizations, and general movement in response to the playback. Preliminary results indicate that black-capped chickadees do not respond to intact and altered gargle calls similarly. Considering this is an aggressive vocalization, we observed more overall movement to the intact compared to the altered gargle calls.

P80 Impact of acute exercise on hippocampal-based emotional association-memory*Danielle Olafson, Claire Scavuzzo, Patimat Makhacheva, Jeremy Caplan, Esther Fujiwara*

High intensity exercise is marked by an increase in blood-derived neuronal energy sources for oxidative metabolism, thus making more energy resources available. Hippocampal tissue is particularly sensitive to the neurogenic and metabolic enhancements mediated by exercise. During and following exercise, the hippocampus rapidly adapts physiologically by increased volume, vascularization, and metabolism. Acute exercise has been suggested to improve hippocampal functions. We will test whether acute exercise influences performance in a paired-associates memory task - remembering that two (or more) stimuli go together. Previous work from my lab has shown that people remember neutral pairs better than negative pairs. Successful negative pair learning required more hippocampal involvement. Can acute high intensity exercise reverse the learning impairment for negative pairs? Participants will perform the association-memory task before and after the exercise intervention, which will consist of cycling 25 minutes (high-intensity: at 80-90% of max heart rate; low-intensity: 50% of max heart rate or below). Main outcome will be differential memory accuracy (negative-neutral pairs). Covariates include mood and fitness measures. Several hippocampal mechanisms could drive the predicted improved negative paired-associate learning after high-intensity exercise, including an increase in blood-derived neuronal energy sources such as lactate, increase of neurotrophins and/or influx of cortisol, all of which are generated during high-intensity exercise.

P81 Child Attention-Deficit/Hyperactivity Disorder symptoms and impairment in relation to structured and non-structured physical activities*Katrina Aranas, H.B.Sc., & Yuanyuan Jiang, Ph.D.*

Attention-Deficit/Hyperactivity Disorder (ADHD) is characterized by pervasive symptoms of inattention and/or hyperactivity/impulsivity (American Psychological Association, 2013). Evidence-based treatments for ADHD are medication and behaviour therapy (American Academy of Pediatrics, 2011). However, there is widespread consensus for exploration of additional treatment options (Chronis et al., 2006; MTA Cooperative Group, 1999; Pelham & Fabiano, 2008; Smith & Shapiro, 2015; Vysniauske, Verburch, Oosterlaan, & Molendijk, 2016). There is evidence that physical activity (PA) may be an alternative or adjunct to existing treatments (Cornelius, Fedewa, & Ahn, 2017; Reeves & Bailey, 2016). Yet, little is known regarding how PA is related to reduced ADHD core symptoms and impairment (Cerillo-Urbina et al., 2015; Cornelius et al., 2017; Reeves & Bailey, 2016; Verret, Guay, Berthiaume, Gardiner, & Beliveau, 2012). Understanding how the characteristics of PA relate to positive child functioning can inform practitioners on how to most effectively recommend guidelines for PA for children with ADHD. This study examines the structure of PA (structured versus non-structured) as a potential moderator in the negative associations between PA and ADHD symptoms and impairment. It is hypothesized that structured PA, compared to non-structured PA, may be more strongly correlated with positive child functioning. Parents of children ages 6 to 11 diagnosed with ADHD are currently completing questionnaires regarding their child's PA, ADHD symptoms, and related impairment. One-way analyses of variance will examine differences in ADHD symptoms and impairment comparing structured PA with non-structured PA. Empirical and clinical implications will be discussed.

P82 Verbal semantic fluency taps vocabulary, not executive function*A. Shokrkon, N. Naqvi, R. Tariq, E. Nicoladis & S. Wiebe*

In verbal semantic fluency tasks, participants generate as many examples of a semantic category as they can within a limited time. Verbal fluency tasks are used in clinical assessments as a measure of executive function. Other research has shown that verbal fluency tasks can tap vocabulary skills. In the present study, we tested whether verbal semantic fluency tasks measure executive function and/or vocabulary in children. Fifty-four French-English bilingual children between 4 and 6 years participated. The inclusion of bilingual children allows us to test whether the results hold true in both languages. Children's vocabulary knowledge was assessed in both French and English with standardized vocabulary tests. Executive function was assessed using the Advanced Dimensional Change Card Sort task. For the verbal semantic fluency task, children were asked to generate exemplars of three categories in each language: animals, clothes, and food/drinks. Verbal semantic fluency scores consisted of: 1) the total number of correct exemplars, 2) average cluster size (i.e., the average number of words produced in each category), 3) number of switches between clusters, and 4) the percentage of unique exemplars. None of the verbal semantic fluency scores correlated with executive function. In contrast, there were strong positive correlations between verbal semantic fluency scores and vocabulary scores in both English and French. These results raise questions about the use of verbal semantic fluency in clinical assessments, at least with bilingual children. Future research can test whether these results generalize to monolingual children and to adults.

Keywords: bilingualism, verbal semantic fluency, executive function, switching, cluster

P83 Delayed and immediate actions as a function of reach-height*R. Moukhaiber & L. Cruikshank (Neuroscience and Mental Health Institute, University of Alberta), J.B Caplan & A.Singhal (Neuroscience and Mental Health Institute, University of Alberta, Department of Psychology, University of Alberta)*

An influential model of perception and action suggests that immediate, visually guided actions are driven by the dorsal visual stream, whereas delayed, memory-guided actions are also driven by the ventral stream (Goodale and Milner, 1992). Moreover, memory-guided actions are less accurate and slower than visually guided actions (Cruikshank et al., 2012). Previous studies have focused on hand actions to targets in the lower visual field such as on a table-top, even though many everyday hand actions are initiated toward objects in the upper visual field, such as reaching for a book on a shelf. The present experiment investigated hand action performance as a function of the height of the target, comparing target locations in the upper and lower visual fields. We tested the hypothesis that since memory-guided actions place more demands on perception, they should take longer to execute in the upper compared to the lower visual field. Memory-guided actions were initiated faster than visually guided actions, but were more erroneous overall. Contrary to our hypothesis, there was not an interaction between reach-height and either reaching type. This may suggest the neural circuitry underlying visually- and memory-guided actions may be more similar for targets in upper visual field.

P84 Spatial updating within and across boundaries*Xuehui Lei, Weimin Mou, Subekshya Adhikari, Jarlo Alganion, Aradhna Chawla & Lara Pereira (Department of Psychology, University of Alberta)*

Previous studies examining mental perspective taking in a remote environment showed a sensorimotor effect (i.e., better performance if imagined perspective is aligned with physical perspective) that is based on local representations (e.g., locally aligning two environments using similar room geometry), but no sensorimotor effect based on global spatial relations between two environments. In the current study, in an immersive virtual environment, participants learned objects in one room and then were blindfolded and walked to a new position in the same room (within-room condition) or in another room (across-room condition). Participants then did a judgment of relative direction task in which they adopted imagined perspectives and pointed to target objects. The imagined perspectives were globally aligned or misaligned with their physical perspectives. The results show global sensorimotor effect in both within and across-room conditions, suggesting people can update their position and heading relative to a remote space across boundaries equally well as within a boundary. Sensorimotor representation can not only be acquired by continuous updating in an immediate environment or mentally re-anchoring in the original room, but can also be obtained by updating relative to global representations.

P85 Cue combination of path integration and piloting in goal directed navigation*Yafei Qi, Weimin Mou, Xuehui Lei, Ojas Srivastava*

Previous study had shown the cue combination of visual landmarks and path integration occurs in estimating navigator's heading but not in estimating the homing vector. The current study investigated whether cue combination does not occur in estimating directions of any goals including the home. In an immersive virtual reality environment, participants were asked to learn the locations of three goal objects in the presence of distal landmarks and then physically walked a two-leg path without seeing landmarks or goals. At the end of path, participants placed all goals back in four cue conditions, single cue conditions (path integration only; landmarks only) and two-cue conditions (both cues; conflict cues). The ratio of the distance between the testing position (P) and the turning point (T) over the distance between the turning point and the three goals (G) was manipulated to be 0.5, 1, or 2. Across experiments, participants used two of the three goal locations as their home location. The results showed that the quasi-Bayesian and Bayesian cue combination in estimating the direction of the goal with the leg ratio (PT/TG) of 0.5 but not with the leg ratio of 1 or 2, replicating the finding in the previous study using different leg ratios of PT/TO. The results also showed quasi-Bayesian and Bayesian cue combination for heading estimations. These findings indicate that people estimate their self-localization using different cues and then calculate the vectors of goals (including the homing vector).

P86 Are Boys More Sensitive to Parenting? Differential Parental Influences on Executive Functions in Early Childhood*Vrantsidis, D. M. (Psychology Department, University of Alberta), Volk, A. (Psychology Department, University of Alberta), Anderson, E. (Psychiatry Department, Northwestern), Wakschlag, L. (Psychiatry Department, Northwestern), & Wiebe, S. A. (Psychology Department, University of Alberta)*

Associations between parenting and executive functions may differ by sex: sensitive parenting may lead to better executive functions for boys only. This study examined if sex moderates the effect of sensitive and harsh parenting on executive functions. Participants were 143 36-month-old children and their mothers, drawn from a prospective cohort followed longitudinally from pregnancy. Children completed a battery of tasks assessing executive functions. Mother-child dyads were videotaped interacting and coded for maternal sensitivity and harshness using the Parent-Child Observational Coding Scheme. Analyses were conducted using structural equation modelling in Mplus. Confirmatory factor analysis supported a two-factor model of executive functions corresponding to working memory/inhibitory control (WMIC) and self-control (SC) latent factors. Structural regression was used to examine whether sex moderated the effects of parenting on executive functions. Prenatal tobacco exposure status, maternal psychological distress, and parental education were included as covariates in all analyses. Sex moderated the relation between sensitivity and SC. Higher parental sensitivity was associated with better SC for boys only. Higher harshness was marginally associated with poorer WMIC for both boys and girls. Sensitivity was not associated with WMIC and harshness was not associated with SC for either boys or girls. That sensitivity was related to SC in boys but not girls is consistent with evidence that boys are more sensitive to environmental influences. Boys are at greater risk for externalizing behaviour problems, characterized by SC difficulties. Sensitive parenting could serve as a protective factor for the development of SC reducing vulnerability to develop externalizing behaviour problems.

P87 Using brain activity during study to predict future memory*Sucheta Chakravarty (Department of Psychology, University of Alberta), Yvonne Y. Chen (Department of Neurosurgery, Baylor College of Medicine) and Jeremy B. Caplan (Department of Psychology, Neuroscience and Mental Health Institute, University of Alberta)*

The subsequent memory effect refers to the difference in brain activity during study for subsequently remembered versus forgotten items and is described as predictive of memory performance. We first asked if the subsequent memory effect is indeed predictive. ROC analyses of classic event-related potential measures that show subsequent memory effects could not be used to predict (classify) subsequent memory outcome (AUC 95% CI = [0.49 0.52], chance = 0.5). Next, the multivariate spatio-temporal EEG signal during encoding trials was used to train simple pattern classification algorithms (linear discriminant analysis and support vector machines) but were able to predict subsequent memory only slightly better than chance (AUC 95% CI = [0.50 0.52]). However, in old/new recognition subsequently remembered trials are necessarily more numerous than subsequently forgotten trials. To address unequal trial counts, we created synthetic samples for the minor class (subsequently forgotten). This enabled the classifiers to

predict subsequent memory considerably better than chance (AUC 95% CI = [0.61 0.64]). Features used by the classifier exhibited substantial individual variability, and were quite different than sources (topographies) of classical subsequent-memory effects. In sum, the univariate averaged response of subsequent memory may be far from determinants of memory for individual trials and predictive modeling may reveal memory-relevant brain activity that has otherwise been overlooked.

P88 Serial recall characteristics and a stimulus set of routine activities

Felicitas Kluger, Jeremy B. Caplan (Psychology Department, University of Alberta)

Lashley (1951) noted that much of behaviour involves memory for serial-order. However, the vast majority of studies of serial-order memory use randomly generated lists. On the other hand, Script Theory (Schank & Abelson, 1978), the study of routine and familiar activities, has focused on memory for scripts which are seen as organized knowledge stores consisting of routine activities (Bower, Black, & Turner, 1979). Surprisingly, memory for scripts and routine activities has never been investigated with the serial recall paradigm, and a stimulus set of familiar routine activities appears to be missing. Combining research on scripts and serial recall, we present a new stimulus set of routine activities. Participants rated the procedures for characteristics like familiarity, and performed serial recall so that we could characterize the serial-position effects, as well as overall memory difficulty. We found a typical serial position curve with content-wise (participants recalling the steps of the activities in their own words) strict (recalling each steps in the right place within the activity) serial order recall, and an inverted U-shaped serial recall curve with content-wise lenient (recalling the steps as part of the activity but not necessarily in the right order) serial order recall. For verbatim (word by word) recall, both the strict and lenient serial order curves deviate from the typical serial position function and are notably flat. These findings suggest that memory for routine activities is influenced by type of recall and additional factors. We discuss theories on scripts and serial recall and compare serial recall characteristics of routine activities to serial recall characteristics of different stimuli.

P89 A meta-analysis of the age-related decrease in mind wandering frequency: identifying methodological and socio-demographic moderators

Magda Jordão (Center for Research in Neuropsychology and Cognitive Behavioral Intervention, Faculty of Psychology and Educational Sciences, University of Coimbra, Portugal), Fernando Ferreira-Santos (Laboratory of Neuropsychophysiology, Faculty of Psychology and Education Sciences, University of Porto, Portugal), Maria Salomé Pinho (Center for Research in Neuropsychology and Cognitive Behavioral Intervention, Faculty of Psychology and Educational Sciences, University of Coimbra, Portugal), Peggy L. St. Jacques (Department of Psychology, University of Alberta, Canada)

In our daily life, we frequently experience mind wandering, that is, a shift of attention from an external task to internal contents (e.g., memories). Previous research has consistently shown an age-related decrease in mind wandering frequency, but several methodological and socio-demographic factors have been pointed out as possible moderators of this effect. Disentangling these factors is important to assess the size and consistency of the age-related decrease and to identify key variables that require control in future research. To pursue these aims, we conducted a meta-analysis of age-related differences in mind wandering frequency, comparing healthy younger and older groups. Based on 44 effect sizes, we found a large decrease in mind wandering frequency in older adults, and no evidence of publication bias. Several variables moderated the size of this age-related decrease so that it was more pronounced for probe compared to self-caught procedures, when task-related interfering thoughts were measured separately, when visual masks were presented, as the proportion of targets increased, and as older participants and fewer women were included in older adult groups. Our findings highlight that task instructions and age-related differences in motivation are important factors to consider in mind wandering research, and we will discuss how open-ended response methods can be used to control for these factors.

P90 Association between physical activity and response inhibition in early childhood*V. R. Gumnur (Psychology Department, University of Alberta),**A. A. Rahman (Neuroscience and Mental Health Institute, University of Alberta), V. Carson (Faculty of Kinesiology, Sport, and Recreation, University of Alberta) & S. A. Wiebe (Psychology Department, University of Alberta)*

The early years are marked by notable changes in cognitive abilities, with response inhibition being one such vital neurocognitive function. Previous literature on adolescents and adults found that aerobic exercise promotes better response inhibition, whereas sedentary behavior had a negative influence. Our current study used data from the Physical Activity and Cognition in Early Childhood (PACE) cohort, a sample of 100 children between ages 2.5 and 6.0 years who were assessed up to three times over a one-year period. We examined the association between physical activity/sedentary behavior and response inhibition by assessing children's performance in a task with a Go/No-Go paradigm, while data regarding their daily physical activity was collected through actigraph measures and parent reports. We used multilevel models to look at growth trajectories of response inhibition over 3 waves of data. Both objective and subjective measures of sedentary behaviour, but not physical activity, predicted children's inhibitory skills; however, unexpectedly, more sedentary time was associated with better response inhibition. These findings could indicate that sedentary time improves response inhibition in young children; however, because the study's observational design, causal conclusions cannot be drawn. Conclusions from this study could help inform strategies, including appropriately planned daily physical activity and sedentary time that could provide an optimum environment for children to hone skills needed to function in later stages of life.

P91 Brainwaves on a Skateboard: Exploring Laterality in Skateboarders using Electrophysiological and Behavioral Measures.*Robles, D. (Psychology Department, University of Alberta), Wlasitz, N. (Psychology Department, University of Alberta), Bartlett, N. (Psychology Department, University of Alberta), Hurd, P. (Psychology Department/Neuroscience and Mental Health Institute, University of Alberta), Mathewson K. (Psychology Department/Neuroscience and Mental Health Institute, University of Alberta).*

Having achieved success recording EEG signals under highly ecologically valid environments (e.g., Scanlon et. al., 2016, 2017, 2018), our laboratory began a collaboration with Dr. Pete Hurd's lab in order to explore handedness/footedness/eye-ear dominance with EEG in a population of skateboarders. Using an electronic skateboard, 17 participants rode around a sports track in their preferred and non-preferred stances and in both clockwise and counterclockwise positions. Participants completed an auditory oddball task while we recorded EEG signals from 16 electrode sites as well as several handedness and motoric laterality assessments. Using the oddball task, we are predicting that participants oddball-related P3 will be affected in the non-preferred stance when compared to their preferred stance. Additionally, we are performing time-frequency analyses to probe whether footedness or eye/ear lateralization is related to asymmetries in hemispheric alpha rhythms in order to link alpha lateralization and motoric dominance.

P92 A neurocognitive approach to the identification of superior readers and mathematicians*G. K. Georgiou, O. Bulut, & K. Dunn (Department of Educational Psychology, University of Alberta)*

Several studies have established that Planning, Attention, Simultaneous, and Successive (PASS) neurocognitive processes are significant predictors of reading and mathematics. However, we still do not know (a) if PASS processes can be used to accurately select superior readers and mathematicians, and (b) what scores in these processes would lead to superior performance. To answer these questions, we performed a criterion-related profile analysis using the Cognitive Assessment System standardization sample (n= 1210). Results indicated that to become superior readers children should achieve a standard score higher than 133 in Simultaneous and 109 in Successive processing. To become superior mathematicians, children should achieve either a score higher than 128 in Simultaneous and 114 in Successive or a score higher than 115 in Simultaneous, 113 in Successive, and 120 in Planning. Taken together, these findings suggest that PASS processes can provide an alternative approach to the identification of superior readers and mathematicians.

P93 Significance of the single-note 'tseet' call on threat perception in black-capped chickadee (*Poecile atricapillus*)

Khandker, S. S., Congdon, J. V. (Department of Psychology, University of Alberta), Skurdal, A. M. M. (Department of Biological Sciences, University of Alberta), Hahn, A. H. (Department of Psychology, St. Norbert College), Aghazadeh S., & Sturdy, C. B. (Department of Psychology, University of Alberta)

In the wild, chickadees produce vocalizations in response to predators depending on the perceived level of threat and the location of the threat. While the 'chick-a-dee' call is used as a mobbing call to recruit con- and heterospecifics to attack the nearby predator, the single-note 'tseet' call is used as a contact call, providing warning about predators within eyesight but not in the immediate area (e.g., flying overhead; Hurd, 1996). Additionally, tseet calls are discreet as they are produced without compromising the position of the chickadee. In the current study, black-capped chickadees (*Poecile atricapillus*) were exposed to high threat, low threat, and non-predator perched avian and mammalian mounts to determine whether chickadee responses to mammalian predators correspond with responses to avian predators. Previous research has demonstrated that tseet calls are used to warn others about overhead predators as opposed to mobbing calls used to warn about avian predators that are perched; however, the context in which tseet calls are produced to mammalian predators on the ground is unknown. We predicted that chickadees would produce more tseet calls to mammalian predator mounts, compared to perched avian predators, as mammals may be considered less maneuverable due to being ground animals, thus a less imminent threat than avian predators. In addition, we predicted that chickadees would produce fewer tseet calls to high-threat avian predators, but exposure to these mounts would result in increased mobbing calls. The results will provide insight into the intricate chickadee antipredator warning system, revealing information about songbird communication.

P94 Early life stress in telomere length attrition and growth rate in convict cichlids

Kennedy L. Fjellner (Psychology Department, University of Alberta), Suzy C.P. Renn (Biology Department, Reed College), Peter L Hurd (Psychology Department, University of Alberta).

Early life exposure to stress can have life-long effects on an organism. These effects may be detrimental, or they may be adaptive if they allow the organism to develop an adult phenotype which better matches the environment predicted by the stressor. In convict cichlids (*Amatitlania nigrofasciata*), early life stress, particularly social or predation stress can influence a variety of traits including growth rate and stress coping style. Growth rate and stress coping style are key factors in determining future life-history strategies. Higher growth rates and the stress hormone cortisol have been associated with increased oxidative stress, which is also linked to telomere shortening. Convict cichlid fry were separated into control and stress groups. The stress group was then exposed to a simulated predator stress procedure. Both groups growth rates, changes in telomere length, and stress responsiveness were assessed. The results of this experiment should reveal a fundamental aspect of the mechanism of stress coping and the potential long-term physiological costs on traits such as telomere dynamics.

ORAL PRESENTATIONS: SESSION 2

1:00– 2:20 PM | Tory Lecture B1

T8 Masculinity Threat and Language Studies

Yekta Sharafaddin-zadeh, Kathryn E. Chaffee, Nigel Mantou Lou, & Kimberly A. Noels (Psychology Department, University of Alberta)

Men are underrepresented in language related fields. In a previous study, men in a foreign language class differed from men not in such classes in both motivational factors and masculine role beliefs. Social identity threats to men's masculinity through false feedback regarding their identity have been shown to lead men to protect their manhood through hyper-masculine behaviour. False feedback has been administered using fake personality tests where men are told they have feminine characteristics. In another study, following a masculinity threat, men with traditional masculinity beliefs reported less interest in foreign language classes and learning. In this current study, 192 men's attitudes, expectancies, abilities, and values were measured following a masculinity threat in order to assess the shift in their interest toward language studies and mathematics. We predicted that men with traditional beliefs about masculinity would place a lower value on language and a higher value on math. Having a more traditional belief about masculinity was associated with more negative attitudes about language learning. We observed a statistically significant interaction between gender beliefs and masculinity threat on math abilities such that men with traditional beliefs rated themselves higher on their mathematical skills following a threat. Based on these results we may be able to identify why men with traditional beliefs toward masculinity are underrepresented in language fields.

T9 Leadership and Identity Disruption

Syfers, L., Gaffney, A.M., & Rast, D.E. III.

Generally, people prefer leaders who are representative of their group identity (Hogg, 2001) and leadership is fundamentally tethered to group identification. Under high uncertainty, however, the preference for prototypical leaders over non-prototypical leaders weakens, or disappears completely (Rast et al, 2012). An experiment (N =191) expanded previous research by demonstrating a similar effect while clearly linking it to identification. Preference for the prototypical leader increased as identification strengthened, and this effect was only significant under high uncertainty (95% C.I. [-.75, -.03]). Conversely, preference for the non-prototypical candidate decreased as identification strengthened, although this effect was only significant under low uncertainty (95% C.I. [-.94, -.04]). Results indicate that, consistent with previous research, under high uncertainty there is less bias toward prototypical leaders. Given the tumultuous political climate in North America, many groups are faced with uncertainties about their future. Thus, it is important to understand the implications of uncertainty in group-based leadership processes.

T10 Intracerebral hemorrhage models: to use anesthetic or not?

Cassandra M. Wilkinson (1), Anna C.J. Kalisvaart (1), and Frederick Colbourne (1, 2) (1. Psychology Department, University of Alberta, 2. Neuroscience and Mental Health Institute, University of Alberta)

Intracerebral hemorrhage (ICH), a bleed in the brain, is a devastating stroke. Animal models are used to investigate mechanisms of injury and evaluate potential therapies. Current animal models use stereotaxic surgery, which requires that animals be anesthetized. Isoflurane is a commonly used general anesthetic, but it often alters an animal's physiology. For example, isoflurane can decrease blood pressure and temperature, increase blood glucose, and exert various neuroprotective effects, all of which impact outcome after ICH. To improve our model of ICH, we tested a method to give an ICH to conscious, freely moving animals, which has not been done before. This will better mimic a stroke patient's physiological condition while avoiding potentially problematic interactions between anesthetics and treatments. To accomplish this, we implanted a brain cannula over the site of the injection – a common neuroscience technique. After allowing time for recovery, we infused collagenase into the brain using the internal cannula while the animal was awake, causing striatal blood vessels to rupture. We are now using this model to investigate the effects of isoflurane on ICH. First, we examined how isoflurane impacts bleeding, temperature, activity, blood glucose, and pain. Initial data shows conscious animals have more bleeding than controls, probably because blood pressure is higher in awake animals. Next, we will assess the effects of isoflurane on behavioural deficits and total lesion volume. If we continue to observe differences between awake and anesthetized animals, it highlights ways that the current approach may be confounded, resulting in more limited validity.

T11 Effect of Barriers and Distance on Song and genetic Divergence in a Highland endemic Songbird

Andrés Camacho-Alpízar (Psychology Department, University of Alberta; Escuela de Biología, Universidad de Costa Rica), Gilbert Barrantes & Eric J. Fuchs (Escuela de Biología, Universidad de Costa Rica)

Populations of animals may become isolated by distance, geographic barriers or both. Isolated populations often diverge in behavioural and genetic traits as a result of reduced inter-population gene flow. In songbirds, song is a learned behaviour subject to variation across populations, which can result in the formation of song dialects. The spatial distribution of song dialects could also affect dispersal and consequently gene flow patterns. Highland species commonly present naturally fragmented distributions that confine populations to the highest mountain peaks, isolated by mountain passes and distance. The endemic Timberline wren (*Thryorchilus browni*) inhabits the highlands of Costa Rica and western Panama. Using microsatellites and song recordings we studied the effect of a geographical barrier and distance on song and genetic divergence among four populations in Costa Rica. The presence of a lowland mountain pass resulted in the largest genetic and vocal differences among populations, likely due to reduced gene flow. We found that individuals shared more song elements with individuals from their same population than with individuals from other populations. Cultural drift and assortative mating by females selecting songs from their own population likely accentuates the effect of isolation and limited gene flow between populations. This pattern of population divergence has been found in other Neotropical highland birds, but over larger geographical scales, and over longer periods of isolation. We conclude that mountain passes and distance both reduce gene flow between populations in recently-isolated highland species with restricted distributions.

T12 Self-perceptions of social and academic competence among children with and without Attention-Deficit/Hyperactivity Disorder

Minyeong Cho (Psychology Department, University of Alberta) & Yuanyuan Jiang (Educational Psychology Department, University of Alberta)

Past studies have suggested that children with Attention-Deficit/Hyperactivity Disorder (ADHD) possess a Positive Illusory Bias (PIB) with respect to their competence in various areas, such as the social and academic domains (e.g. Owens et al., 2007). More recent research indicates however that children may not have such positive illusions (e.g., Jiang & Johnston, 2017), and instead have self-perceptions that not different from children without ADHD. This study examined whether children with ADHD have self-perceptions that are comparable to children without ADHD in academic and social domains. Forty-three children with and without ADHD, and their parents, completed questionnaires regarding children's competence in various domains. We predicted that the self-perceptions of children with ADHD would not be significantly different from those of children without ADHD. As expected, a one-way ANOVA found no significant differences in self-perceptions between ADHD and non-ADHD groups across social and academic domains. Bivariate correlations found that child self-perceptions were marginally significantly correlated with parent perceptions for children, $r = .31$, $p = .06$. Interestingly, academic perceptions between parent and child were significantly correlated, $r = .38$, $p = .02$, whereas self-perceptions and parent perceptions were not significantly correlated for the social domain. Initial findings support recent research demonstrating that children with ADHD may not have a PIB, and suggest that children in general may have insight regarding their social and academic competence. Further data is continuing to be collected and will be presented at the conference.

T13 "Hello from the other side": How leaders can improve relationships between groups

C. Kershaw, & D. E. Rast III (Psychology Department, University of Alberta)

Leaders are often expected to improve relationships between groups. Drawing on intergroup leadership theory, we examined how leaders can employ different social identity rhetoric to improve the relationship between two contentious subgroups. The impact of such rhetoric is crucial for group members who would otherwise be ardent defenders of their subgroup and most likely to have negative attitudes toward other groups. Student participants ($N = 178$) reported their identification with their group and were then told their group was going to consolidate into a single group with a relevant outgroup. Participants read a vignette from a supposed in- or outgroup student leader who was assisting with the consolidation process and the leader promoted either a collective identity or intergroup relational identity. Participants reported their attitude toward both groups. Results supported intergroup leadership theory by demonstrating an outgroup leader whose rhetoric emphasized an intergroup relational identity, compared to a collective identity, increased positive evaluations of the outgroup for group members who highly identified with their ingroup. That is, a leader from a contentious group context could improve intergroup relations by emphasizing an intergroup relational identity even among group members most likely to dislike other groups. Implications for how leaders can effectively reduce bias in nested intergroup contexts and its applicability for many real-world situations will be discussed.

ORAL PRESENTATIONS: SESSION 3

2:30– 3:50 PM | Tory Lecture B1

T14 Causal attributions in different cultural contexts: A case of US and Chinese high school novice English language teachers

Xijia Zhang (Psychology Department, University of Alberta), Prof. Kimberly Noels (Psychology Department, University of Alberta), Prof. Yuko Butler (Graduate School of Education, University of Pennsylvania)

Studies about language teachers' attributions usually focused on how teachers from western and eastern countries may differ in their attributions of students' language learning outcomes. They often failed to describe cross-cultural similarities and individual differences of these teachers' attributions. Therefore, the present case study compared attributions of two US and two Chinese high school novice English language teachers in order to understand similarities and differences of these four teachers' attributions. Using interviews and classroom observations, the study found that although the two Chinese teachers and the two US teachers do differ significantly in terms of their attributions, they also share many characteristics in (a) the learning outcomes that trigger their causal-seeking behaviors, (b) the causal antecedents of their attributions, and (c) their actual causal ascriptions. In addition, these teachers' attributions exhibited individual differences in all three aspects identified above. In this case, it seemed that cultural context is only one of numerous factors that impact language teachers' attributions. Certain parts of their attributions are immune to cultural influences and sometimes their attributions are more affected by specific teaching and learning situation they are dealing with. As a result, cross-cultural comparisons of language teachers' attributions may need to consider cross-cultural similarities, cultural differences and individual differences of language teachers' attributions. Treating teachers working in the same cultural context as a homogeneous group may lead to oversimplified understandings of their attributions.

T15 ER α expression in the medial amygdala influences socially monogamous behavior of male prairie voles in a field setting

*Connor T. Lambert (Department of Psychology, University of Alberta)
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Mammals display wide variation in social and mating systems both among and within species, and variations in the neurobiology underlying social behavior are understood to be key in explaining these differences. The mechanisms of monogamy have attracted special interest due, in part, to the rarity of monogamy in mammals and its occurrence in humans. While laboratory experiments have demonstrated that relatively low expression of estrogen receptor alpha (ER α) in the medial amygdala (MA) of the brain is linked to behaviors indicative of social monogamy in male prairie voles (*Microtus ochrogaster*), this relationship has not been experimentally examined in a field setting. We tested the hypothesis that ER α expression in the MA influences the monogamous behavior of male prairie voles in an ecologically relevant setting. We created replicate, semi-natural populations of prairie voles during 2016 and monitored their behavior for 15 weeks. All males used in the experiment were bred for high ER α in the MeA, and RNAi was used to inhibit ER α in half these males for comparison. We found that males with lowered ER α had stronger associations with one female, smaller home ranges overlapping fewer females, and greater home range overlap with one female than males with higher ER α . These findings suggest that ER α in the MeA is an ecologically relevant mediator of affiliative behavior and may be important in the evolution of monogamy in the prairie vole.

T16 Reactive approach motivation (RAM) mutes sensitivity to negative outcomes: Why anxious uncertainty can lead to risk-taking.

Josh Leota & Kyle Nash (Department of Psychology, University of Alberta)

A number of experimental studies and real-world events demonstrate a puzzling phenomenon—anxious uncertainty, which primarily inspires caution, often increases risk-taking. This fundamental motivational process may lead to undesirable outcomes within certain domains. For example, gambling losses may induce anxious uncertainty, which leads to increased preference for risk-taking and thus more losses, perpetuating the cycle. We conducted four studies to test whether this puzzling phenomenon is due to the regulation of anxious uncertainty via reactive approach motivation (RAM), which makes people less sensitive to negative outcomes. In Studies 1 and 2, experimentally manipulated anxious uncertainty led to increased preference for risk-taking. In Study 3, experimentally manipulated approach motivation caused increased preference for risk-taking. Finally, using EEG in Study 4, anxious uncertainty caused increased approach-related brain activity and reduced neural sensitivity to negative outcomes. Importantly, approach-related brain activity mediated the effect of anxious uncertainty on reduced neural sensitivity to negative outcomes. These results support a RAM interpretation of particular instances of risk-taking. Implications of this research could lead to identifying potential dispositional and situational risk factors for harmful risk-taking, such as problem gambling. Critically, if anxious uncertainty can lead to problem gambling then anxiolytic interventions may help curb this behavior.

T17 Reducing the Halo Effect by Stimulating Analytic Thinking

J. Li, W. Wen, C. Huang & L. Wang (Faculty of Psychology, Beijing Normal University), G. K. Georgiou (Department of Educational Psychology, University of Alberta)

Halo effect is one of the most common threats to internal validity or inter-rater reliability. Yet, the procedures (statistical correction or rater training) that have been used to reduce its deleterious effect on decision making have produced questionable findings. In the present study, we examined the role of an alternative approach in reducing the halo effect, namely stimulation of analytic thinking. We also investigated whether the relevance between judged attributes and central traits influences the size of the halo effect. Results of three studies with young adults indicated first that high relevance attributes yield a larger halo effect than low relevance attributes. Second, irrespective of the relevance between central traits and judged attributes, the halo effect was significantly reduced when analytic thinking was activated with Raven's Standard Progressive Matrices in Study 2 and with a writing task in Study 3 prior to making a judgement. Taken together, our findings suggest that priming analytic thinking ahead of a judgmental task can effectively reduce the halo effect.

T18 Trigger Happy!: An Exploration of Remotely Defined Event Related Potentials

Eden X. Redman (Department of Psychology, Faculty of Science, University of Alberta), Jonathan W. P. Kuziek (Department of Psychology, Faculty of Science, University of Alberta), Kyle E. Mathewson (Department of Psychology, Faculty of Science, Neuroscience and Mental Health Institute, Faculty of Medicine and Dentistry University of Alberta)

Electroencephalography (EEG) records neural activity along the surface of the scalp. Averaged activity following specific stimuli is used to create an event-related potential (ERP) which requires the EEG data to be marked to indicate stimulus onset. However, unplanned stimuli or events are difficult and imprecise to account for in the EEG data due to their unexpected nature. Here we propose a method to account for both controlled and unexpected stimuli by recording stimulus presentation using a GoPro camera. Participants completed a visual oddball paradigm involving the presentation of rare, blue stimuli and common, green stimuli. Participants would respond to the presentation of the rare stimuli but withhold a response following common stimuli.

Each experiment was recorded using a GoPro camera. The onset of each stimulus was then computed in two ways, by adding markers directly into the EEG recording and by using the recorded video to determine stimulus onset. These times were then used to create ERPs for both common and rare stimuli, allowing us to directly compare the efficacy of traditional EEG markers and the recorded video times. Based on the results of a previous study, the recorded GoPro times were adjusted to better match the EEG marker times.

Following these adjustments both the marker and video stimulus times produced nearly-identical ERP waveform typical of an oddball task. A P3 response, a positive-going deflection following presentation of the rare stimuli, was observed using both sets of stimulus times. These results suggest that a GoPro video recording may be used to understand neural activity following both experimental, and unexpected, stimuli.

T19 Gone Too Far? How Uncertainty Influences Support for Highly Entitative Extremist Groups

A. C. Ma, D. E. Rast III, (Department of Psychology, University of Alberta) & A. M. Gaffney (Department of Psychology, Humboldt States University)

Uncertainty identity theory predicts that in times of high uncertainty, people will tend to become more supportive of highly entitative groups, even to the extent of supporting extremist ones. In order to further examine the relationship between entitativity and extremism, we manipulated uncertainty in 194 undergraduate student participants and presented them with a student protest group described as either high or low in entitativity and extremism. We find a significant three way interaction, $F(1, 186) = 5.72, p = .017, \eta^2 = .030$. Participants' support for exit exams, the issue that the group was protesting against, increased only under high uncertainty, high entitativity and high extremism. In other words, uncertain participants were more likely to dissent from the highly entitative extremist group's message, even though doing so may go against their own self-interest. Our findings are discussed in terms of self-categorization theory and group polarization.

DAY 2 KEYNOTE ADDRESS

4:00 - 5:00 PM | Tory Lecture B1

Challenges and Insights from a Comparative Approach to Comparative Psychology

Dr. Jennifer Vonk

Oakland University

I will address the importance of testing multiple species to provide a full account of the evolutionary processes underlying cognition, noting the challenges of such an approach. I will present research tapping into general cognitive processes, such as behavioral flexibility, with a focus on large carnivores. I will also address work designed to test the species-specific capabilities of various other species, and address how captive and domestic environments may shape cognition.

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